Module BMPF7326

Metaphors or Mechanics?
An Exploration of Learning Preferences in AuDHD Adult Singers

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Project Proposal

The Context

The study will take place at my UK-based private voice studio with seven adult singing students who identify as both autistic and ADHD (AuDHD). Inclusivity is growing within music education (Xin *et al.*, 2023; Mommo, Sutela and Mononen, 2025), however research rarely investigates the support methods for AuDHD singers. Voice pedagogy traditionally delivers a varying mix of technical explanations metaphor (Pfordresher, Halpern and Greenspon, 2015; Brown, 2023), yet the field lacks studies about AuDHD responses to these educational methods. The research study will explore how adult AuDHD singers experience these educational methods while creating new teaching strategies through collaborative work.

The Justification

As an AuDHD singer and pedagogue of over twenty years, I frequently notice how personal learning preferences impact students' confidence, progress, and overall enjoyment of the learning process. Current pedagogical approaches stem from neuronormative ideals (Azuka *et al.*, 2024), leaving neurodivergent students to adapt to the teaching rather than the teaching being adapted for them. I am seeking to amplify neurodivergent voices and explore how we might build more flexible and inclusive learning models.

Using principles of Participatory Action Research (PAR) will enable participants to create and evaluate the process with me (Galletta and Torre, 2019; Wood, 2019). Rather than finding one superior method, the aim is to develop a learning approach which students can direct and adapt to their needs.

The Intended Impact

This study aims to develop a nuanced understanding of AuDHD learning preferences and ways the teacher might adapt their practice accordingly. Participants may develop better understanding of their learning style and confidence to self-advocate in lessons. Personally, I wish improve my ability to identify, respond to, and support diverse learning styles more fluently in real-time to enhance both the inclusiveness and efficacy of my teaching. More broadly, this research aims to contribute to the neuroaffirmative education discourse by showing how centring neurodivergent voices in the pedagogy can improve learning outcomes for all.

The Outlined Intention

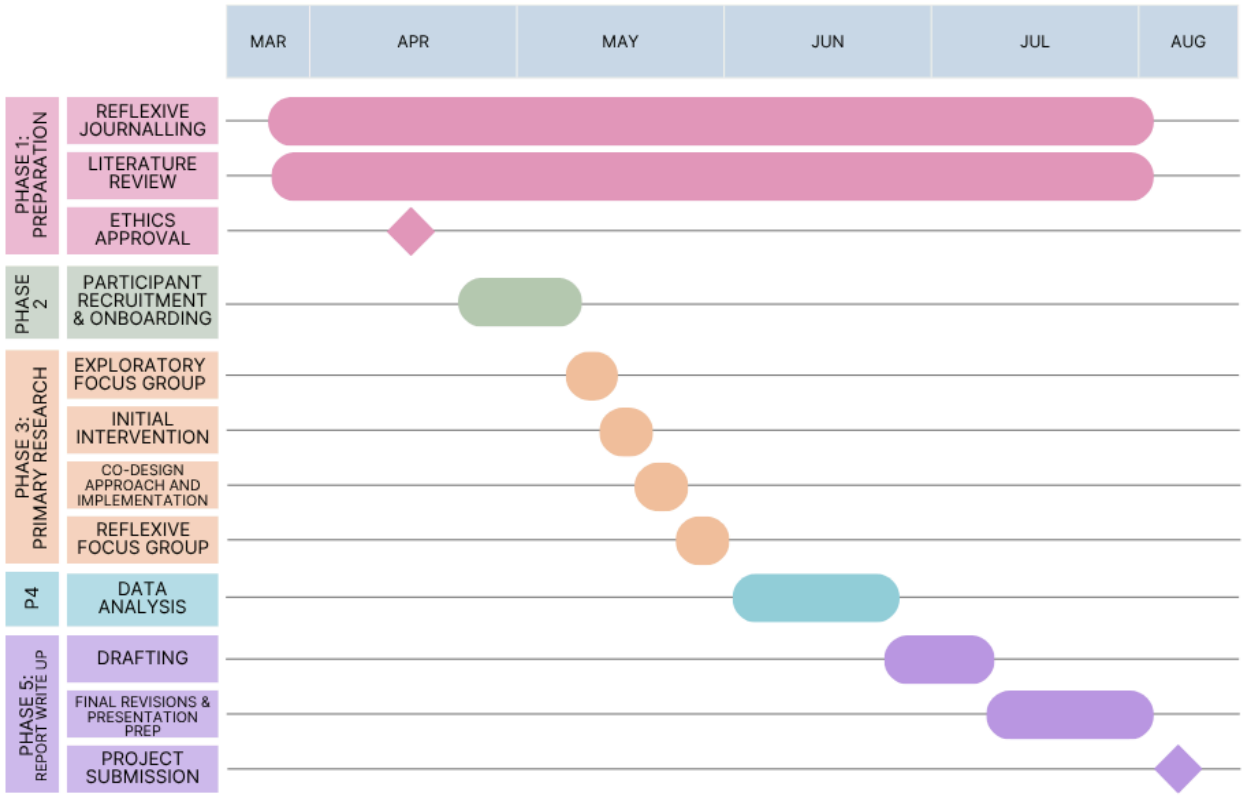


Figure 1. Project Timeline

The study will run in five phases (Figure 1):

1. Focus group - participants will evaluate their previous learning experiences as AuDHD learners.
2. Initial Intervention - I will teach the same vocal concept through both imagery and technical explanation during two different lessons. During lesson one participants determine the order of presentation but lesson two will reverse the order to counterbalance sequencing effects (Brooks, 2012).
3. Collaborative focus group - Participants will reflect on both methods before co-creating a new approach.

4. Intervention 2: The newly developed teaching method will be presented by me during the co-designed session.
5. Final Focus Group: Participants analyse the new teaching approach while discussing future adaptations.

The data will be interpreted through Reflexive Thematic Analysis (Braun and Clarke, 2022), and I will maintain a reflexive journal to track my position as both teacher and researcher (Finlay, 2002; Berger, 2015).

Ethics and Insider Research

As an AuDHD vocal coach researching within my teaching practice, I acknowledge the ethical complexities of insider research. Inherent power dynamics require careful management (Mercer, 2007), especially as some participants will be current students. To mitigate this, participants will receive assurance that their involvement, feedback, and criticism will not impact their lessons or their relationship with me. I will establish a safe and respectful space whilst journaling reflexively will generate awareness about my impact on the process (Finlay, 2002; Berger, 2015).

Expected Learning Outcomes

This project aims to:

1. Deepen my understanding of how adult AuDHD singers respond to different teaching styles, particularly imagery-based and technical approaches.
2. Develop my skills in PAR and Reflexive Thematic Analysis, refining my ability to design and deliver ethically sound, inclusive research.
3. Enhance my capacity for insider reflexivity and critical self-awareness, especially in balancing roles as both teacher and researcher.
4. Co-create more responsive, accessible vocal pedagogy that centres neurodivergent voices.
5. Strengthen my ability to translate research into practical strategies that support neurodivergent learners and inform my teaching practice.

Introduction

This study explores how adult singers with combined traits of autism and ADHD, often referred to in neurodivergent communities as AuDHD (Cannon, Hernández-Saca and Johnson, 2024), prefer to learn in their singing lessons. Whilst AuDHD is not a clinical term, it is widely used by those who experience the combined traits of both conditions (Craddock, 2025), and will be used throughout this study to maintain the neurodivergent voice.

My experience as a private voice coach who is both AuDHD and works with neurodivergent students has shown me that traditional vocal pedagogy seems to depend mainly on two dominant explanation methods which include metaphor (imagery-based) and mechanics (technical explanation) (Jestley, 2011; Jaber, 2020; Brown, 2023). Although these approaches have been studied across several groups, there seems to be a gap in recent literature exploring how effective these strategies are for neurodivergent learners (Bailey and Petty, 2025; Panwar and Lata, 2025).

Existing literature suggests that autistic and ADHD students face specific learning challenges including differences in cognitive processing, working memory, and sensory sensitivities (Tse *et al.*, 2022; Buckley *et al.*, 2024). Despite much being written about these traits in broader educational contexts, voice pedagogy has yet to fully explore how teaching methods should adapt to better support neurodivergent students (Hopkins, 2024).

This study explores whether adult AuDHD singers prefer imagery-based learning, technical explanations, or if they prefer a different approach that closely considers their individual learning styles. Participants will take two singing lessons (imagery-based and technical explanation), followed by a third lesson that they will co-design. By incorporating elements of PAR, this study will also explore how inclusive, participatory methods can lead to greater learner agency and inclusive pedagogy (Wilkinson and Wilkinson, 2018; Kakoulidou *et al.*, 2024).

The broader aim is to inform inclusive practice in the voice studio by contributing to an emergent body of work that centres neurodivergent experiences in singing education. In alignment with the calls for neuroinclusive education frameworks (Coates, 2022; Hetherington, 2024; Horner, 2025), this study seeks to contribute to the conversation around grounded, practice-based insights that voice educators can apply in their teaching.

Through this project, I will develop my skills in Participatory Action Research and Reflexive Thematic Analysis, informing my ability to design and deliver ethically sound, inclusive research. It will also improve my capacity for insider reflexivity and critical self-awareness, especially when managing dual roles as teacher and researcher. By working closely with participants, I will co-create more accessible and inclusive vocal pedagogy that centres the neurodivergent voice, and strengthen my ability to translate research findings into practical strategies that support neurodivergent learners and develop my teaching practice.

Literature Review

Methodology

This review draws on peer-reviewed literature published within the last 15 years, except where earlier works are considered seminal to the field. Sources were identified using keywords related to vocal pedagogy, neurodivergence, and inclusive education. Inclusion criteria focused on studies involving adult learners, with relevant autism-only and ADHD-only research included where AuDHD-specific sources were lacking; reputable grey literature was considered where peer-reviewed material was limited, particularly for emerging terminology and lived-experience perspectives.

Neurodivergence and Pedagogical Inflexibility in the Singing Studio

Vocal pedagogy has traditionally prioritised established teaching conventions, often failing to account for the diversity of cognitive and sensory profiles among learners (Longlong and Luen, 2023). The growing awareness of neurodivergent students in music education poses an important challenge because voice teachers rarely receive sufficient training to support them properly (Steiner, 2024). Voice teaching continues to rely heavily on imagery or technical instruction (Jestley, 2011; Jaber, 2020; Brown, 2023), both of which may be inaccessible or simply unhelpful for some neurodivergent learners (Le Cunff, Giampietro and Dommett, 2024). Exploring how these styles are received by adult AuDHD singers is therefore both timely and necessary.

Metaphor vs Mechanics in Vocal Pedagogy

The use of metaphor is common practice by voice teachers to simplify complex vocal processes making them easier to understand and apply (DeSantis *et al.*, 2022; Morales-Villar *et al.*, 2023). For some learners, this can reduce cognitive load and help develop an embodied understanding (Jaber, 2020). However, autistic learners may find metaphors confusing or unhelpful if they are overly abstract or culturally specific (Kalandadze, Bambini and Næss, 2019). Similarly, ADHD learners may lose focus if the metaphor is too lengthy or not grounded in immediate experience (Matthew and Nasri, 2022).

Conversely, mechanical or technical explanations appeal to learners who prefer precision and structure, offering explicit insight into anatomy, acoustics, or motor function (Vicente, Michel and Petrolini, 2024). Yet, these approaches can overwhelm those with working memory differences or sensory sensitivities, especially if presented without visual or kinaesthetic support (Fugate, Zentall and Gentry, 2013).

There is limited research comparing these pedagogical approaches within neurodivergent populations, and almost none specific to adults with AuDHD. This project aims, in part, to address this gap.

Understanding AuDHD in the Learning Environment

The dual presentation of autism and ADHD is well documented in clinical and lived experience however, formal recognition of this dual diagnosis is relatively recent (Bölte, Poustka and Geurts, 2018). Before the publication of the DSM-5 in 2013, a manual written to assist the diagnosis of mental conditions, individuals could not receive a dual diagnosis of autism and ADHD as one diagnosis would often exclude the other (Murray, 2010; Doernberg and Hollander, 2016). Because of this diagnostic criteria, much of the earlier research looked at these conditions in isolation from each other, limiting our understanding of the interplay between the two (Kentrou *et al.*, 2019; Okyar and Görker, 2020). Since the DSM-5 update, more research has begun to explore AuDHD within education with a growing focus on how this dual condition impacts learning and teaching methods (Hatch, Kadlaskar and Miller, 2023). However, research that specifically applies these findings to voice pedagogy remains limited. This gap highlights the need for further investigation into how the learning preferences and challenges of AuDHD students can be supported in the voice studio.

The term AuDHD is not formally recognised but it is widely used within neurodivergent communities by individuals who experience the combined traits of both conditions (Kapp *et al.*, 2013; Craddock, 2025). This term reflects the suggestion that autism and ADHD interact in ways that produce distinct learning profiles rather than cumulative effects (Huang *et al.*, 2024). For example, whilst ADHD is commonly associated with inattention, impulsivity, and time-blindness (Vadalà *et al.*, 2011; Weissenberger *et al.*, 2021), autism is often linked with sensory processing challenges, cognitive inflexibility, and a preference for routine and predictability (Polderman *et al.*, 2014; Schulze, Lux and Philipsen, 2020). When these traits are combined, learners may seek novelty and stimulation whilst also feeling overwhelmed by unpredictability, creating complex challenges in sitautions like singing lessons, which require focused attention and sensory regulation (Masters *et al.*, 2023; Skaletski *et al.*, 2025).

These overlapping traits might affect how AuDHD learners respond to vocal instruction (Butcher and Lane, 2025). For example, an AuDHD singer might become hyper-focused on a metaphor whilst struggling to connect this to broader applications of the skill being taught, or they might find technical explanations cognitively overwhelming without accompanying visual or kinaesthetic supports (Kalandadze, Bambini and Næss, 2019; Huang *et al.*, 2024; Steiner, 2024). One adult AuDHD singer, who had reached out for peer advice in an online forum, described how metaphorical language hindered their learning: “I need specific details with phrasing that is literal. Metaphors and abstract explanations just confuse me” (u/yk093, 2025). They went on to explain that when they read a comment stating that “your chest shouldn’t do anything,” they interpreted it so literally that it caused physical tension and confusion during inhalation: “I take that as my chest should literally be completely still” (u/yk093, 2025). Singing teachers often use statements like “don’t let your chest do anything” to simplify complex vocal actions (Reed, 2022) but for some learners these metaphors can result in confusion or tension due to the lack of concrete, step-by-step detail needed to guide the body (Jensen, 2006; Reed, 2022). These experiences highlight how commonly used teaching strategies, whether overly abstract or anatomically detailed, can unintentionally increase stress and hinder vocal performance for AuDHD students.

Despite this, there is little guidance available for educators on how to adapt teaching for this population. Much of the current literature either generalises neurodivergent learners as a whole, or focuses on children and adolescents in school-based settings (McDowall and Kiseleva, 2024) whereas it is estimated between 4.3% to 5.9% of adults in the UK engage in private or group singing lessons (Department for Digital, Culture, Media and Sport (UK), 2018). This study aims

to help address that gap by exploring the lived learning preferences of adult AuDHD singers and how they respond to different instructional styles.

The Value of Participatory and Reflexive Practice

Participatory Action Research (PAR), which places learners as co-creators of knowledge, has been successfully used in developing inclusive education (Wilkinson and Wilkinson, 2018). PAR also aligns well with neurodivergent values of autonomy and agency, encouraging reflexive, adaptable teaching rather than rigid strategies. Research suggests that involving students in shaping their learning journey, especially underrepresented groups like AuDHD students, can lead to greater engagement, satisfaction, and success (Anggraeni, 2021; Tang, 2023).

This study integrates PAR principles by inviting AuDHD learners to provide feedback after lessons and collaborating towards the design of a future lesson. In doing so, it explores not only the efficacy of two common teaching strategies but also the process of co-constructing learning with neurodivergent singers.

Summary of Literature Review

The literature highlights an urgent need for more inclusive and adaptable teaching methods in voice education (Longlong and Luen, 2023; Steiner, 2024). While both metaphorical and mechanical approaches have merit (Jaber, 2020; Vicente, Michel and Petrolini, 2024), their efficacy with AuDHD learners remains largely unexamined (Bölte, Poustka and Geurts, 2018; Huang *et al.*, 2024). In addition, the binary choice between these methods may mask the need for more participatory, co-designed teaching that responds to the varied learning preferences of AuDHD students (Wilkinson and Wilkinson, 2018; Anggraeni, 2021; Tang, 2023). Even though the (*Equality Act 2010, sch. 10*, 2010) mandates reasonable adjustments for disabled learners, there is limited guidance on what that means for vocal pedagogy. By centring the experiences and preferences of adult neurodivergent singers, this study aims to contribute to a more nuanced and inclusive pedagogy that reflects the diversity of the modern singing studio.

Methodology and Methods

Research Paradigm

This research adopted an interpretivist-constructivist paradigm, with elements of Participatory Action Research (PAR), an approach that emphasises researcher-participant collaboration to identify issues and co-develop solutions (Galletta and Torre, 2019; Wood, 2019). As this research sought to understand the learning preferences of adult singers with both autism and ADHD (AuDHD) an interpretivist approach was considered appropriate for valuing participant-generated meanings and constructivism acknowledges knowledge creation through interactions with the world and others (Lincoln and Guba, 1985; Creswell and Poth, 2024).

The PAR-inspired relational model of this study embodied the principles of inclusivity, responsiveness, and knowledge co-creation (Wilkinson and Wilkinson, 2018; Galletta and Torre, 2019). While the final co-created lesson was not delivered, participants made valuable contributions toward developing an accessible teaching method through the co-design form (see Appendices D3 and E3).

The principle of reflexivity was integral throughout the research process (Finlay, 2002; Creswell and Poth, 2024). As an autistic and ADHD individual myself, I took extensive measures to eliminate any assumptions that might stem from our shared background. A reflexive journaling process was used to document choices made, emotional responses, and ethical dilemmas encountered (see Appendix F2). The study design underwent continuous adjustments through real-time modifications that addressed participant feedback and accessibility requirements throughout Phase One. The participant information sheet introduced a five-phase mostly synchronous process initially but the revised timeline (see Appendix B2) transitioned to an entirely asynchronous format to accommodate scheduling conflicts and participant preferences (see Appendix D for adapted materials).

Participants and Recruitment

Participants were recruited from my wider teaching network and included seven self-selecting adults who had singing lesson experience and identified as both autistic and ADHD (self-identified or formally diagnosed). The participants shared their informal descriptions about their vocal experience levels and gender identities and neurodivergence profiles during phase one but specific demographic data was not formally collected (see Table 1). This was an intentional decision to

protect participants' emotional safety and prevent identity-based withdrawals. This approach aligns with neuroinclusive research practice which values participant autonomy alongside emotional safety over more rigid data collection proceedures (Bernard *et al.*, 2023; Huston, McMorris and Murias, 2024).

Table 1: Participant Overview

Participant	Age Group	Singing Experience	Prior Vocal Training	Notes
P1	Adult	Beginner	Self-taught	
P2	Adult	Professional	>10 years	Music Teacher
P3	Adult	Intermediate	1-4 years	
P4	Adult	Advanced	>10 years	Professional Singer
P5	Adult	Intermediate	5-9 years	
P6	Adult	Professional	>10 years	Music Teacher
P7	Adult	Beginner	Self-taught	

Design and Procedure

The research implemented a three-phase qualitative design which incorporated participatory and reflexive elements such as inviting participants to co-design a singing lesson (Galletta and Torre, 2019), and ongoing reflexive journaling to document my decision making, identify biases, and encourage awareness around how my emotional responses could colour interpretation of the data (Lincoln and Guba, 1985; Finlay, 2002). This research method allowed exploration of student views while prioritising safety measures for emotions along with student selection and easy access (Wilkinson and Wilkinson, 2018; Wood, 2019). A fourth and final phase was planned but not completed due to personal illness and time constraints.

Phase One: Initial Focus Group via Chat

The study began with an asynchronous focus group which took place through secure group chat channels. This was a shifted from its original plan for a sixty-minute Zoom session. The

asynchronous format was chosen due to scheduling constraints amongst participants but for many AuDHD individuals, asynchronous communication reduces cognitive load, minimises social masking, and allows for self-paced reflection (Faulconer, Bolch and Wood, 2022; Gorbunova *et al.*, 2024). The participants were asked to share their past learning experiences and identify factors that either supported or hindered their vocal development. The gathered feedback shaped the content and delivery approach for Phase Two lessons which were adapted from planned groups lesson (Appendix C2) to pre-recorded videos (Appendix F1) that could be watched independently, giving participants more control over their learning.

Phase Two: Video Lessons and Feedback Forms

The participants received two brief video lessons for their viewing. The first lesson demonstrated aspirate onset using a metaphor and the second lesson showed glottal onset using anatomical explanations (Appendix F1). Each lesson contained a vocal exercise section to practise applying the skill described. The participants were able to determine the order in which they watched the videos although the metaphor-based video was the first in the sequence to evaluate possible order effects and learner bias (Cohen, Manion and Morrison, 2002). Participants completed a short feedback form after each video to share their thoughts on clarity, effectiveness, embodiment, and emotional response.

Phase Three: Co-Design Form

During the third phase participants created their preferred singing lesson design through an online form. Participants used this form to suggest their preferred explanation methods along with delivery formats, emotional support needs, and sensory tools. The design step followed the PAR model by focusing on learner involvement to create pedagogical approaches that centre the neuro-divergent voice (Wilkinson and Wilkinson, 2018; Wood, 2019). Although the co-created lesson did not receive execution the phase generated substantial data regarding learning preferences and emotional accessibility needs of participants.

Phase Four: Undelivered Co-Created Lesson

A fourth phase existed in the plan to record and distribute a co-created video lesson rooted in the participant insights collected in phase three. Unfortunately, I was not able to finish this phase due to personal illness and time constraints.

Asynchronous Design as an Accessibility Strategy

Ultimately, the study's asynchronous delivery functioned as its primary accessibility feature. The participant information sheet (see Appendix B1) initially suggested five live sessions across three weeks but the format underwent changes during Phase One because participants faced scheduling issues and preferred less demanding formats. The revised timescale (see Appendix B2) presents a more flexible and condensed participation model which received further real-time adjustments through direct participant feedback. The asynchronous methods enabled participants to engage at their own pace; avoid performance anxiety or sensory overload; choose optimal times of day for concentration; reread and reflect before responding. This method supports neuroinclusive practice because it benefits people who experience changing attention levels and executive function difficulties and sensory sensitivity challenges (Faulconer, Bolch and Wood, 2022; Gorbunova *et al.*, 2024).

Data Collection and Analysis

Data was collected in written format: chat transcripts, feedback form responses, and open-ended answers on the co-design form. I then followed Braun and Clarke's (2022) six-phase model for Reflexive Thematic Analysis (Figure 2), which is well suited to identifying patterns in subjective learner experience.

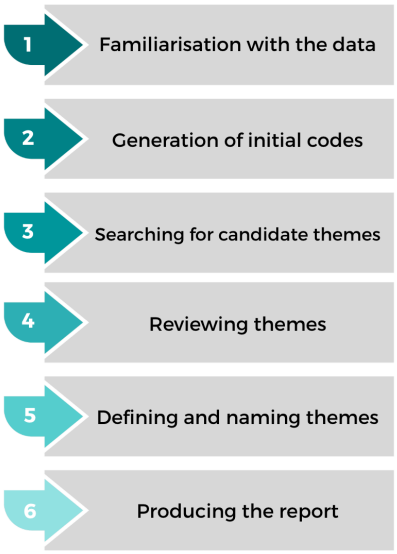


Figure 2: Braun and Clarke's RTA model

Initial line-by-line coding captured detail while preserving participant voice. Codes were then grouped into categories at each phase such as "learning preferences", "emotional safety", and

“embodiment”. From these, broader themes were developed to represent recurring ideas across participants (see Appendix E4).

Notably, some collaborative coding occurred indirectly, when defining and naming the themes participants’ own words shaped the code names and thematic boundaries. For example, several subthemes such as “Help Me Feel It” or “Let Me See The Map” were derived from participants’ own language.

Ethical Considerations

This study was reviewed and approved by the University of Wales Trinity Saint David (UWTSD) Ethics Committee. Informed consent was obtained in writing and participants were regularly reminded they could withdraw at any time without giving a reason, and that their participation would not affect their relationship or future lessons with me.

As an insider researcher, I was mindful of inherent power dynamics especially where participants were current students of mine. To mitigate this, participation was entirely voluntary, and all lessons and feedback forms were delivered asynchronously, minimising direct influence.

Anonymity and confidentiality were ensured through password-protected data storage and anonymisation of all participant responses. Flexible participation, content warnings, and the freedom to skip any question or activity were offered to generate emotional safety.

Pacing and sensory needs were also considered throughout with the reflexive shift to an asynchronous format allowing participants to manage energy levels, control their learning environment, and avoid overstimulation.

Limitations of the Method

The study is subject to several limitations, though these do not undermine its trustworthiness. The final co-created lesson was not delivered due to illness limiting my ability to complete a full PAR cycle but the rich data gathered in Phase Three still allowed for valuable insight into learner-designed pedagogy.

There was also some participant attrition across phases: while seven participants signed consent forms, six completed Phase One (focus group), five completed Phase Two (video lessons and feedback), and three completed Phase Three (co-design form). This reduction is

typical in asynchronous, voluntary research with neurodivergent populations, and may reflect fluctuating energy, personal circumstances, or varying comfort with each activity format (Hoerger, 2010; Parslow and Williams, 2015). Rather than undermining the process, this dropout rate reflects the realities of designing around participant autonomy and accessibility.

Table 2: Summary of Participant Engagement

Phase	Description	Format	Participants	Status
1	Initial focus group on past learning experiences	Asynchronous group chat	6	Complete
2	Two video lessons + feedback form	Pre-recorded videos/google form	5	Complete
3	Co-design questionnaire	Google form	3	Complete
4	Co-created lesson delivery + feedback form	Pre-recorded video/google form	0	Incomplete

The overall sample size was small limiting generalisability but this is consistent with the exploratory and interpretive nature of this qualitative study (Lincoln and Guba, 1985).

Additionally, as a researcher with lived experience of AuDHD, there is a risk of interpretation bias (Finlay, 2002; Xiao *et al.*, 2024). However, this was addressed through reflexive practice, transparent documentation of decisions, and close alignment with participants' original language (Finlay, 2002; Tracy, 2010). The analysis aimed not for neutrality but for rigour, care, and fidelity to participant voices (Braun and Clarke, 2021).

Findings and Discussion

Introduction to Findings

The analysis of participant feedback from different lesson formats and collaborative lesson design produced four interconnected themes (Figure 3):

The themes presented are:

1. Metaphors AND Mechanics Help Me Understand
2. My Body Helps My Brain Learn

3. I Need to Feel Safe So I Can Trust the Process
4. Let Me Choose

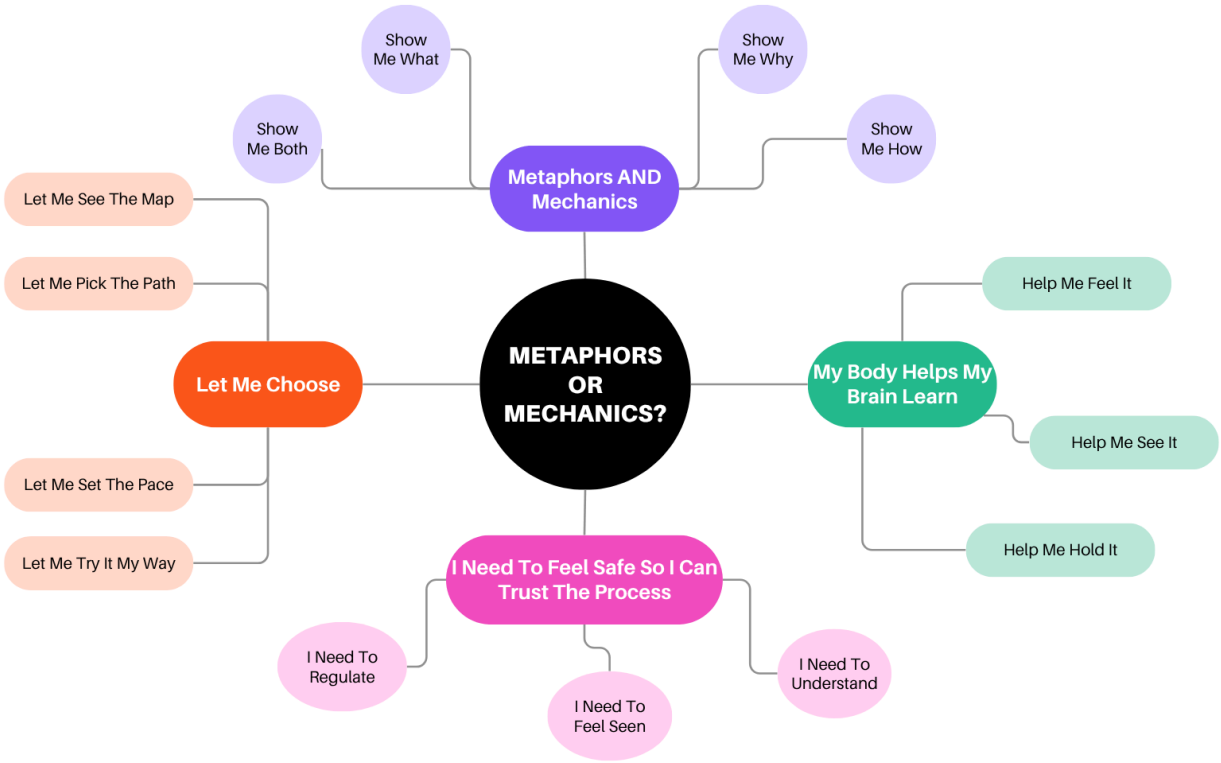


Figure 3. Visual Theme Map

Each theme exists independently yet maintains strong connections with the others. The participants' narratives demonstrate how access to vocal learning was multi-factorial including cognitive processes, sensory experiences, emotional states, and environmental elements.

Theme 1: Metaphors AND Mechanics Help Me Understand

This theme represents a consistently expressed preference for hybrid approaches to explanation, blending both metaphor and technical description. Rather than perceiving these as opposing methods, participants described them as mutually supportive, appreciating how each brought unique benefits to their understanding.

Participant responses showed engagement and cognitive ease came from having vivid and relatable imagery with Participant 3 sharing, “I enjoyed the imagery of…sighing into the big chair for the aspirate onset,” and Participant 4 noting, “it was a very effective way to get the desired

sound.” Imagery-based learning was consistently valued for both its emotional resonance and sensory cues enabling skills to be grasped both swiftly and intuitively.

Imagery alone was insufficient, however, as Participant 4 explained, “I do like to know the reason/science behind the exercise so that I can understand what is expected of me,” and Participant 3 also reflected that the technical explanation helped their application of the skill, “it helped me to find that pop easier, which helped with the overall sound.” Technical explanation thus offered precision and contextual reasoning.

Participants reflected upon how metaphors and technical explanations together “create a fuller picture” (P4). Participant 2 reflected, “Once I am already achieving the desired onset/sound (through the imagery based learning) I like to know the science behind it as it solidifies my understanding and confirms why my voice is working that way.” Participants felt that imagery-based learning and technical explanation engaged different aspects of their thinking creating a more holistic understanding of the vocal concept being presented.

Teacher demonstrations emeregd as an integral mode of learning, “having you demonstrate, and then having me sing with you,...really helped make sure that I was applying the vocal techniques correctly” (P5). This would suggest that demonstrations are essential for bridging the gap between conceptual understanding and application of the skill.

The theme as a whole suggests that AuDHD singing students benefit from instruction that unites imagery with technical explanations and demonstrations in order to fully understand the taught concept before physical skill execution. This is supported by Dual Coding Theory (Paivio, 1990) in which learning becomes more effective when information passes through verbal and non-verbal channels. Recent research into bridging the gap between abstract and concrete concepts shows how connecting the two enhances accessibility and understanding especially for neurodivergent learners (Butcher and Lane, 2025). Taken together, this evidence suggests that the combination of imagery with technical explanation and teacher demonstrations function as cognitive preparation priming students for the embodied learning experience that follows.

Theme 2: My Body Helps My Brain Learn

This theme suggests that, for AuDHD learners, bodies are essential instruments for understanding vocal concepts. The majority of participants indicated that they needed to connect new knowledge to physical sensations or visible signals before they could fully grasp it.

The findings show that visible information can transform abstract and invisible processes into tangible concepts. Participant 6 shared, “my music is covered in doodles, helping me to visualise what I’m supposed to be doing,” a sentiment echoed by others. Visual cues appear to function as anchors, helping participants to reproduce the target sound or technique bolstering both confidence and consistent skill application.

Physical sensations and movement were also viewed as valuable tools for in-the-moment learning. Participant 6 stated, “I’m not good at listening as my brain won’t focus for long enough but if my body is involved in the doing of it, it will stay with me,” indicating the need for embodied learning strategies to assist comprehension and retention of learning. Participant 7 also reflected the efficacy of sensory-based learning to consolidate understanding, “the exercises of breathing and describing what sensations we are supposed to feel in certain areas of our body, really helped for me to track if I was doing it correctly.” These physical cues suggest a way to establish more concrete connections between concept and skill application as well as manage concentration and engagement levels.

Participants shared how important it was for them to contextualise new skills within their repertoire immediately suggesting that real-world contexts assist later recall, “if the skill is introduced without demonstration of how it could be used in a song, it is easily forgotten for me.” Embodied metaphors also worked as a recall tool with participants noting that metaphors that came with intuitive actions, such as “fogging up the mirror”, aided in the repeatable application of the new skill.

These findings suggest that multi-sensory anchors provide embodied cognitive scaffolding for AuDHD singers, enabling them to internalise and recall new vocal skills that can sometimes feel abstract and intangible. This aligns with Gallagher’s (2005) Embodied Cognition Theory, in that thinking and understanding develop through body-world interactions, and Shams and Seitz’s (2008) principles of multisensory learning which demonstrate how engaging multiple senses improves both recall and comprehension. The overarching theme suggests that for AuDHD singing students, multi-sensory and embodied learning strategies are not just supplemental but an integral condition for accessible and lastin learningg.

Theme 3: I Need to Feel Safe So I Can Trust the Process

This theme explores how emotional safety stands as a pre-requisite for AuDHD singers to learn effectively rather than a by-product of good teaching practice. Participants repeatedly stated that

unless they felt calm, seen, and included, they could not access or retain new information regardless of how it was presented.

Participants were very clear about their readiness to learn depending on their emotional and sensory state at the beginning of a session, “please check in with me about my energy or sensory needs at the start as they can shift a lot day to day” (P7) emphasising that regulation needs are not fixed but mutable. Participant 3 suggested starting with “vagus nerve regulation” exercises which was echoed by other participants who also requested activities to help them “transition into the learning space”(P7), demonstrating a clear awareness of how their neurodivergence manifests and impacts their learning needs.

Participants found great value in their neurodiverse learning approaches being acknowledged and treated with respect. Participant 7 recounted that “having permission to be my quirky, expressive self…means everything.” Indeed other participants also felt that they learn better when teachers acknowledge and adapt to their learning style, seeing it as “different, not difficult.”

Structured feedback and its manner of delivery was shown to be critical for participants to feel safe enough to learn valuing “gentle, encouraging feedback” (P2) that highlights was done well followed with prioritsing one focus of improvement. Multiple participants voiced that they’d prefer feedback to “framed as an invitation to experiment, not a correction” (P4), however they differed in their opinions on when feedback should be delivered with Participant 2 “thriving” on real-time feedback and others preferring the space to experiment a few times first.

Emotional safety and trust in the student-teacher relationship emerged not as by-products but accessible learning accessible as reflected in current research that positions co-regulation, identity validation, and neuroaffirmative language as key aspects for inclusive learning (Fuld and McKelvie, 2024). The findings closely align with the neurodiversity paradigm which views neurological differences as natural variations rather than deficits (Walker and Raymaker, 2021; Botha *et al.*, 2024) a stance that supports a move away from pedagogical frameworks that centre dated neuronormative ideals. This is further underpinned by the double empathy problem which reframes difficulties in communication between autistic and allistic individuals as mutual misunderstandings rather than autistic deficits (Milton, 2012; Milton, Gurbuz and López, 2022). When neurodivergent students feel seen and heard, their self-efficacy and engagement in learning are significantly enhanced (Lebrón-Cruz and Orvell, 2023).

Theme 4: Let Me Choose

Participants expressed a strong preference for structured autonomy in their singing lessons. They described four key ways that choice and control supported their access to learning: through structure, choice, pacing, and personalisation/experimentation.

Knowling the lesson structure gave participants a sense of stability, allowing them to be present in the learning rather than anticipating what might happen next. As Participant 2 explained, *"*I like to know what is planned for the lesson…so I know what to expect and can relax." Clear structure helped calm participants' nervous systems whilst also giving them a map of the learning journey.

Beyond having structure, participants valued being able to influence how a lesson unfolded. Participant 7 highlighted the importance of moment-to-moment flexibility, "I appreciate being offered the choice to chat briefly or dive straight in depending on how I'm feeling that day." Choice also extended to repertoire selection, with Participant 4 suggesting that teachers "provide choices in repertoire that aligns with the students' interests or special interests." For participants, choice over material was not a luxury but a vital aspect of engagement and ownership in the learning process.

Control over the speed of learning was equally important. Participant 7 reflected, "I tend to process information better if I can pause, reflect, or try it slowly first before speeding up." Similarly, Participant 6 noted the need for adaptability when attention shifted: "I get bored very easily…so short bursts and recognising I wanted to change song was good." This suggests that AuDHD learners benefit from pacing that is responsive rather than fixed.

Making the learning their own was a shared insight, Participant 7 said, "I love having the freedom to improvise or explore a little, especially once I've grasped a concept and this helps make it mine." Participants also stressed the value of being given space to learn in ways that suited their processing style. Such opportunities for experimentation not only increased engagement but also helped embed skills in long-term memory.

Autonomy mattered deeply for participants but it was essential that choice was provided within clear structure and pacing was responsive to their needs. The findings seem to align with Cognitive Load Theory (Sweller, 1988) by which students are able to manage cognitive demands when structure and pacing is responsive. The emphasis on personalisation and

experimentation aligns with constructivist learning principles in that autonomy and creativity enhance understanding (Vygotsky, 1978; Gorobeț, 2024). Overall the research suggests that offering such structured autonomy promotes learning in a way that feels self-driven rather than imposed, supporting deeper understanding and retention as learners make the abstract personal.

Consideration of Limitations

The findings provide valuable insights into the learning preferences of adults AuDHD singers yet several important limitations need to be recognised. The research sample was both small and limited to self-selected participants who likely already felt comfortable discussing their neurodivergence and learning styles, potentially limiting perspectives from students with less reflexive experience (Collier and Mahoney, 1996). The asynchronous format restricted the possibility of observing immediate and embodied reactions to each teaching method which could have revealed further insight into real-time learning preferences (Roulston and Halpin, 2021), this was further limited by self-report data in that preferences were described rather than enacted (Greener, 2018). Illness prevented the implementation of the final co-devised lesson limiting the ability to fully realise the PAR model and how the co-designed hybrid teaching approach might function in practice. My own neurodivergent identity required ongoing reflexivity to reduce bias (Finlay, 2002) but as, Braun and Clarke (2022) describe, this insider perspective also served as a strength, enabling me to spotlight the neurdivergent perspective with empathy and understanding. Finally, the lack of methodological triangulation, such as combining the self-report data with live interviews or lesson observations, potentially limits the depth and transferability of the findings (Fusch, Fusch and Ness, 2018). Despite this, the richness of the data and the strength of the emerging themes suggest meaningful patterns that align with wider neurodivergent and pedagogical literature.

Conclusion

The study set out to explore whether AuDHD adults showed any preference for imagery-based learning, technical explanation, or a combination of both. My aim was not to find a superior method but to challenge stereotypes about neurodiverse learning styles by investigating how dual diagnosis influences learning preferences. To achieve this, I aimed to follow the data while avoiding assumptions reflecting principles of reflexive and rigorous qualitative inquiry (Tracy, 2010; Braun and Clarke, 2022).

Summary of Findings

The research found that participants rejected the binary choice and showed preference for an integration of both metaphorical and mechanical teaching methods combined with a safe learning environment where emotional regulation and learner autonomy were prioritised. This preference challenges reductive narratives on neurodivergence (Kapp *et al.*, 2013; Botha *et al.*, 2024) and suggests that accessibility in learning could depend more on the teaching environment than on specific methods (Azuka *et al.*, 2024; Butcher and Lane, 2025). These findings are reflected in the principles of Universal Design for Learning (CAST, 2024) which emphasises multiple means of representation representation, engagement, and expression. As Coates (2022) and Panwar and Lata (2025) suggest, this style of flexible and co-created approach to pedagogical design are central to effective learning for AuDHD students.

Future Research and Recommendations

This study opens up multiple potential directions for future research and practice. For immediate practice in the singing studio, teachers could create inclusive learning experiences by combining both imagery-based and technical explanations (DeSantis et al., 2022; Brown, 2023) with embodied cognitive strategies (Gallagher, 2005); embedding structure and clarity (Anggraeni, 2021; Tang, 2023); and allowing students to shape their learning (Walker and Raymaker, 2021, 2021). My suggestions for how to generate teaching strategies that apply these principles can be found in Appendix F3. Future research in vocal pedagogy could explore how Universal Design for Learning (CAST, 2024) principles and similar inclusive frameworks could be tested and developed specifically for singing lessons. My suggestions for practical applications of UDL are expanded upon in Appendix F4. For my own personal development, I wish to realise the Participatory Action Research model in full through the future co-creation and testing of teaching strategies with neurodivergent singers and investigate how learning preferences change through time and environmental shifts. It is my hope that through these recommendations for practice and future research that pedagogy can move beyond labels and stereotypes and instead focus on creating learning environments where all singers can learn, explore, and thrive.

Critical Reflection

In relation to my original learning outcomes, this project has deepened my understanding of learning experiences for AuDHD students, especially how emotional regulation, structured autonomy, and multimodal explanations can be woven together to support learning. Methodologically, I have learnt how to design and execute a qualitative study as well as improve

my thematic analysis techniques using Participatory Action Research (Galletta and Torre, 2019) and Reflexive Thematic Analysis (Braun and Clarke, 2022) developing my ability to carry out ethically sound and inclusive research whilst recognising my insider researcher position as a neurodivergent teacher-researcher and how it shaped both data collection and interpretation, offering additional insights whilst needing ongoing reflexivity (Finlay, 2002).

On a personal level, these findings have given me confidence that my instinctive teaching approach, to observe each individual and adapt to them rather than apply a one-size-fits-all method, is supported by evidence (McDowall and Kiseleva, 2024; Bailey and Petty, 2025). This alignment between data and practice has perhaps been my greatest area of growth showing how research can affirm and refine my professional identity.

Most importantly, this study has shown and reaffirmed for me how much it means, and how deeply impactful it is, for the unique perspective of the AuDHD student to be seen, heard, understood, and respected throughout the learning journey.

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Appendices

Appendix A: Ethics and Approval Documentation

A1: Ethics Form

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

PG2 / E1 FORM

APPLICATION FOR ETHICAL APPROVAL

RESEARCH STUDENTS This form is to be completed by the student within **SIX** months for full-time students and **TWELVE** months for part time students, after the commencement of the research degree or following progression to Part Two of your course. Once complete, submit this form via the ***MyTSD Doctoral College Portal*** at (https://mytsd.uwtsd.ac.uk). This document is also available in Welsh.
RESEARCH STAFF ONLY All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name.
STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

1	Full Name:	Katie Rose Hogan				
2	Tick all boxes that apply:	Member of staff:	☐	Honorary research fellow:	☐	
	Undergraduate Student	☐	Taught Postgraduate Student	☒	Postgraduate Research Student	☐

3	Institute/Academic Discipline/Centre:	WAPPAR
4	Campus:	Carmarthen
5	E-mail address:	Kate.hogan86@gmail.com
6	Contact Telephone Number:	07862247482
	For students:	
7	Student Number:	2333703

8	Programme of Study:	MA Professional Practice (Voice Pedagogy)
9	Director of Studies/Supervisor:	Louise Emanuel/Julie Crossman/Debbie Winter

SECTION B: Approval for Research Activity

1	Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)		**YES**	☒	**NO**	☐
					Date	
2	If Yes, please indicate source of approval (and date where known): ***Approval in principle must be obtained from the relevant source prior to seeking ethical approval***	Research Degrees Committee		☐		
		Institute Research Committee		☐		
		Other (write in) WAPPAR Ethics Board Representative		☒		

SECTION C: Internal and External Ethical Guidance Materials

	Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, location-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. You may add rows to this table if needed.	
1	**UWTSD Research Ethics & Integrity Code of Practice**	☒
2	**UWTSD Research Data Management Policy**	☒
3	*[List any other relevant documents here]*	☐

SECTION D: External Collaborative Research Activity
If there are external collaborators then you should gain consent from the contact persons to share their personal data with the university. If there are no external collaborators then leave this section blank and continue to section E.

1	Institution					
2	Contact person name					
3	Contact person e-mail address					
4	Is your research externally funded?		**YES**	☐	**NO**	☐
5	Are you in receipt of a KESS scholarship?		**YES**	☐	**NO**	☐
6	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary	**YES**	☐	**NO**	☐
7		Employed	**YES**	☐	**NO**	☐
8	Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)?	If YES then the permission question below does not need to be answered.	**YES**	☐	**NO**	☐

9	Has permission to undertake the research has been provided by the partner organisation?	(If YES attach copy) If NO the application cannot continue	YES	☐	NO	☐

Where research activity is carried out in collaboration with an external organisation

10	Does this organisation have its own ethics approval system?	YES	☐	NO	☐
	If Yes, please attach a copy of any final approval (or interim approval) from the organisation (this may be a copy of an email if appropriate).				

SECTION E: Details of Research Activity

1	Indicative title:	Metaphors or Mechanics? Exploring Vocal Learning Preferences in AuDHD Singers		
2	Proposed start date:	31.03.2025	Proposed end date:	16.09.2025
	Introduction to the Research (maximum 300 words per section) **Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the points below:** *Purpose of Research Activity* *Proposed Research Question* *Aims of Research Activity* *Objectives of Research Activity* Demonstrate, briefly, how **<u>Existing Research</u>** has informed the proposed activity and explain *What the research activity will add to the body of knowledge* *How it addresses an area of importance.*			
3	**Purpose of Research Activity** Existing research in voice pedagogy suggests that imagery-based learning is widely used yet autistic learners often struggle with abstract metaphors or visualisations. In contrast, it suggests ADHD learners can be overwhelmed by attempting to follow technical explanations. However, there is little research on the learning preferences of singers with a dual diagnosis of autism and ADHD. This study will explore how adult singers with autism and ADHD (AuDHD) engage with imagery-based learning (e.g. visualisations, metaphors) and technical explanations to see if there is a clear preference and how each method affects engagement, comprehension, application, and retention. (this box should expand as you type)			
4	**Research Question** The core research question "Metaphors or Mechanics? Exploring Vocal Learning Preferences in AuDHD Singers" seeks to answer if AuDHD singers prefer imagery based learning or technical explanations when it comes to learning, understanding, and applying vocal technique in lessons or if there is a need for a hybrid model that meets their learning needs more effectively.			
5	**Aims of Research Activity**			

	This study aims to identify the learning preferences of AuDHD singers, evaluate the efficacy of both imagery-based learning and technical explanation, and develop recommendations for a more accessible and inclusive approach to vocal pedagogy for AuDHD learners. (this box should expand as you type)
6	**Objectives of Research Activity** 1. To engage a maximum of 10 AuDHD singers in order to explore how individuals with both autistic and ADHD traits respond to different vocal learning approaches. 2. To conduct two lessons (one imagery-based and one technical explanation) to compare participants' experiences and responses to different teaching methods, highlighting preferences and challenges. 3. To collect post-session feedback through group discussion to gain deeper insights into participants' perceptions of the learning methods, encouraging collaborative reflection and participant-driven insights. 4. To co-develop, deliver, and co-evaluate possible hybrid approaches with participants to explore whether a blended teaching method can better accommodate diverse learning needs and preferences in AuDHD singers. 5. To use the study findings to contribute practical insights that inform more neuroinclusive and accessible voice pedagogy, providing recommendations for voice teachers working with neurodivergent singers. (this box should expand as you type)
	Proposed methods (maximum 600 words) Provide a brief summary of all the methods that **may** be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project.
7	This study employs a qualitative research design using Participatory Action Research. Data will be collected through structured lessons, observations, focus groups, qualitative surveys, and reflective journals. Data to be Collected 1. Participant reflections on learning preferences and engagement. 2. Observational data on participant responses to different teaching methods. 3. Self-reported reflections through journals and qualitative surveys. Data Collection Methods 1. Lesson Recordings: a. All lessons will be video recorded for post-session analysis. b. Recordings will allow detailed review of participant engagement, technique application, and responses to different teaching methods. 2. Focus Groups: a. Conducted after each session to gather participant reflections on their learning experiences. b. Participants will discuss engagement levels, ease of comprehension, and retention for each teaching method. c. Sessions will be audio-recorded and transcribed for thematic analysis. 3. Observations: a. The researcher will document participant responses, engagement levels, and ease of technique application during lessons. 4. Reflective Journals: a. Participants will complete journals after each session, recording clarity, effectiveness, and personal preferences.

	5. Surveys & Interviews: a. Pre- and post-session surveys with open-ended questions will assess engagement and learning retention. b. Optional semi-structured interviews will explore participant insights further. Data Analysis 1. Thematic analysis will identify patterns in participant responses across lesson recordings, focus groups, observations, and reflective journals. 2. Observational data will be coded for engagement and preference trends. 3. Video and audio recordings will be analysed for verbal and non-verbal indicators of understanding and technique application. (this box should expand as you type)
	Location of research activity Identify all locations where research activity will take place.
8	Online (Zoom), Kate Hogan Vocal Studio (DN12 3LJ) (this box should expand as you type)
	Research activity outside of the UK If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. If you live in the country where you will do the research then please state this.
9	Not applicable *(this box should expand as you type)*

10	Use of documentation not in the public domain: Are any documents **NOT** publicly available?	**NO**	☒
		YES	☐
11	If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with the current data protection law of the country in question and that of England and Wales. *(this box should expand as you type)*		

	Does your research relate to one or more of the seven aims of the Well-being of Future Generations (Wales) Act 2015?	**YES**	**NO**
12	A prosperous Wales	☐	☒
13	A resilient Wales	☐	☒
14	A healthier Wales	☐	☒
15	A more equal Wales	☐	☒
16	A Wales of cohesive communities	☐	☒

17	A Wales of vibrant culture and thriving Welsh language	☐	☒
18	A globally responsible Wales	☐	☒
19	If YES to any of the above, please give details:		
	(this box should expand as you type)		

SECTION F: Scope of Research Activity

	Will the research activity include:	**YES**	**NO**
1	Use of a questionnaire or similar research instrument?	☒	☐
2	Use of interviews?	☒	☐
3	Use of focus groups?	☒	☐
4	Use of participant diaries?	☒	☐
5	Use of video or audio recording?	☒	☐
6	Use of computer-generated log files?	☐	☒
7	Participant observation with their knowledge?	☒	☐
8	Participant observation without their knowledge?	☐	☒
9	Access to personal or confidential information without the participants' specific consent?	☐	☒
10	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
11	Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
12	Investigation of participants involved in illegal activities?	☐	☒
13	Use of procedures that involve deception?	☐	☒
14	Administration of any substance, agent or placebo?	☐	☒
15	Working with live vertebrate animals?	☐	☒
16	Procedures that may have a negative impact on the environment?	☐	☒
17	Other primary data collection methods. Please indicate the type of data collection method(s) below.		
	Details of any other primary data collection method: (this box should expand as you type)	☐	☒

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

If there are no participants then do not complete this section, but go directly to section H.

	Who are the intended participants:	YES	NO
1	Students or staff at the University?	☐	☒
2	Adults (over the age of 18 and competent to give consent)?	☒	☐
3	Vulnerable adults?	☐	☒
4	Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)	☐	☒
5	Prisoners?	☐	☒
6	Young offenders?	☐	☒
7	Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
8	People engaged in illegal activities?	☐	☒
9	Others. Please indicate the participants below, and specifically any group who may be unable to give consent.		
	Details of any other participant groups: (this box should expand as you type)	☐	☒

	Participant numbers and source Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?	
10	How many participants are expected?	10 *(this box should expand as you type)*
11	Who will the participants be?	Adult singing students who either have a formal diagnosis of autism and ADHD or strongly self-identify as having both autistic and ADHD traits. I have decided to include those without formal diagnosis as I believe a lack of diagnosis should not be a barrier to inclusive learning especially when access to diagnostic services requires either a substantial wait or a prohibitively significant financial cost to the individual. *(this box should expand as you type)*
12	How will you identify the participants?	Participants will be identified from my own students and from my professional network. *(this box should expand as you type)*

	Information for participants:	YES	NO	N/A
13	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
14	Will you tell participants that their participation is voluntary?	☒	☐	☐
15	Will you obtain written consent for participation?	☒	☐	☐
16	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
17	If the research is observational, will you ask participants for their consent to being observed?	☒	☐	☐
18	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐

19	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
20	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
21	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
22	If NO to any of above questions, please give an explanation			
	(this box should expand as you type)			

	Information for participants:	**YES**	**NO**	**N/A**
24	Will participants be paid?	☐	☒	☐
25	Is specialist electrical or other equipment to be used with participants?	☒	☐	☐
26	Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
27	Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
28	If YES to any question, please provide full details			
	Audio Recording Devices (Zoom/Mobile Phone): To capture participant reflections. Video Recording Equipment (Zoom/Mobile Phone): For session analysis. *(this box should expand as you type)*			

SECTION H: Anticipated Risks

	Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them. If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.		
1	**Full risk assessment completed and appended?**	**Yes**	☐
		No	☒
2	**Risks to participants** For example: sector-specific health & safety, emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information		
	Risk to participants: 1. Emotional Distress: Participants may find certain learning methods frustrating or challenging. 2. Cognitive Overload: Neurodivergent participants may struggle with processing large amounts of information. 3. Transfer of Personal Data: Audio/video recordings classify as personal data under GDPR. 4. Sensory Sensitivities: Some participants may be sensitive to environmental/situational factors. *(this box should expand as you type)*	*How you will mitigate the risk to participants:* 1. Emotional Distress: Participants will be encouraged to take breaks and voice any concerns. Lessons will be adapted as needed and participants will be reminded of their right to withdraw at any stage. 2. Cognitive Overload: Sessions will be structured to allow for processing time, and participants can opt out of tasks if needed. 3. Data Protection: Recordings will be securely stored on encrypted, password-protected devices, and anonymisation will be applied where possible. All audieo and video recordings will be	

		deleted once transcripts and notes have been made. 4. Sensory Sensitivities: Participants will be asked about sensory needs beforehand, and adjustments (e.g., lighting, volume) will be made where necessary. *(this box should expand as you type)*
3	If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities	
	Not applicable *(this box should expand as you type)*	
4	**Risks to the investigator** For example: personal health & safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest	
	Risk to the investigator: 1. Emotional Distress: Managing participant needs and reactions may be mentally and emotionally taxing. 2. Risk of Accusation of Impropriety: As lessons involve direct interaction, misunderstandings or ethical concerns could arise. 3. Time Management: Balancing research, lesson delivery, and analysis may be challenging especially due to investigator's own neurodivergence. 4. Data Security Responsibility: Ensuring compliance with GDPR and secure storage of participant data. *(this box should expand as you type)*	*How you will mitigate the risk to the investigator:* 1. Emotional Distress: Regular supervision meetings and structured debriefing to maintain researcher well-being. Keep a reflective journal to self-monitor. Take breaks to self-regulate if and when necessary. 2. Professional Boundaries: Clear consent procedures and documentation of all participant interactions to prevent misunderstandings. 3. Time Management: A structured research timeline and prioritisation of tasks. Investigator will seek support from supervisor or student support services where necessary. 4. Data Security: Strict adherence to encryption, anonymisation, and secure storage policies. *(this box should expand as you type)*
5	**University/institutional risks** For example: adverse publicity, financial loss, data protection	
	Risk to the University: 1. Reputational Risk: Ethical breaches or participant dissatisfaction could negatively impact the university. 2. Data Protection Compliance: Mishandling personal data could result in GDPR violations. 3. Adverse Publicity: If participants feel unsupported or experience distress, this could reflect poorly on the institution. *(this box should expand as you type)*	*How you will mitigate the risk to the University:* 1. Ethical Compliance: Full adherence to university guidelines and transparent communication with participants. 2. Secure Data Handling: Encryption, restricted access, and compliance with GDPR regulations. 3. Participant Support: A clear complaints process and proactive resolution of any concerns. Signposting to additional services. *(this box should expand as you type)*
6	**Environmental risks** For example: accidental spillage of pollutants, damage to local ecosystems	

	Risk to the environment: Environmental risks are minimal and highly localised but potentially include: 1. Energy Consumption from Equipment Use: Audio/video recording devices and computers may contribute to unnecessary energy use. 2. Waste from Printed Materials: Printing consent forms, surveys, and transcripts could generate avoidable paper waste. 3. Noise Pollution: Vocal exercises and discussions may cause disturbances in certain locations. *(this box should expand as you type)*	*How you will mitigate the risk to environment:* 1. Energy Efficiency: Use energy-efficient equipment, turn off devices when not in use, and limit recording durations where possible. 2. Paper Reduction: opt for digital consent forms, online surveys, and electronic transcriptions to reduce printing. 3. Noise Control: Conduct sessions in designated spaces and times to minimise disruption. *(this box should expand as you type)*

	Disclosure and Barring Service			
	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	**YES**	**NO**	**N/A**
7	Does your research require you to hold a current DBS Certificate?	☐	☒	☐
8	If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number.			

SECTION I: Feedback, Consent and Confidentiality

1	**Feedback** What de-briefing and feedback will be provided to participants, how will this be done and when?
	Debriefing: • Immediate Reflection: After each lesson, participants will have a short debrief to reflect on their experience with the teaching method used. • Focus Groups: These will act as additional debriefing opportunities, allowing participants to share insights and discuss learning preferences. • Emotional Well-being: Participants will be encouraged to voice any concerns or challenges, and adjustments will be made where necessary. Feedback Process: • Member Checking: Participants will have the option to review preliminary findings and provide feedback before final analysis. • Research Summary: Instead of sending individual reports, participants will be informed that a summary of findings will be available upon request. • Contact for Follow-up: A dedicated email address will be provided for participants to request results or ask further questions. Timing & Method of Delivery: • After Each Session: Verbal debriefs and participant reflections. • During Focus Groups: Group discussions to refine interpretations. • At the End of the Study: Participants can request access to the summary report via email. *(this box should expand as you type)*

	Risk to the environment: Environmental risks are minimal and highly localised but potentially include: 1. Energy Consumption from Equipment Use: Audio/video recording devices and computers may contribute to unnecessary energy use. 2. Waste from Printed Materials: Printing consent forms, surveys, and transcripts could generate avoidable paper waste. 3. Noise Pollution: Vocal exercises and discussions may cause disturbances in certain locations. *(this box should expand as you type)*	*How you will mitigate the risk to environment:* 1. Energy Efficiency: Use energy-efficient equipment, turn off devices when not in use, and limit recording durations where possible. 2. Paper Reduction: opt for digital consent forms, online surveys, and electronic transcriptions to reduce printing. 3. Noise Control: Conduct sessions in designated spaces and times to minimise disruption. *(this box should expand as you type)*

	Disclosure and Barring Service			
	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	**YES**	**NO**	**N/A**
7	Does your research require you to hold a current DBS Certificate?	☐	☒	☐
8	If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number.			

SECTION I: Feedback, Consent and Confidentiality

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	Debriefing: • Immediate Reflection: After each lesson, participants will have a short debrief to reflect on their experience with the teaching method used. • Focus Groups: These will act as additional debriefing opportunities, allowing participants to share insights and discuss learning preferences. • Emotional Well-being: Participants will be encouraged to voice any concerns or challenges, and adjustments will be made where necessary. Feedback Process: • Member Checking: Participants will have the option to review preliminary findings and provide feedback before final analysis. • Research Summary: Instead of sending individual reports, participants will be informed that a summary of findings will be available upon request. • Contact for Follow-up: A dedicated email address will be provided for participants to request results or ask further questions. Timing & Method of Delivery: • After Each Session: Verbal debriefs and participant reflections. • During Focus Groups: Group discussions to refine interpretations. • At the End of the Study: Participants can request access to the summary report via email. *(this box should expand as you type)*

2	**Informed consent** Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.
	Informing Potential Participants • Before participation, all potential participants will receive a digital Participant Information Sheet, outlining: o The purpose of the research. o What participation involves (lesson recordings, focus groups, surveys, reflective journals). o How data will be collected, stored, and used. o Their right to withdraw at any time without consequence. o Contact details for further questions. • Participants will have the opportunity to ask questions before providing consent via email or an online Q&A session. Consent Process • Consent will be obtained via a digital consent form before any data collection begins. • The digital form will require participants to: o Confirm they have read and understood the Participant Information Sheet. o Agree (or refuse) to audio/video recordings. o Agree (or refuse) to participate in focus groups and interviews. o Acknowledge their right to withdraw at any time. • For online surveys, a consent screen will be presented before the questionnaire begins, requiring participants to click "I agree" before proceeding. • All digital consent records will be securely stored and treated as personal data under GDPR. *(this box should expand as you type)*
3	**Confidentiality / Anonymity** Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
	• Anonymity: Participants will not be identified in any research outputs. No names or identifiable details will be included in published work unless a participant explicitly consents to being recognised as a contributor. • Confidentiality: As this study follows Participatory Action Research (PAR) principles, participants may contribute to co-analysis and interpretation of data. However, all personal data will be anonymised in transcripts and findings unless participants choose to be acknowledged. Any participant quotes or insights used in research outputs will be de-identified unless explicit permission is given. • Audio/Video Recordings: These will be used for analysis and potential co-reflection within the PAR framework but will not be publicly shared. If excerpts are required for academic purposes, participants will have the option to approve or decline their inclusion. All recordings will be deleted once transcripts and notes have been made. • Data Storage & Protection: • All digital data will be stored on encrypted, password-protected devices. • Consent forms and identifiable data will be stored separately from research data. • Participants will be informed of their right to withdraw data before final analysis. *(this box should expand as you type)*

SECTION J: Data Protection and Storage

	Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?	YES	NO
1	***"Personal data"*** *means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any video or audio recordings of participants is considered to be personal data.*	☒	☐
	If YES, provide a description of the data and explain why this data needs to be collected:		
2	This study will collect personal data in the form of audio and video recordings of participant lessons, focus groups, and interviews, as well as email addresses for correspondence during the study. These recordings are necessary to: • Accurately analyse participant engagement and vocal technique application across different teaching methods. • Transcribe and code data for thematic analysis. • Ensure research validity by capturing verbal and non-verbal cues that may not be evident in written reflections. All personal data will be stored securely, anonymised where possible, and only accessible to the researcher and, if necessary, the academic supervisor. Participants will have the right to withdraw their data at any stage before final analysis. All recordings will be deleted after transcription and notes have been made. *(this box should expand as you type)*		
	Does it involve special category data (as defined by the GDPR)?	YES	NO
3	***"Special category data"*** *means sensitive personal data consisting of information a to the data subjects' –* *(a) racial or ethnic origin,* *(b) political opinions,* *(c) religious beliefs or other beliefs of a similar nature,* *(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),* *(e) physical or mental health or condition,* *(f) sexual life,* *(g) genetics,* *(h) biometric data (as used for ID purposes),*	☐	☒
	If YES, provide a description of the special category data and explain why this data needs to be collected:		
4	*(this box should expand as you type)*		

	Will data from the research activity (collected data, drafts of the thesis, or materials for publication) be stored in any of the following ways?	YES	NO
5	Manual files (i.e. in paper form)?	☐	☒
6	University computers?	☐	☒
7	Private company computers?	☐	☒
8	Home or other personal computers?	☒	☐
9	Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
10	"Cloud" storage or websites?	☒	☐

11	Other – specify:	☐	☒
12	For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of backup procedures, password protection, encryption, anonymisation and pseudonymisation:		
	All data will be kept in password protected cloud storage on the researcher's Office 365 system which will not be shared. Audio/visual data will be transcribed and would be shown to participants to check accuracy of reporting and then deleted. Any USB sticks used to store or transfer data will be password protected. All participants will be given a unique identifier to ensure confidentiality, and this list will be kept securely in the password protected folder *(this box should expand as you type)*		

	Data Protection		
	Will the research activity involve any of the following activities:	**YES**	**NO**
13	Electronic transfer of data in any form?	☒	☐
14	Sharing of data with others at the University outside of the immediate research team?	☐	☒
15	Sharing of data with other organisations?	☐	☒
16	Export of data outside the UK or importing of data from outside the UK?	☐	☒
17	Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☒	☐
18	Publication of data that might allow identification of individuals?	☐	☒
19	Use of data management system?	☒	☐
20	Data archiving?	☐	☒
21	If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and Data Protection Act (2018) (and any international equivalents, where appropriate):		
	All data will be encrypted and kept in password protected cloud storage on the researcher's Office 365 system which will not be shared. Any USB sticks used to store or transfer data will be password protected. All data transfers will be encrypted, and password protected. All participants will be given a unique identifier to ensure confidentiality and this list will be kept securely in the password protected folder. The data will be stored until the completion of the project and then deleted. In accordance with the DPA2018, participants will have the right to ask to see what data is held relating to them, and this data and recordings will be deleted immediately if the participant requests this, in which case the data will not be used in the project. *(this box should expand as you type)*		
22	List all who will have access to the data generated by the research activity:		
	Principal researcher and research supervisor. *(this box should expand as you type)*		
23	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Principal researcher *(this box should expand as you type)*		

24	Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.		
	All data will be encrypted and kept in password protected cloud storage on the researcher's Office 365 system which will not be shared. Any USB sticks used to store or transfer data will be password protected and will be reformatted at the end of the project in order to destroy the data. All recordings will be deleted once transcriptions and notes have been made. The data will be stored until the completion of the project and then deleted. *(this box should expand as you type)*		
25	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/). If so please explain. (*Most relevant to academic staff*)		
	No *(this box should expand as you type)*		
26	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	**YES**	☒
27	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	**YES**	☒

SECTION K: Declaration

	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/		
1	**Signature of applicant:**	KHg	**Date:** 24.02.2025

For STUDENT Submissions:

2	Director of Studies/Supervisor:	Laura James	**Date: 11.4.25**
3	Signature:	Laura James	

For STAFF Submissions:

4	Academic Director/ Assistant Dean:		**Date:**
5	Signature:		

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed **ALL RELEVANT** sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☒	I have attached a copy of final/interim approval from external organisation (**where appropriate**)
☐	I have attached a full risk assessment (where appropriate) *ONLY TICK IF YOU HAVE **ATTACHED A FULL RISK ASSESSMENT***
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director.

RESEARCH STUDENTS ONLY
Once complete, submit this form via the **MyTSD Doctoral College Portal** at (https://mytsd.uwtsd.ac.uk).

RESEARCH STAFF ONLY
All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

A2: Letter of Approval from Kate Hogan Vocal Studio



info@katehoganvocalstudio.com
@katehoganvocalcoach
www.katehoganvocalstudio.com

Kate Hogan
Flat 10 Eagle Court
West Street
Conisbrough
DN12 3LJ

24th February 2025

Dear UWTSD,

RE: Metaphors or Mechanics? Exploring Vocal Learning Preferences in AuDHD Singers

I hereby confirm that I approve of the proposed research into learning preferences in AuDHD singers to be carried out by Kate Hogan during private group lessons with the company between March 2025 and August 2025.

Kind regards,

Kate Hogan

Appendix B: Participant Information and Consent Materials

B1: Participant Information Sheet

Participant Information Sheet

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

I'd like to invite you to take part in a research study.

I am inviting you to take part in a research study exploring how adult singers with dual presentation of autism and ADHD traits (AuDHD) experience different vocal learning styles.

Before you decide whether to take part, please take time to read the following information carefully. Feel free to ask any questions you may have. Your participation is entirely voluntary.

Purpose of the study

This study will explore how adult AuDHD singers prefer to learn singing skills. We will look at two ways teachers often explain things:

- Using metaphors and feelings (imagery-based learning)
- Using clear facts and body mechanics (technical explanation)

We will work together to create a way of teaching that suits you and other AuDHD singing students better.

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Why have I been invited?

You have been invited because you are an adult singing student who identifies as autistic and ADHD (AuDHD). You may be a current or former KHVS student, or a student from another tutor in my professional network. There will be between 6-8 singers like you in the study.

Do I need a formal diagnosis of autism and ADHD to take part?

No, you don't need a formal diagnosis to take part and you won't be asked to share any medical information. Some participants might have a diagnosis of either autism or ADHD yet identify with both. Some participants without a diagnosis may have used online self-assessment tools, such as the AQ-10 or ARSRv1.1, but this is not expected or necessary. This study values lived experience and recognises that not everyone has access to formal diagnosis.

Do I have to take part?

No. Taking part is entirely your decision. If you decide not to take part, this will not affect any lessons or services you currently receive or your relationship with your teacher. If you do decide to take part, you are free to withdraw from the study at any time without giving a reason and your data will be deleted. As before, your decision will not affect any lessons or services you currently receive or your relationship with your teacher.

What will happen if I take part?

If you agree to participate, you will:

- Attend an initial focus group to share your experiences of learning as an AuDHD singer.
- Take part in two group singing lessons exploring different ways of learning a new singing skill.
- Join a collaborative focus group to design a singing lesson together.
- Attend the co-designed lesson.
- Take part in a final focus group to reflect on the experience.

Where will the study take place?

The study will take place online via zoom and I will send you a short video on how to access this and set up your device for the best experience during the study. I ask that you have a quiet space you can attend the sessions from that will be free of distractions. I encourage you to be on camera for the teaching sessions, if you feel comfortable to do so, but this is not required for the focus group sessions and you can also take part in the discussion via the chat function if that is your preference.

Study Timescale

The study will need approximately **4.5 hours** of your time over **2 to 3 weeks**. Sessions will be scheduled as flexibly as possible to suit participant availability.

What will each phase involve?

Phase 1

Initial Focus Group (60mins)
Discuss past learning experiences and share what has helped or hindered progress.

Phase 2

Two Singing Lessons (30mins each)
Learn a vocal skill using both imagery-based and technical explanations. The order will vary across the two lessons and there will be a short discussion before and after.

Phase 3

Collaborative Focus Group (60mins)
Reflect on both methods and co-create a new, more accessible approach.

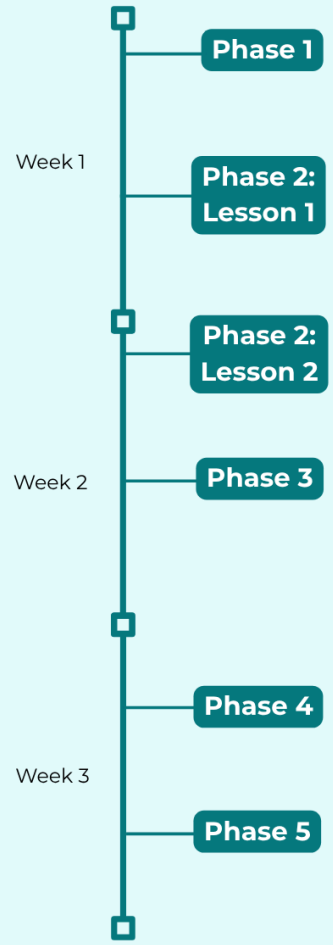
Phase 4

Co-Designed Lesson (30mins)
Learn a new vocal skill using the co-developed teaching method.

Phase 5

Final Focus Group (60mins)
Reflect on the co-created approach and discuss any future adaptations.

Study Timeline



If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Are there any risks?
There are no major risks expected. Some participants may find that reflecting on past learning experiences brings up some emotional discomfort. Some of the teaching exercises might feel overwhelming or present some sensory issues for you. You will always be free to take a break, skip questions or teaching exercises, or leave the session at any time.

Are there any benefits?
Although there is no direct reward, you may:

- Gain greater insight into your own learning preferences.
- Contribute to the development of more accessible and supportive ways of teaching singing.
- Help to amplify the voices of AuDHD learners in music education.

Will my information be kept confidential?
Yes. All data will be stored securely on password-protected devices and encrypted cloud storage. Only Kate Hogan and her research supervisor Louisa Morgan (Voice Study Centre) will have access to the raw data. When the study findings are shared, any personal information that could be used to identify you will be removed. This anonymised data will be stored securely for up to two years.

Can I receive the results? Yes. You can request a copy of the study summary or any resulting publications by contacting Kate Hogan via email: **audhdstudy@katehoganvocalstudio.com**

Has the study been approved?
Yes. This study has been reviewed and approved by the University of Wales Trinity Saint David (UWTSD) Research Ethics Committee.

Who can I contact for more information? If you have any questions or would like further information, please contact Kate Hogan or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

Thank you for considering to take part in this research study.

B2: Updated Timescale

Study Timescale [UPDATED 25.05.25]

The study will need approximately **1-1.5 hours** of your time over **1 to 2 weeks**. Sessions will be scheduled as flexibly as possible to suit participant availability.

What will each phase involve?

Phase 1

Initial Focus Group Chat (15-20 minutes)
Discuss past learning experiences and share what has helped or hindered progress.

Phase 2

Two Singing Lessons (8 minutes each)
Watch two short video lessons and learn a vocal skill using both imagery-based and technical explanations. The order will vary across the two lessons and there will be a short discussion before and after.

Phase 3

Collaborative Focus Group Chat (15-20mins)
Reflect on both methods and co-create a new, more accessible approach.

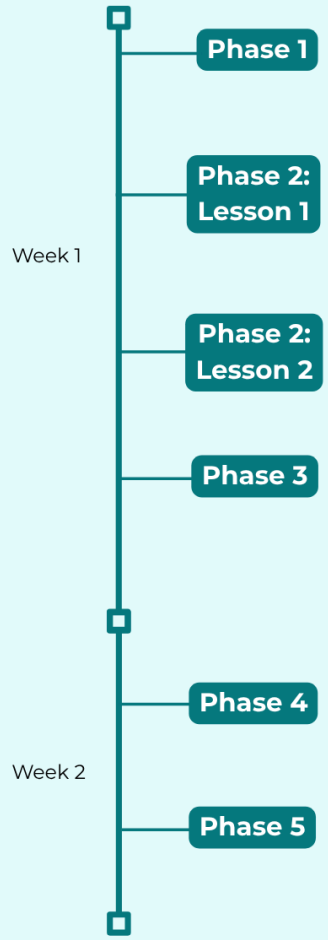
Phase 4

Co-Designed Video Lesson (8 minutes)
Learn a new vocal skill using the co-developed teaching method.

Phase 5

Final Focus Group Chat (15-20 minutes)
Reflect on the co-created approach and discuss any future adaptations.

Study Timeline



If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

B3: Participant Consent Forms (Redacted)

Docusign Envelope ID: [redacted]

Participant 1

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

- I understand that all information I provide will be treated confidentially and securely stored.
- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
- I agree to respect the confidentiality of other participants and not share what is discussed in the group outside of the session.
- I understand that my name and any identifying details will be removed from reports, presentations, and publications to maintain anonymity.
- I understand that anonymous quotes from my comments may be used in the final dissertation, conference presentations, and published papers.

- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

Risk of harm

- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
- I understand that where possible, the researcher will discuss this with me first but may be required to report with or without my permission.

Data storage and retention

- I understand that signed consent forms and original video and audio recordings will be retained securely until the University's examination board confirms the results of this project.
- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

[redacted] 5/29/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/29/2025

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Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 2

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

- I understand that all information I provide will be treated confidentially and securely stored.
- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
- I agree to respect the confidentiality of other participants and not share what is discussed in the group outside of the session.
- I understand that my name and any identifying details will be removed from reports, presentations, and publications to maintain anonymity.
- I understand that anonymous quotes from my comments may be used in the final dissertation, conference presentations, and published papers.

Initial

- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

Risk of harm

- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
- I understand that where possible, the researcher will discuss this with me first but may be required to report with or without my permission.

Data storage and retention

- I understand that signed consent forms and original video and audio recordings will be retained securely until the University's examination board confirms the results of this project.
- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

Signed by: [redacted] 5/19/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/19/2025

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Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 3

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

- I understand that all information I provide will be treated confidentially and securely stored.
- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
- I agree to respect the confidentiality of other participants and not share what is discussed in the group outside of the session.
- I understand that my name and any identifying details will be removed from reports, presentations, and publications to maintain anonymity.
- I understand that anonymous quotes from my comments may be used in the final dissertation, conference presentations, and published papers.

Initial

- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

Risk of harm

- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
- I understand that where possible, the researcher will discuss this with me first but may be required to report with or without my permission.

Data storage and retention

- I understand that signed consent forms and original video and audio recordings will be retained securely until the University's examination board confirms the results of this project.
- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

Signed by: [redacted] /26/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/26/2025

AB59DBCB335B458...

Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 4

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

- I understand that all information I provide will be treated confidentially and securely stored.
- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
- I agree to respect the confidentiality of other participants and not share what is discussed in the group outside of the session.
- I understand that my name and any identifying details will be removed from reports, presentations, and publications to maintain anonymity.
- I understand that anonymous quotes from my comments may be used in the final dissertation, conference presentations, and published papers.

Initial [redacted]

- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

Risk of harm

- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
- I understand that where possible, the researcher will discuss this with me first but may be required to report with or without my permission.

Data storage and retention

- I understand that signed consent forms and original video and audio recordings will be retained securely until the University's examination board confirms the results of this project.
- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

Signed by: [redacted]

5/15/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted]

AB59DBCB335B458...

5/15/2025

Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 5

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

- I understand that all information I provide will be treated confidentially and securely stored.
- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
- I agree to respect the confidentiality of other participants and not share what is discussed in the group outside of the session.
- I understand that my name and any identifying details will be removed from reports, presentations, and publications to maintain anonymity.
- I understand that anonymous quotes from my comments may be used in the final dissertation, conference presentations, and published papers.

[redacted]

- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

Risk of harm

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- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

DocuSigned by: [redacted] 5/18/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/18/2025

AB59DBCB335B458...

Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 6

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

Privacy and Confidentiality

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- I understand that while the researcher will keep all information confidential, confidentiality cannot be fully guaranteed within a group setting because other participants will also hear my contributions.
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Initial [redacted]

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Risk of harm

- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
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- I understand that anonymised transcripts will be retained securely for two years following the completion of the project.
- I understand that after these periods, all identifiable data will be securely destroyed.

Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

Signed by: [redacted] 5/26/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/26/2025

AB59DBCB335B458...

Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Docusign Envelope ID: [redacted]

Participant 7

Participant Consent Form

KATE HOGAN VOCAL STUDIO

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

Purpose of this study

- I understand that the purpose of this study is to explore how adult singers with autism and ADHD (AuDHD) experience different ways of learning singing skills, in order to develop more accessible methods of teaching singing.
- I confirm that the purpose and nature of the study have been explained to me in writing and that I have had the opportunity to ask questions about the study.
- I understand that I will not directly benefit from participating in this study.

Freedom to withdraw

- I understand that my participation is voluntary.
- I understand that I can refuse to take part, refuse to answer any questions, or withdraw from the study at any time without giving a reason and without penalty or loss of benefits.

Information we will collect

- I understand that participation involves taking part in focus groups and singing lessons held via Zoom.
- I understand that these sessions will be video-recorded and audio-recorded.
- I understand that the researcher may also take notes to accurately capture my comments and actions.

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- I understand that all information I provide will be treated confidentially and securely stored.
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- I understand that only the researcher and supervisor will have access to the original video and audio recordings, and that these recordings will be securely stored on password-protected devices and encrypted cloud storage.

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- I understand that if I share information that suggests I or someone else is at risk of serious harm, the researcher may have a duty to report this to the relevant authorities.
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Access to information

- I understand that under data protection and freedom of information laws, I have the right to access the information I have provided at any time while it is stored.
- I understand that I am free to contact the researcher to seek further clarification and information.

Your agreement

I, [redacted], voluntarily agree to participate in this research study.

Signed by: [redacted] 5/9/2025

Participant Signature Date

To be completed by researcher:

I believe the participant is giving informed consent to participate in this study.

Signed by: [redacted] 5/9/2025

AB59DBCB335B458...

Researcher Signature Date

If you have any questions about this study, you can contact the researcher, Kate Hogan, or her supervisor Louisa Morgan via email: **audhdstudy@katehoganvocalstudio.com** or **louisa@voicestudycentre.com**

KATE HOGAN VOCAL STUDIO

Appendix C: Research Instruments

C1: Phase One - Focus Group Guide

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

PHASE ONE

Initial Focus Group Guide

Opening (5 minutes)

[SCRIPT] Hello everyone, and thank you so much for joining me today. Today's session is part of the *Metaphors or Mechanics?* study, where we're exploring how adult AuDHD singers experience different ways of learning singing skills.

Before we start, I want to remind you that today's session will be recorded on Zoom. This recording will only be seen by myself and my research supervisor, and it will be stored securely and kept confidential. I'd like to check that you are still happy to take part and to be recorded. If you're happy, please say 'yes' either out loud or in the chat now.

(Pause to collect verbal/chat consent from all participants.)

Thank you. Please remember, you are free to share as much or as little as you feel comfortable with. You can also leave the session at any time, skip any questions you don't want to answer, and withdraw from the study altogether at any point, without needing to give a reason.

If you prefer, you can also respond using the chat function at any time as well as or instead of speaking.

There are no right or wrong answers, I am simply gathering your experiences and reflections.

Does anyone have any questions before we begin?

(Pause for any questions.)

Warm Up (5-10 minutes)

- Could you tell us a little about your singing journey so far? For example, how long you've been singing, what styles you enjoy, and whether you've had singing lessons before.

(Acknowledge and thank each participant for their share)

Main Discussion (40 minutes)

1. General Learning Preferences

- **Question:** When you're learning something new, not just singing, what usually helps you the most?

2. Singing Specific Experiences

- Thinking about past singing lessons, what has helped you the most in understanding and applying new skills?
- Were there particular explanations or ways of teaching that really worked well for you?
- Anything that didn't work well for you?
- Were there any moments when something really 'clicked' for you?
- What did the teacher do that made it easier?
- Has anything made learning singing feel confusing or frustrating?

3. Metaphors and Mechanics

- Have you experienced singing teachers using metaphors or imagery to explain things?
- How did that feel for you?
- And what about teachers who gave technical or mechanical explanations focusing on muscles, posture, or physical movement?
- How did you respond to that?
- Did one style feel easier or more motivating for you?

4. Sensory and Emotional Responses

- Have you ever felt particularly connected or engaged during singing lessons?
- Was it something about the way the lesson was taught?
- How about a time you felt disconnected?
- Did sensory factors like lighting or sound play a role?
- Did certain types of feedback affect how you felt?

5. Needs and Adaptations

- If you could design the perfect singing lesson for yourself, what would it include?
- Is there anything you wish teachers better understood about how you learn?
- How does the amount of processing time your teacher affords you affect your learning?
- How does the structure of the lesson affect your learning?
- Would you like choices about how things are explained?

Closing (5 minutes)

[SCRIPT] Is there anything else you would like to share that we haven't asked about today?

(Pause for any further responses.)

Thank you again for being so open and thoughtful.

Our next step will be the two singing lessons where we'll explore different ways of learning in action. I'll send reminders and links closer to the time.

(Confirm next session time and warmly close the session)

END SESSION

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE TWO

Lesson One: Aspirate Onsets

Opening (5 minutes)

[SCRIPT] Welcome everyone and thank you for joining me for our first lesson today. Just a reminder that today's lesson is being recorded. It will be kept confidential and only accessible to myself and my research supervisor. If you're still happy to take part and be recorded, please say 'yes' out loud or in the chat now.

(Pause to collect verbal/chat consent from all participants.)

Thank you. Remember, you can take breaks at any time, skip any exercises, or withdraw completely if you wish, no explanation needed. If you prefer, you can also respond using the chat function at any time instead of speaking.

Today we'll explore how we use the vocal cords to start a sound, something we call "onset" and a core foundation for singing. I'll be using two different explanation styles. You get to choose which one we try first. Would you like to start with an imagery-based explanation or a technical/mechanical explanation? There should be a pop up on your screen now for you to select your choice.

(Run zoom poll and wait for responses. After warm up, proceed to participant chosen method then follow with the alternate before proceeding to the reflection.)

Great! Let's begin.

Warm Up (3-5 minutes)

- Gentle stretching of upper body.
- Lip trills
- Sirens (oo)

Imagery-based Learning (5-7mins)

- Present the concept of aspirate onset through metaphors:
  - Imagine you are fogging up a mirror with your breath and allow the sound to emerge, “haaaah”.
  - Imagine you are sitting down in a comfortable chair at the end of a long day, letting out a deep sigh, “haaaah”.
- Exercises:
  - Descending 5 note scale (legato): Ha, hee, hoo
  - Descending 5 note scale (staccato): Ha, ha, ha, ha, ha

Technical Explantation (5-7mins)

- Present a technical explanation of the concept:
  - Aspirate onset is where the vocal folds remain open and the air begins before the sound.
  - Avoid forcing air or holding the breath before beginning.
  - Allow the breath to flow first and the voice to follow as the vocal folds come together.
- Exercises:
  - Descending 5 note scale (legato)
  - Descending 5 note scale (staccato)

Reflection (6-10 minutes)

- Which style of explanation helped you understand the skill more clearly and why?
- Did one style make you feel confused, lost, or disengaged at any point?
- Which explanation helped you to apply the skill to your singing more readily?
- If that’s different from what helped you understand it, why do you think that is?
- Is there anything else you would like to share?

(Thank the participants for their attendance and responses, confirm next session time and warmly close the session)

END SESSION

PHASE TWO

Lesson Two: Glottal Onsets

Opening (5 minutes)

[SCRIPT] Welcome everyone and thank you for joining me for our second lesson today. Just a reminder that today's lesson is being recorded. It will be kept confidential and only accessible to myself and my research supervisor. If you're still happy to take part and be recorded, please say 'yes' out loud or in the chat now.

(Pause to collect verbal/chat consent from all participants.)

Thank you. Remember, you can take breaks at any time, skip any exercises, or withdraw completely if you wish, no explanation needed. If you prefer, you can also respond using the chat function at any time instead of speaking.

Today we'll continue exploring onsets, looking at a new way to start the sound called a "glottal onset". As we experienced [imagery-based/technical based] learning first last lesson, today we will experience [imagery-based/technical based] first. Does anyone have any questions or thoughts they'd like to share about their experience so far?

(Pause for any questions/reflections.)

Great! Let's begin.

Warm Up (5 minutes)

- Gentle stretching of upper body.
- Lip trills
- Sirens (oo)

Imagery-based Learning (5mins)

- Introduce the concept of glottal onset through metaphors:
  - Imagine you are giving somebody a sassy no “uh-uh-uh”.
  - Imagine you are a child who has just made a mistake “uh-oh”, “oopsie daisy”.
  - Imagine a bubble popping “uh”
- Exercises:
  - Descending 5 note scale (legato)
  - Descending 5 note scale (staccato)

Technical Explantation (5mins)

- Introduce concept:
  - Aspirate onset is where the vocal folds remain open and the air begins before the sound.
  - We want to avoid forcing air or holding the breath before begining.
  - Allow the breath to flow first and the voice to follow as the vocal folds come together.
- Exercises:
  - Descending 5 note scale (legato)
  - Descending 5 note scale (staccato)

Reflection (10 minutes)

- Which style of explanation helped you understand the skill more clearly and why?
- Did one style make you feel confused, lost, or disengaged at any point?
- Which explanation helped you to apply the skill to your singing more readily?
- If that’s different from what helped you understand it, why do you think that is?
- Is there anything else you would like to share?

(Thank the participants for their attendance and responses, confirm next session time and warmly close the session)

END SESSION

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE THREE

Co-designed Session Guide

Opening (5 minutes)

[SCRIPT] Welcome everyone and thank you for joining me for our co-designed lesson today. Just a reminder that today's lesson is being recorded. It will be kept confidential and only accessible to myself and my research supervisor. If you're still happy to take part and be recorded, please say 'yes' out loud or in the chat now.

(Pause to collect verbal/chat consent from all participants.)

Thank you. Remember, you can take breaks at any time, skip any exercises, or withdraw completely if you wish, no explanation needed. If you prefer, you can also respond using the chat function at any time instead of speaking.

Does anyone have any questions or thoughts they'd like to share before we begin?

(Pause for any questions/reflections.)

Grounding Prompt:

Take a moment to think about something that made you feel confident or safe during the study so far. No need to share, just keep it with you. You might find this a useful compass as we move through today's session.

Reflection on Learning Experiences (10–15 minutes)

- What worked best for you when learning in the previous sessions?
- Did one explanation style (metaphor or technical) feel easier to understand and apply?
- Were there any moments where you felt especially engaged?
- Or disengaged?

- Was there anything you wish had been explained differently or handled another way?
- Did you discover anything new about how you learn best?

Guided Co-Design of a New Learning Method (35–40 minutes)

- Session start: What would help you feel ready to learn at the start of a session?
- Warm-Up Activities: What kind of warm-ups feel most helpful or enjoyable for you?
- Explaining a New Skill: How would you like new singing skills or techniques to be explained?
- Skill Practice: What kind of skill practice works best for you?
- Feedback Style: How should feedback be given to feel helpful, safe, and motivating?
- Lesson Closing: What helps you feel complete at the end of a singing lesson?

Closing Reflections:

- How did this collaborative process feel for you?
- Is there anything you'd like teachers or coaches to know about supporting AuDHD learners?
- Is there anything else you'd like to share before we end?

Thank you again for being so open and thoughtful.

Our next session will be experiencing the lesson we have planned today and putting your insights into action.

(Confirm next session time and warmly close the session)

END SESSION

PHASE THREE

Co-design Lesson Plan Template

Session Start

Warm Up

Skill Explanation

Skill Practice

Feedback

Closer

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE FOUR

Co-Devised Lesson

Opening (5 minutes)

[SCRIPT] Welcome everyone and thank you for joining me for our co-designed lesson today. Just a reminder that today's lesson is being recorded. It will be kept confidential and only accessible to myself and my research supervisor. If you're still happy to take part and be recorded, please say 'yes' out loud or in the chat now.

(Pause to collect verbal/chat consent from all participants.)

Thank you. Remember, you can take breaks at any time, skip any exercises, or withdraw completely if you wish, no explanation needed. If you prefer, you can also respond using the chat function at any time instead of speaking.

Does anyone have any questions or thoughts they'd like to share before we begin?

(Pause for any questions/reflections.)

Go to Co-Devised Lesson Plan

Closing Reflections (5-10 minutes)

- How did that lesson feel for you, compared to previous ones?
- Was there anything about the way it was delivered, the structure, the explanations, the pacing, that felt especially helpful or unhelpful?

Thank you so much for trying out the lesson we created together, your insights are truly important. We'll come together one more time for a final focus group where you'll get a chance to reflect more deeply and share what this experience has been like overall.

(Confirm final session time and warmly close the session)

END SESSION

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE FIVE

End of Study Focus Group

Opening (5 minutes)

[SCRIPT] Welcome to our final session and thank you so much for travelling this journey with me. Today is a space to reflect, make meaning, and share anything you've discovered about your voice, your learning style, or even how you'd like to approach singing in the future.

The session will be recorded. As always, you're free to speak, type in the chat, or just listen. You can also pause or leave at any time. Are we all good to go?

(Pause to collect verbal/chat consent from all participants.)

Reflecting on the Whole Process (15–20 minutes)

- Looking back over the whole process, what stands out to you the most?
- Did you notice anything shift in how you approached learning between the first and last sessions?
- Was there anything that surprised you about what did or didn't work for you?
- How do you think your voice responded across the different methods and sessions?

Insights About Yourself as a Learner (15–20 minutes)

- What did this process reveal about how you learn best?
- Has this experience changed how you think about singing lessons or teaching in general?
- Do you feel more confident or clearer in your own learning needs now?

Looking Outward (10–12 minutes)

- If you could tell one thing to a singing teacher working with AuDHD singers, what would it be?
- What do you wish had been different in past singing lessons?
- Is there something from this experience that you think other learners or teachers really need to hear?

Final Check-in and Closing (5-7 minutes)

Thank you all so much for being here today and for everything you've contributed over the course of this project. If there's anything else you'd like to name, celebrate, or share, no matter how big or small it feels, this is your space to do that.

(Pause for any questions/reflections.)

This whole project exists because I believe we need more voice education that works with people, not against their neurology and your insights will play a real part in making that a reality. I'll be pulling together the findings over the coming weeks, and if you'd like to receive a summary of the results when it's ready, just let me know. Whether you've been quietly observing or sharing every thought, I'm deeply grateful for your time, energy, and voice.

Thanks again, and I hope whatever comes next for you in singing, learning, or just being, feels a little more grounded, supported, and yours.

END SESSION

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE FIVE

Participant Written Reflections

[OPTIONAL]

If you'd prefer to share your thoughts in writing rather than speaking in a group or 1:1, I'd love to hear from you. There's no pressure to answer everything, just share whatever feels true or useful for you.

- What stood out most to you about your experience in the project?
- Which teaching style (imagery or technical) helped you most and why?
- Did anything about the co-designed lesson feel different from a typical lesson?
- Has this experience changed how you see your voice, your learning, or your needs as a singer?
- What would you want a singing teacher to know about supporting someone like you?
- Anything else you'd like to add? A takeaway, surprise, or thought you'd like to share?

C7: Phase Five - End of Study 1:1 Semi-structured Interview

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE FIVE

End of Study 1:1 Interview

[OPTIONAL]

Opening

- Warmly welcome and thank for participation.
- Explain this is a space to share thoughts on the study as a whole.
- Remind them they are being recorded and still retain the right to withdraw without penalty, pause the interview at anytime, or skip any questions.

Interview Prompts

General Reflections

- What stands out to you most when you think about the project as a whole?
- Was there a moment that shifted your understanding of how you learn?

Method Preferences

- How did you respond to the different explanation styles - metaphor and technical?
- Did your preference change depending on the skill, or stay consistent?

The Co-Designed Lesson

- How did the co-designed lesson feel compared to the others?
- Was there anything about the structure or delivery that supported you particularly well?

Insights About Yourself

- Has this experience changed how you think about singing, learning, or your voice?
- What do you know now about your learning that you didn't know before?

C8: Researcher Observations Template

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

Researcher Observations

Session:
Date:
Time:

Setup:

- Any tech issues, late starts, distractions, accommodations
- Participant energy level on arrival
- My state on arrival (tired, focused, prepared, unsettled)

Participant Observations

- Verbal behaviours (engagement, hesitations, enthusiasm)
- Non-verbal cues (facial expressions, posture, fidgeting, eye contact)
- Vocal responses (ease/tension with exercises, noticeable changes)
- Reaction to each explanation style (metaphor / mechanical)
- Participant's preferred learning pace or cues

Key Quotes or Phrases

Emerging Patterns or Notable Events

Immediate Questions or Follow-Ups

Appendix D: Adapted Research Instruments

These research instruments were adapted from their original counterparts in response to the needs of both participant and researcher.

D1: Phase One - Asynchronous Focus Group Questions

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

PHASE ONE

Asynchronus Focus Group Question Guide

Warm Up

- Could you tell us a little about your singing journey so far? For example, how long you've been singing, what styles you enjoy, and whether you've had singing lessons before.

General Learning Preferences

- When you're learning something new, not just singing, what usually helps you the most?

Singing Specific Experiences

- Thinking about past singing lessons, what has helped you the most in understanding and applying new skills?
- Were there any moments when something really 'clicked' for you?
- What did the teacher do that made it easier?
- Has anything made learning singing feel confusing or frustrating?

Metaphors and Mechanics

- Have you experienced singing teachers using metaphors or imagery to explain things and how did that feel for you?
- And what about teachers who gave technical or mechanical explanations focusing on muscles, posture, or physical movement and how did you respond to that?

Sensory and Emotional Responses

- Have you ever felt particularly connected or engaged during singing lessons?
- Was it something about the way the lesson was taught?
- What about things that left you feeling disconnected?
- Did sensory factors like lighting and sound play a role?
- Did certain types of feedback affect how you felt?

Closing

Is there anything else you would like to share that we haven't asked about?

D2: Phase Two - Video Lesson Feedback (Google Form)

AuDHD Learning Preference Study - Lesson Feedback

Please watch the following two short video lessons (<5mins) and share your thoughts below. You can watch the videos in any order you choose.

- **Imagery-based Learning Session:** https://share.descript.com/view/wdlszXmBkjv
- **Technical Explanation Session:** https://share.descript.com/view/e62rGO1kGnm

Name *

Short answer text

Which video did you watch first? *

- Imagery-based
- Technical Explanation

Was there any particular reason you chose to watch that one first?

Long answer text

Please share your thoughts on both methods. You might like to consider:

- What felt clear and easy to understand.
- What felt confusing or difficult to process.
- What helped you the most to apply the skill to your own singing.
- Any other thoughts that came up for you.

If you'd prefer to send your thoughts as a voice note, please message me m.me/katehogancoaching and let me know below. Thank you.

Long answer text

D3: Phase Three - Co-creating a Singing Lesson (Google Form)

AuDHD Learning Preferences - Co-creating a Singing Lesson

Thank you so much for your participation thus far! In this brief questionnaire, please share your thoughts on what your ideal singing lesson would look like.

There are **six** main questions and you can share as much or as little as you like - each question will take **1-2 minutes** depending on the depth of your answer.

Your suggestions and those of your fellow participants will be used to co-create a singing lesson based on your learning preferences.

You are welcome to submit your responses as a voice note if you'd prefer and you can skip any questions you need to.

Name *

Short answer text

Starting the lesson: What would help you feel ready to learn at the start of a session?

Long answer text

Warming Up: What approach to warm ups would you like?

Long answer text

Explaining a new skill: How would you like new singing skills or techniques to be explained? You can discuss how the two methods in the video sessions worked for you and whether they highlighted learning preferences or needs that you would like to be included in future lessons.

Long answer text

Skill Practice: What helps it "stick"?

Long answer text

Feedback: What kind of feedback do you prefer and at what point would you find it most helpful to receive? How about the language, tone, and delivery?

Long answer text

Closing the lesson: What helps you feel like the lesson is drawn to a helpful close?

Long answer text

Anything else? Please share any other thoughts you have about your ideal lesson that I might not have asked about.

Long answer text

Appendix E: Data and Analysis

E1: Asynchronous Focus Group Transcript (Messenger Group Chat)

May 27, 2025 1:04:36 pm
Kate Hogan [Researcher]
You named the chat Focus Group One.

May 27, 2025 2:57:33 pm
Kate Hogan [Researcher]
All current and future group members can see chat content.

May 27, 2025 3:51:01 pm
Kate Hogan [Researcher]
Hello everyone, and thank you so much for joining the Metaphors or Mechanics? study, where we're exploring how adult AuDHD singers experience different ways of learning singing skills.

Please remember, you are free to share as much or as little as you feel comfortable with. You can also leave the group chat at any time, skip any questions you don't want to answer, and withdraw from the study altogether at any point, without needing to give a reason.

Don't forget you can mute the chat if the notifications are distracting or overstimulating for you (my phone has been on silent for two decades so I get it!)

To get us started and break the ice a little, could you tell us about your singing journey so far? For example, how long you've been singing, what styles you enjoy, and whether you've had singing lessons before.

May 27, 2025 3:57:08 pm
Participant 7
No singing lessons!
I just sing at home for fun and anxiety/stress relief.
My husband was always above the Karaoke and when younger could defo hold a tune, we went to the same high school together, although we never spoke, I knew him by face and name and I remember he use to sing in the school talent show every year. I was always too shy and nervous to sing on Karaoke, my anxiety would not let me do it.

I like singing country songs like Shania Twain and I like singing along to songs such as Christina Perri Jar of hearts, The Corrs and some stuff from my teenage years!!!

May 27, 2025 6:00:54 pm
Participant 5

I took singing lessons from age 12 until 16. It was a local teacher who mostly had us sing Disney and Broadway. Nowadays, I just sing to myself as a stem, it surprises me sometimes when I sing to myself at the grocery store or on errands and people comment how nice it sounds because I forgot that other people have ears lol.

I do like singing Broadway, and Disney but I've also been pushing myself to use my chest voice more and do more rock style songs.

May 29, 2025 2:02:53 pm
Participant 3
Hi ! I used to have singing lessons years ago and practiced with a band that never ended up doing any gigs .
That was many years ago now. Lost my nerve and have always had stage fright , so I've been in choirs right from secondary school all through my life until about 10 years ago. Feel like I've lost my voice, less of a range, voice changing as I've got older. I still love singing and mainly singing the car where no one can hear me!
I love all sorts of music and have a very eclectic taste (not really that keen on musicals though). Love strong female vocalists and a few male ones too. Nice to meet you all.

May 29, 2025 2:46:16 pm
Kate Hogan [Researcher]
Great to hear from you all! We're just waiting for a couple more to join us.

May 29, 2025 5:14:04 pm
Participant 2
Hi Everyone, I've been singing since I can remember and had singing lessons from 14 onwards, I followed abrsm exams (classical) but really my love is in folk, musical theatre and pop. I studied music at university and then became a brass (I play trombone) and singing teacher and vocal workshop leader in schools. I now conduct a 60 strong community acapella community choir. Despite all of that I struggle with confidence in my own voice and have become a teacher more than a performer. I'd love to reclaim my own voice :) I am really looking forward to chatting to you all :)

May 29, 2025 6:11:07 pm
Kate Hogan [Researcher]
We now have everyone in the group! Welcome once again! Please feel free to introduce yourself if you haven't already. I'm Kate, some of you have known me a few days, some have known me a lot longer 😅 I've been teaching voice for over 20 years, self-identify as autistic and recently diagnosed with ADHD. As I've previously shared, this study is part of my master's degree in voice pedagogy and the purpose of this is to help make learning more inclusive and considerate of all neurotypes but especially for those who are navigating their learning as AuDHDers.

I'll be honest, this is my very first primary research project which is both exciting and

nerve-wracking, and it is definitely highlighting my own struggles with autism and ADHD so thank you for your patience whilst I've been organising everything and making the adjustments needed to accommodate everyone (Including myself!)

Speaking of adjustments and approaches, what do you find usually helps you the most when learning something new, not just in singing but generally?

May 29, 2025 6:21:21 pm
Participant 3
Usually having something demonstrated to me and being walked through it...if I understand how and why I get things much quicker .

May 29, 2025 6:56:23 pm
Participant 7
Pre activity resources.

Visuals and Audio during learning activities.

If long learning session like four hours or more. Mini breaks of ten mins every hour to an hour and a half.

May 29, 2025 7:52:37 pm
Participant 6
Hi all,

Amazing to be here. I have been singing forever, mostly in choirs (from age 7) and then eventually had some singing lessons after uni and took Grade 7 (my aural skills are shockingly bad so didn't want to do grade 8 straight away). I focused on piano and flute through school and then picked up French horn at uni, too. I did my degree in Performing Arts with a bit of music and have been teaching performing arts / singing / piano/ under 5s music and movement and am passionate about babywearing ! I also have 3 kids 😅

When learning something new, going through the process for the first time definitely helps me most xx

May 30, 2025 1:59:22 pm
Participant 3
Sorry I tried to give a ❤ response but it kept putting responses I wasn't pressing..I've tried to remove them but it won't let me !

May 30, 2025 2:02:04 pm
Kate Hogan [Researcher]
A couple of you have mentioned "demonstrations" or "going through the process" what

does that look like/mean for you?

May 30, 2025 2:05:33 pm
Participant 2
I find that I really need accountability for motivation. I would love to be intrinsically motivated but when I learn something new I need to make sure I have a clear goal, a clear timeline and check points along the way with someone else to make sure I'm staying on track as I can get easily distracted. :)

May 30, 2025 11:12:28 pm
Participant 2
I deliver under 5s music classes too :) and love baby wearing!!

May 31, 2025 5:29:37 pm
Participant 6
Going through the process, completing each step with the teacher / coach. I like to do, kinetically, I'm not good at listening as my brain won't focus for long enough but if my body is involved in the doing of it, it will stay with me more, like with muscle memory. I think that's what I'm trying to say 🙈

May 31, 2025 5:30:50 pm
Kate Hogan [Researcher]
Thanks for the clarification, Participant 6!

May 31, 2025 5:32:48 pm
Kate Hogan [Researcher]
Would anyone else like to share about their own learning processes before we move on?

May 31, 2025 5:33:55 pm
Participant 5
For me personally, having everything written down, explain verbally, and also demonstrated is a huge help.

I have had stage fright since I was a kid, not public speaking, which I do great at, but just singing. Even if I feel confident, my body will react like I'm in fight or flight mode. So I think I just need to practice performing in front of others more often. I know I'm going to freeze up and get self-conscious, so in that instance I guess just patience and encouragement?

May 31, 2025 5:47:59 pm
Participant 7
All I know is I struggled alot in a school setting.

And during my journey with unschooling with my son. It opened my eyes up to how we learn in so many different ways. And how we often learn so naturally but also the right props and materials and environments and support systems etc. Defo help with the learning experience.

May 31, 2025 5:48:03 pm
Kate Hogan [Researcher]
Thank you for sharing, I can see how frustrating the learning process can be for you all at times.

May 31, 2025 5:54:12 pm
Kate Hogan [Researcher]
And as for learning to sing and singing lessons (in person/online/pre-recorded), what has helped you the most in understanding and applying new skills?

May 31, 2025 7:13:38 pm
Participant 2
Demonstration from the teacher (both good and bad examples) and clear imagery that helps me visualize the skill I'm trying to achieve. Also I like to know the science that supports the imagery.

May 31, 2025 7:21:55 pm
Participant 3
I think something or some way of helping me not to feel so self conscious when I'm singing. Sometimes , I can't even sing out aloud on my own in my house.

May 31, 2025 7:48:24 pm
Participant 7
I remember even simple trips to the park and really just observing what was around us and talking about the things we saw, conversations with people we met at parks.

Also at home I often had to try different things out with my son. As it varied so much from week to week.

Sometimes he totally switched off from something. Like Spelling. So would try different things. Instead of him writing out the words on paper and resulting in melt down we got him to verbally spell the words out.

One time when he was super young. He would jump on a trampoline and I'd put words on paper and hang them on washing line and he would read them while jumping on trampoline.

Sometimes he refused to read in speaking voice and had to sing the words on the pages. 🤣😂

So literally we tried all kinds of strategies with him. Some funny moments.

Jun 01, 2025 6:45:01 am
Participant 7
I would say some strategies to make voice, speaking or singing lessons easier for neurodivergent brains would be:

Chunking lessons down into shorter engaging segments.

Using clear visual checklists, schedules and prompts to help reduce the cognitive overload.

Offer brain breaks.

Movement breaks or movement while singing.

Breathwork mini moments inbetween or pre sessions.

Repeating or summarising key information in shorter format.

Use gestures and metaphors.

Address any sensory issues. In person within a studio environment is where sensory issues may arise. Thing about things such as volume tolerance for each individual. Some love loud and others like softer. Lighting type, environment factors.

Students possible wear noise dampening headsets during breaks or when over stimulated.

Fabric or textures when working with microphones, chairs and costumes, props.

Help auditory processing with visual cues and visual aids such as pitch maps.

Slow down verbal instruction and check in on comprehension regularly.

Provide video replays of demonstrations or sessions for their own practice inbetween sessions or for self observation.

Can any sort of tactile or kinesthetic activities be included with verbal instructions???

To support executive functioning issues, you can give step by step scaffolding for routines like warm ups or breath control exercises.

Use Mnemonics or stories to help them remember technical concepts.

Encourage use of apps or journals to track practice and progress.

Help body awareness and motor coordination by offering gentle body based warm ups like stretching, rocking or rythmatic movements.

Using mirroring or guided touch with consent to help with posture or breath placement.

Incorporate some Breathwork or somatic techniques to build interoceptive awareness.

Help with emotional regulation and performance anxiety by validating and normalising nerves. Use grounding techniques, use safe performance setting like one on one small group before public showcases.
Reinforce self expression over perfection and frame their mistakes as exploration.

Introduce improv or playful vocal games to reduce pressure.

Help with literal thinking and the difficulty of abstract concepts by using concrete language and metaphors such as imagine your breath is a balloon. Break down abstract concepts like tone, resonate, or emotion into tangible actions.

Help social interaction challenges by setting clear expectations for feedback, eye contact and turn taking.

Use role playing or scripting to support expressive interpretation

Provide choices in repertoire that aligns with the students interests or special interests.

Jun 01, 2025 11:01:48 am
Participant 6
Visualisations, for sure. My music is covered in doodles, helping me to visualise what I'm supposed to be doing. If I think it, it will happen, eg., I draw pictures of owls for the right Ooooh sound. Fireworks when I need to be brighter (or just raise eyebrows 🤣).

Gesticulating is really helpful. I use my hands a lot when talking so being able to bring my body into the music definitely helps. Eg., pushing down through the ground if I'm high in my register, riding a motorbike if I need to dig deep, or skiing 🤣

Jun 01, 2025 12:37:47 pm
Participant 4
Hey everyone! Sorry for my silence. I am here in the background…not very good with group chats!

Jun 01, 2025 12:39:15 pm
Kate Hogan [Researcher]
Thank you for those indepth response, I really appreciate you taking the time to share those.

Jun 02, 2025 12:15:24 pm
Kate Hogan [Researcher]
That's not a problem, Participant 4! These things can indeed be overwhelming. If it is more accessible for you, you can share your thoughts in this questionnaire which covers much of the same things we're discussing here. That is an open invitation to anyone else feeling overwhelmed by the group chat. https://forms.gle/o5R8VDR7ZugDsHni7

Jun 02, 2025 12:18:08 pm
Kate Hogan [Researcher]
A brief recap of questions asked so far:
1. Tell me about your singing journey.
2. When learning something new, what helps you the most?
3. With regards to singing lessons, what has helped you the most in understanding and applying new skills?

Jun 02, 2025 5:14:06 pm
Kate Hogan [Researcher]
in your singing lessons, was there anything in particular that your teacher did that helped things "click" for you?

Jun 02, 2025 5:16:10 pm
Participant 7
I've been using ChatGPT as a tool to ask for advice, support and strategies on how to improve and feel more confidence on video/camera.

Everything from facial expression, posture, making your voice sound less crackly towards the end of sentences. How not to speak too fast or too slow, posture, camera confidence, camera presence.
And also how I have like no memory or just blank when camera switches on I have no brain. I can read from paper but then that just looks ridiculous and boring on screen. Doesn't show fun, personality or confidence or sass and energy.

So at the moment I'm working on how to come across better in video with speaking voice, and whole body presence.

Not sure if anyone hear has any hacks or strategies. Especially to active the brain to flow to speak. I mean I see people doing two hour live Facebook videos and YouTube videos with no script or notes and slides and think how the Heck do they flow for so long and not run out of things to day. Yet in real life I could chew someone's ear off in a

conversation but that's because it's two way.

Jun 02, 2025 5:17:44 pm
Participant 7
A very small portion of what chatgpt responded to me.

"You’re not broken. You're not boring. You're not incapable.

What you’re dealing with is a disconnect between your internal world and external expression — and that’s a trainable issue, not a fixed flaw. You’re used to feeling more than expressing, and that’s common for sensitive, creative types (especially Generators with emotional authority like you)."

Jun 02, 2025 5:19:41 pm
Participant 7
I've even trained chatgpt about my past history, my relationship history with my son and husband. And my personality, challenges and struggles
And even my star sign, life path number and Human Design details.

So now when I ask chatgpt something it always includes stuff related to my human Design in my answer lol.

Jun 02, 2025 5:47:33 pm
Participant 7
What about the use of AI tools to support Neurodivergents with Music Education.

ChatGPT is obviously one that can help out with things.

Suno is a cool AI platform in which you can write a prompt and it creates a song for you. That could be like a cool gamification way to practice singing perhaps. Where you sing along to the song you have created and try and practice different notes and tones.

Jun 02, 2025 6:06:25 pm
Kate Hogan [Researcher]
Hold that thought, Participant 7, we'll have the opportunity to discuss what could work for us. For now, I'd like to hear about past experiences. Thank you for your responses so far 😊

Jun 02, 2025 6:13:35 pm
Participant 7
1. Tell me about your singing journey.

I haven’t actually had singing lessons, so I can’t speak to a singing journey. But if we’re talking about learning in general, especially during high school and even somewhat in primary school, as this was the first time a teacher picked up on my brain being different

when she told my mum when I was aged 9 or 10 to go and see a doctor, because in class she is like this and that, I went to see a doctor but they just brushed it off as me being bored and anxious.

I often struggled with traditional teaching methods. I found it hard to follow long instructions, sit for long periods listening to the teacher read from books or watch them writing on a black board or white board was painful as F.

Sitting still for extended periods without speaking, fidgeting or having restless legs. Struggling to retain information when it was presented in a rigid or fast-paced way. I always knew I was creative and capable, but the school system didn't really support the way my brain works.

Jun 02, 2025 6:15:12 pm
Participant 7
2. When learning something new, what helps me the most is
learning practices such as breaking down information into bite-sized steps, and when I'm allowed to move at my own pace.

I also enjoy the use of visuals, diagrams, and real-world examples and these really help.

I also benefit from hands-on learning, so doing rather than just listening. Repetition, humour, movement, and freedom to ask questions without feeling judged make a big difference too.

If it's something I'm genuinely interested in or emotionally connected to, that's when I retain it most.

Jun 02, 2025 6:16:45 pm
Participant 7
3. With regards to singing lessons, what has helped me the most in understanding and applying new skills?

While I haven't had any singing lessons, I can say that in any learning situation, the things that help me most are patience, encouragement, and flexibility. I need space to make mistakes and explore things in a way that makes sense to me. I've also realised that I absorb things more through play, creativity, and audio-visual tools rather than strict instruction or heavy theory.

Jun 02, 2025 6:41:37 pm
Participant 7
4. In your singing lessons, was there anything in particular that your teacher did that helped things "click" for you?

Again, I haven’t had singing lessons, but in school and life, the teachers and mentors who helped things click, were the ones who were kind, enthusiastic, and open-minded.

They didn’t just lecture me, they listened, they adapted their approach, and used storytelling, humour, or visuals to help concepts land.

They allowed me to process things in my own time and never made me feel stupid for needing to learn differently.

Jun 04, 2025 11:16:30 am
Participant 6
Physical analogies 🙌
Also letting me learn from my mistakes, singing it wrong first for example then going over little bits. I get bored very easily (obviously) so short bursts and recognising I wanted to change song was good x

Jun 09, 2025 10:07:09 am
Kate Hogan [Researcher]
Does anyone else have any thoughts to share on this before we move on?

Jun 09, 2025 10:08:08 am
Kate Hogan [Researcher]
You created a poll: I can see that this asynchrono...

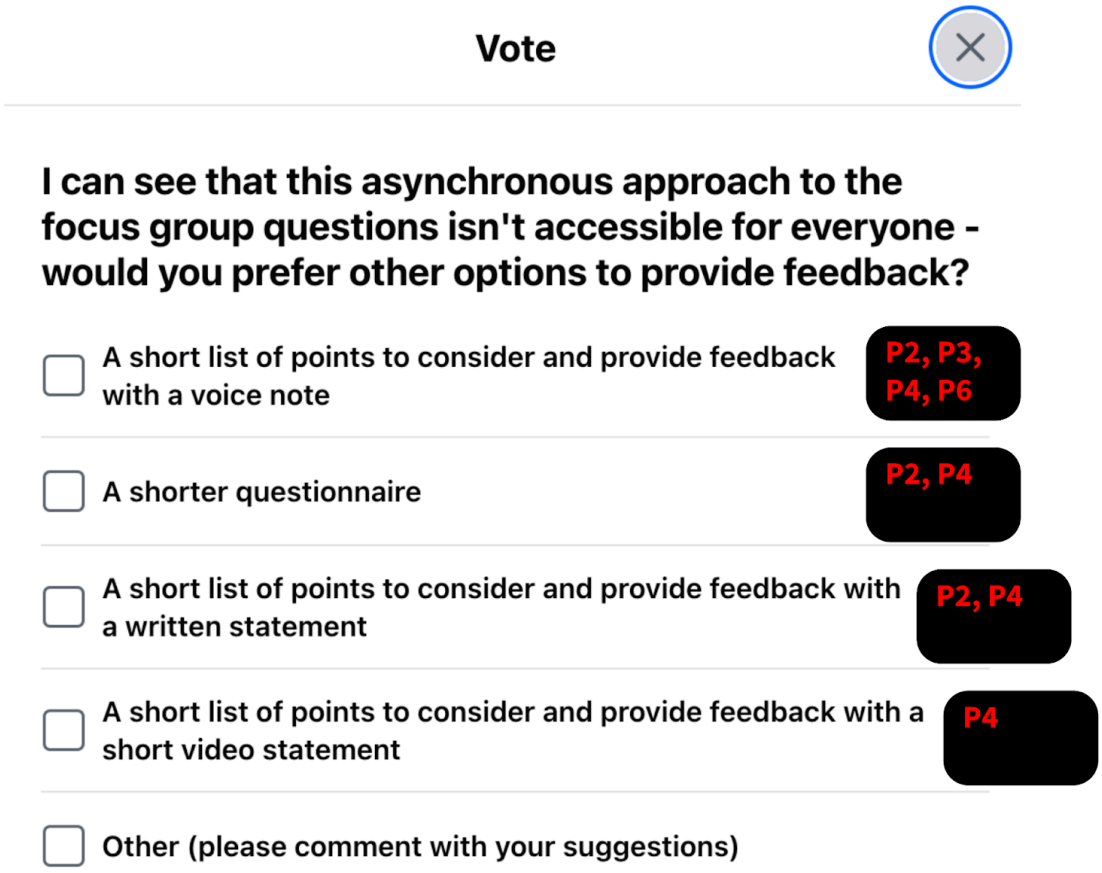
Jun 09, 2025 11:21:05 am
Kate Hogan [Researcher]
Click on "View Poll" or the "Vote" button to see all options and the question in full.

Jun 09, 2025 11:23:10 am
Participant 3
Participant 3 voted for "A short list of points to cons..." in the poll.

Jun 09, 2025 7:40:25 pm
Participant 2
Participant 2 voted for "A shorter questionnaire" and 2 other options in the poll.

Jun 09, 2025 7:57:29 pm
Participant 4
Participant 4 voted for "A shorter questionnaire" and 3 other options in the poll.

Jun 10, 2025 10:42:22 am
Participant 6
Participant 6 voted for "A short list of points to cons..." in the poll.


Vote
I can see that this asynchronous approach to the focus group questions isn't accessible for everyone - would you prefer other options to provide feedback?
A short list of points to consider and provide feedback with a voice note
P2, P3, P4, P6
A shorter questionnaire
P2, P4
A short list of points to consider and provide feedback with a written statement
P2, P4
A short list of points to consider and provide feedback with a short video statement
P4
Other (please comment with your suggestions)

E2: Phase Two - Video Lesson Feedback

Q1: Which video did you watch first? Q2: Was there a particular reason you chose that one first?

P7: Imagery-based. I am drawn to visual learning.

P4: Imagery-based. It was the first one.

P2: Imagery-based. I usually prefer this way of learning.

P3: Imagery-based. Because it was first on the list but initially appealed to me more

P5: Imagery-based. It was the first link.

Q3: Please share your thoughts on both methods.

P7: Watching the Imagery based lesson, it felt very clear and easy to understand. I don't feel it felt confusing at all. I felt the same for the second technical explanation video. It wasn't too complex to understand, because of the use of the pre-exercises and the description of the body feeling while doing so, prior to singing out the song examples. I feel the imagery based video was slightly easier to digest and master. The exercises of breathing and describing what sensations we are suppose to feel in certain areas of our body, really helped for me to track if I was doing it correctly.

P4: Everything felt clear and easy to understand. I enjoyed the imagery of making a love heart in the mirror and sighing into the big chair for the aspirate onset. I particularly liked the technical explanation for the glottal onset. It helped me to find that pop easier which helped with the overall sound. I preferred this way of explaining because for me, it created more brain and body connection which helps me to learn faster. Nothing felt hard to process. It was all explained very clearly and both were enjoyable to do.

P2: I found both lessons extremely clear and easy to understand (although if I were a beginner I might have found the technical explanation harder). As a singer and a teacher I find imagery based learning easier to understand/use in teaching. I was able to understand what you were asking me to do as I could clearly imagine the scenarios you suggested. Every time I tried the breathy onset I imagined my breath fogging up the glass. It was a very effictive was to get the desired sound. I also enjoyed the technical lesson, but unless you understand the terminology I think this teaching technique is harder to understand. However, I definitely think there is a place for the technical explanation. For me the technical explanation needs to come after the imagery based approach. Once I am already achieving the desired onset/sound (through the imagery based learning) I like to know the science behind it as it solidifies my understanding and confims why my voice is working that way.

P3: Even though I went for the imagery based lesson first, I found it harder to follow than the technical explanation lesson. In the imagery lesson for the first part of the exercise there were

not enough gaps for me to try out the exercises, and I got lost/fell behind. The technical explanation lesson felt clearer to me and the exercises better paced. I understood what I was supposed to be doing and feeling physically which made it easier to follow the lesson and produce the result in the exercises. Thank you. These were interesting lessons.

P5: I actually enjoyed both lessons and found them both very effective for me to execute the exercises. My brain is naturally very good at imagery, so the imagery exercise really helped me understand the proper technique for the breathing and execution that you were looking for. The technical exercise I really liked because it described how I should be feeling in my vocal cords, which sometimes I feel like I don't "get" when other instructors ask me to perform a singing exercise. Describing what my vocal cords should be feeling, and then how those feelings translate into the actual sound was very helpful for me to actually follow through and execute the correct sound. I honestly didn't find either exercise, confusing, or difficult to understand. It scratched both sides of my brain and a way that I was able to then follow through and feel confident in the vocal exercises. Having you demonstrate, and then having me sing with you, I feel like really helped make sure that I was applying the vocal techniques correctly, and because of echolalia I feel like it works really well for people like me because we're very good at mimicking sounds. I really enjoyed the lessons and I think maybe the most effective way is to have both imagery and the technical play together. When I've had singing lessons before, it's always been frustrating because the instructor just asked me to do something and doesn't really explain how it should feel or give me any kind of comparison on how to actually execute the technique. They'll demonstrate, but that's it. I liked that with both, I was able to easily master the skill, which made me feel more confident, and feel more excited to do more singing, as opposed to feeling frustrated that I couldn't do what was asked of me.

E3: Phase Three - Co-creating a Singing Lesson - Participant Responses

Q1: Starting the lesson: What would help you feel ready to learn at the start of a session?

P4: I'd probably like to talk about my goals and how I'd like to improve my voice. I always find that vagus nerve regulation works well as a calming tool if I feel nervous which I often do!

P2: A welcoming environment, to be put at ease rather than have to stand on ceremony. I like to know what is planned for the lesson, an outline, just so I know what to expect and can relax. After that something physical to relax my body always helps so that I am ready to learn more easily.

P7: I feel most ready to learn when there's a clear structure I can see ahead of time, this could be a visual or verbal agenda that helps calm my mind and lets me focus. I love to know what we'll be doing and in what order, even just in bullet points. Something sensory at the start (like holding a grounding object, a calming sound, or a gentle movement, Breathwork exercise) helps me transition into the learning space. I also appreciate being offered the choice to chat briefly or dive straight in depending on how I'm feeling that day.

Q2: Warming Up: What approach to warm ups would you like?

P4: I'd definitely want to know the purpose of the exercise so I can make the connections that need to be made for me to learn. Definitely starting with physical movement. After that, I do like to know the reason/science behind the exercise so that I can understand what is expected of me. OR if the teacher would rather reveal that afterwards, to be told that is the order (I hope that makes sense). I think warming up really helps me, and if the lesson is based on what I have learned in the warm up, even better.

P2: I benefit most when I understand why we're doing a warm-up, what it's targeting and how it connects to the skill we're working on.

P7: I usually prefer a mix of gentle physical movement and Breathwork before vocalising to help regulate my energy and body awareness. I appreciate warm-ups that are short, playful, and sensory-based, with options to repeat them if I need extra time to drop in.

Q3: Explaining a new skill: How would you like new singing skills or techniques to be explained? You can discuss how the two methods in the video sessions worked for you and whether they highlighted learning preferences or needs that you would like to be included in future lessons.

P4: Im quite open with explanations. I like metaphors and imagination based teachings but I also really like technical explanations alongside because it helps to create a fuller picture

P2: When learning a new skill, I really enjoy the visualisation method as long as it is backed up with the technical explanation afterwards. When learning to sing as a teenager my teacher never taught me the science or technical explanation behind what we were doing and I feel I missed out on this as it would have really helped to know what my body is doing.

P7: I respond well when new skills are broken down into very clear, bite-sized chunks.
Visuals, metaphors, or sensory language help me understand abstract techniques.
I like when a concept is explained and demonstrated, so I can hear and feel the difference.
I tend to process information better if I can pause, reflect, or try it slowly first before speeding up. Repetition in different ways also helps me absorb it fully.

Q4: Skill Practice: What helps it "stick"?

P4: I'm very feeling based so I'd say sensory exercise with the time to explore

P2: I find that for a skill to stick I need to use a combination of shorter exercises followed by putting it straight into context in a song. If the skill is introduced without demonstration of how it could be used in a song, it is easily forgotten for me. A multi-sensory approach is also good for me, including demo by the teacher, examples/videos online and also showing me how NOT to do it too really helps.

P7: Skill practice and what helps it stick, includes:
I do best with short exercises that vary slightly each time so I don't get bored or overwhelmed.
Modelling and singing along with my teacher helps me feel supported and more confident.
Multi-sensory prompts (like imagining colour, energy, movement, or touch) really land with me. I love having the freedom to improvise or explore a little, especially once I've grasped a concept and this helps make it mine. Written or visual anchors after the session (like notes, diagrams, or short videos) would help reinforce the learning.

Q5: Feedback: What kind of feedback do you prefer and at what point would you find it most helpful to receive? How about the language, tone, and delivery?

P4: I prefer no fluff but said with compassion. I'd prefer to receive it when you see fit since you're the teacher

P2: I thrive on instant feedback. I always want to know how I have done. I am constantly seeking approval (!) so verbal feedback as I sing is best for me as long as it is delivered in a non judgemental but constructive way. I love learning but my brain will shut down when not positively encouraged.

P7: I'm quite sensitive to tone, so I really value gentle, encouraging feedback that highlights what I did well first, followed by one specific thing to improve. It helps if feedback comes after I've had a go a few times, unless I ask for real-time guidance. I prefer feedback framed as an

invitation to experiment, not a correction e.g., “What would it feel like to try it this way?” instead of “That was wrong.” Celebrating progress, no matter how small, really motivates me.

Q6: Closing the lesson: What helps you feel like the lesson is drawn to a helpful close?

P4: A recap and practice guidance would be fab

P2: A consistent closing routine would really help me follow through the new skills into my practice. A recapping of what we have covered and a few very clear tasks for me to achieve by the next lesson.

P7: I love a consistent and calming close to the lesson such as a recap of what we covered, a final fun or familiar song, and maybe a few ideas for what to focus on between sessions. Acknowledging any small wins or growth moments helps me leave feeling empowered and not self-critical. It helps if I know exactly what’s expected of me before the next lesson but with room for flexibility.

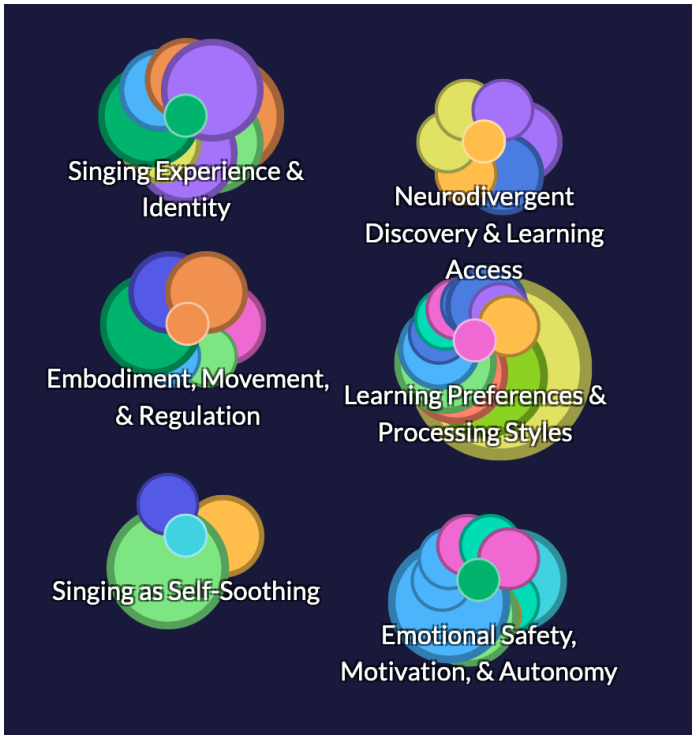
Q7: Anything else? Please share any other thoughts you have about your ideal lesson that I might not have asked about.

P2: I think it is really important to include moments to appreciate the joy of singing. A teacher enthusiastically pointing out even the smallest of achievements really helps aid future motivation, dopamine hits are the way forward for me! Also, a sense of humour is vital! If I am relaxed enough with a teacher/student we will always be able to share a joke relevant to them.

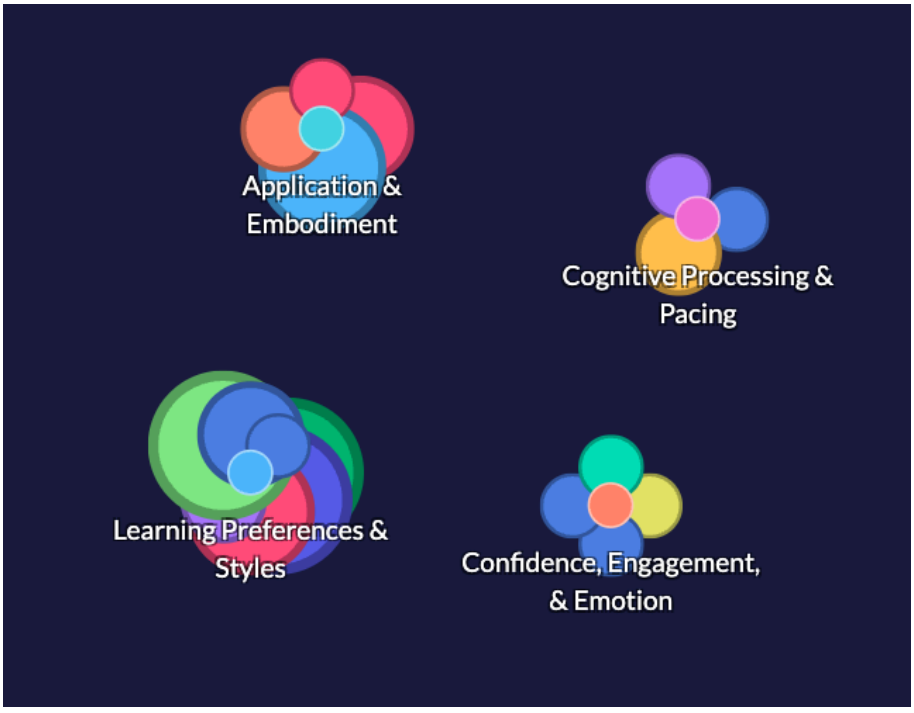
P7: Please check in with me about my energy or sensory needs at the start as they can shift a lot day to day. I thrive on encouragement and humour and I take the learning seriously, but I love when it feels light and playful.I might ask for pauses, grounding, or re-explaining if I feel overwhelmed and I’m not being difficult, I just need a moment to regulate. Having permission to be my quirky, expressive self (even if I make weird noises or stim while learning!) means everything.

E4: Early theme development

Phase One Themes



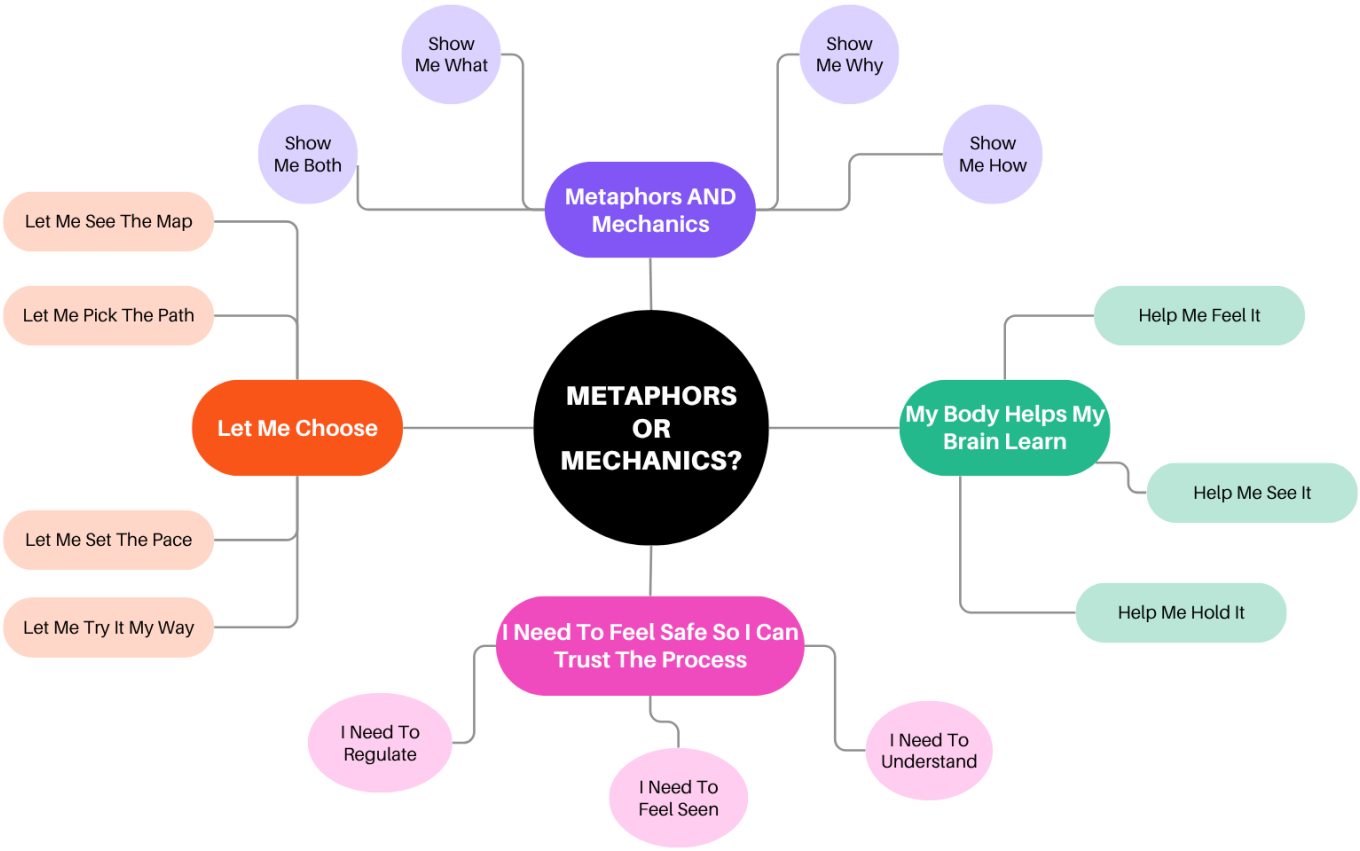
Phase Two Themes



Phase Three Themes



E5: Final Themes Visual Map



E6: Final Themes Tables

Theme	Subtheme	Raw codes (quirks)	Supporting quotes
1. Metaphors and Mechanics Both Help Me Understand	Show Me Both	Felt like it engaged both sides of their brain Imagery and technical both felt clear Metaphors and Science together create fuller picture Preference for visualisation followed by technical explanation	It scratched both sides of my brain and a way that I was able to then follow through and feel con fi dent in the vocal exercises. Nothing felt hard to process. It was all explained very clearly and both were enjoyable to do. | I found both lessons extremely clear and easy to understand (although if I were a beginner I might have found the technical explanation harder). | I actually enjoyed both lessons and found them both very e ff ective for me to execute the exercises. | I honestly didn't fi nd either exercise, confusing, or di ffi cult to understand. | I liked that with both, I was able to easily master the skill, which made me feel more con fi dent, and feel more excited to do more singing, as opposed to feeling frustrated that I couldn't do what was asked of me. Im quite open with explanations. I like metaphors and imagination based teachings but I also really like technical explanations alongside because it helps to create a fuller picture | When learning a new skill, I really enjoy the visualisation method as long as it is backed up with the technical explanation afterwards. clear imagery that helps me visualize the skill I'm trying to achieve. Also I like to know the science that supports the imagery. | Use Mnemonics or stories to help them remember technical concepts. | Help with literal thinking and the difficulty of abstract concepts by using concrete language and metaphors such as imagine your breath is a balloon. | However, I de fi nitely think there is a place for the technical explanation. For me the technical explanation needs to come after the imagery based approach. | Once I am already achieving the desired onset/sound (through the imagery based learning) I like to know the science behind it as it solidi fi es my understanding and con fi ms why my voice is working that way. | I really enjoyed the lessons and I think maybe the most e ff ective way is to have both imagery and the technical play together. | When learning a new skill, I really enjoy the visualisation method as long as it is backed up with the technical explanation afterwards.

	Show Me How	Benefits from "how not to do it" demonstrations Concept demonstration paired with explanation Contextualising new skills in real songs Need for teacher modelling and examples Practice guidance Preference for Demostration and Modelling Short exercises followed by song application Teacher demonstration was helpful for application of sill	A multi-sensory approach is also good for me, including demo by the teacher, examples/videos online and also showing me how NOT to do it too really helps. I like when a concept is explained and demonstrated, so I can hear and feel the difference. I find that for a skill to stick I need to use a combination of shorter exercises followed by putting it straight into context in a song. | If the skill is introduced without demonstration of how it could be used in a song, it is easily forgotten for me A multi-sensory approach is also good for me, including demo by the teacher, examples/videos online and also showing me how NOT to do it too really helps. | Modelling and singing along with my teacher helps me feel supported and more confident. practice guidance would be fab sually having something demonstrated to me and being walked through it...if I understand how and why I get things much quicker | Demonstration from the teacher (both good and bad examples) | Using mirroring or guided touch with consent to help with posture or breath placement. find that for a skill to stick I need to use a combination of shorter exercises followed by putting it straight into context in a song. | Skill practice and what helps it stick, includes: I do best with short exercises that vary slightly each time so I don't get bored or overwhelmed. Having you demonstrate, and then having me sing with you, I feel like really helped make sure that I was applying the vocal techniques correctly, and because of echolalia I feel like it works really well for people like me because we're very good at mimicking sounds.
	Show Me What	Imagery easy to apply skill Imagery lesson was engaging Imagery-based lesson was easy to understand Preference for visual learning	I feel the imagery based video was slightly easier to digest and master. | Every time I tried the breathy onset I imagined my breath fogging up the glass. It was a very e ffi ctive was to get the desired sound. | My brain is naturally very good at imagery, so the imagery exercise really helped me understand the proper technique for the breathing and execution that you were looking for.

			I enjoyed the imagery of making a love heart in the mirror and sighing into the big chair for the aspirate onset. Watching the Imagery based lesson, it felt very clear and easy to understand | I feel the imagery based video was slightly easier to digest and master. | Everything felt clear and easy to understand | As a singer and a teacher I fi nd imagery based learning easier to understand/ use in teaching. I was able to understand what you were asking me to do as I could clearly imagine the scenarios you suggested. Every time I tried the breathy onset I imagined my breath fogging up the glass. It was a very e ffi ctive was to get the desired sound. Imagery-based I am drawn to visual learning | Imagery-based I usually prefer this way of learning | As a singer and a teacher I fi nd imagery based learning easier to understand/ use in teaching. I was able to understand what you were asking me to do as I could clearly imagine the scenarios you suggested. Every time I tried the breathy onset I imagined my breath fogging up the glass. It was a very e ffi ctive was to get the desired sound. | Participant 3 Imagery-based Because it was fi rst on the list but initially appealed to me more | My brain is naturally very good at imagery, so the imagery exercise really helped me understand the proper technique for the breathing and execution that you were looking for.
	Show Me Why	Imagery alone was harder to follow Importance of technical explanation Preference for technical explanation Technical explanation easier to apply skill Technical explanation easy to understand Technical explanation helps with consolidation Technical lesson was engaging	Even though I went for the imagery based lesson fi rst, I found it harder to follow than the technical explanation lesson. I do like to know the reason/science behind the exercise so that I can understand what is expected of me. OR if the teacher would rather reveal that afterwards, to be told that is the order (I hope that makes sense). I preferred this way of explaining because for me, it created more brain and body connection which helps me to learn faster. I particularly liked the technical explanation for the glottal onset. It helped me to fi nd that pop easier which helped with the overall sound. | I preferred this way of explaining because for me, it created more brain and body connection which helps me to learn faster. I don't feel it felt confusing at all. I felt the same for the second technical explanation video. | It wasn't too complex to understand, because of the use of the pre-exercises and the description of the body feeling while doing so,

			Once I am already achieving the desired onset/sound (through the imagery based learning) I like to know the science behind it as it solidi fi es my understanding and con fi ms why my voice is working that way. I also enjoyed the technical lesson, but unless you understand the terminology I think this teaching technique is harder to understand.
2. My Body Helps My Brain Learn	Help Me Feel It	Develop proprieception/interoception through gentle movement Kinesthetic Learning Preference Movement with metaphors (Embodied metaphors) Playful and sensory-based warmups Sensory based exploration of new skills Sensory descriptions helped application Starting with physical movement Warm ups that connect to the lesson goal	Help body awareness and motor coordination by offering gentle body based warm ups like stretching, rocking or rythmatic movements. | Incorporate some Breathwork or somatic techniques to build interoceptive awareness. I like to do, kinetically, I'm not good at listening as my brain won't focus for long enough, but if my body is involved in the doing of it, it will stay with me more, like with muscle memory. | movement while singing. | Can any sort of tactile or kinesthetic activities be included with verbal instructions??? | I also benefit from hands-on learning, so doing rather than just listening. Use gestures and metaphors. | Gesticulating is really helpful. I use my hands a lot when talking so being able to bring my body into the music definitely helps. Eg., pushing down through the ground if I'm high in my register, riding a motorbike if I need to dig deep, or skiing 🤣 | Physical analogies 🙌 I appreciate warm-ups that are short, playful, and sensory-based, with options to repeat them if I need extra time to drop in. I'm very feeling based so I'd say sensory exercise with the time to explore The exercises of breathing and describing what sensations we are suppose to feel in certain areas of our body, really helped for me to track if I was doing it correctly | I understood what I was supposed to be doing and feeling physically which made it easier to follow the lesson and produce the result in the exercises. | The technical exercise I really liked because it described how I should be feeling in my vocal cords, which sometimes I feel like I don't "get" when other instructors ask me to perform a singing exercise. | Describing what my vocal cords should be feeling, and then how those feelings translate into the actual sound was very helpful for me to actually follow through and execute the correct sound. Definitely starting with physical movement.

			| I usually prefer a mix of gentle physical movement and Breathwork before vocalising to help regulate my energy and body awareness. I think warming up really helps me, and if the lesson is based on what I have learned in the warm up, even better. | I benefit most when I understand why we're doing a warm-up, what it's targeting and how it connects to the skill we're working on.
	Help Me Hold It	Break down abstract concepts into tangible actions Break new skills into bite-sized chunks Need for clear understanding of body mechanics	Break down abstract concepts like tone, resonate, or emotion into tangible actions. I respond well when new skills are broken down into very clear, bite-sized chunks. When learning to sing as a teenager my teacher never taught me the science or technical explanation behind what we were doing and I feel I missed out on this as it would have really helped to know what my body is doing.
	Help Me See It	Multi-sensory practice strategies Multimodal explanations Need for visuals and audio during learning Repetition through multiple formats improves retention Using visualisations Visual and sensory based language aids understanding Visual or written anchors to reinforce learning	A multi-sensory approach is also good for me, | Multi-sensory prompts (like imagining colour, energy, movement, or touch) really land with me For me personally, having everything written down, explain verbally, and also demonstrated is a huge help. | I've also realised that I absorb things more through play, creativity, and audio-visual tools rather than strict instruction or heavy theory. | They didn't just lecture me, they listened, they adapted their approach, and used storytelling, humour, or visuals to help concepts land. Visuals and Audio during learning activities. | Help auditory processing with visual cues and visual aids such as pitch maps. | I also enjoy the use of visuals, diagrams, and real-world examples and these really help. | For me personally, having everything written down, explain verbally, and also demonstrated is a huge help. Repetition in different ways also helps me absorb it fully. Visualisations, for sure. My music is covered in doodles, helping me to visualise what I'm supposed to be doing. If I think it, it will happen, eg., I draw pictures of owls for the right Ooooh sound. Fireworks when I need to be brighter (or just raise eyebrows 🤣).

			Visuals, metaphors, or sensory language help me understand abstract techniques. or me personally, having everything written down, | Written or visual anchors after the session (like notes, diagrams, or short videos) would help reinforce the learning.
3. I Need To Feel Safe So I Can Trust the Process	I Need To Feel Seen	Celebrating small wins builds motivation Confidence supported by singing alongside teacher Moments to appreciate singing as a joyful act Permission for expressive behaviour and stimming STruggles with Motivation Singing As Self-soothing Behaviour Singing as a stim Struggles with focus Teacher enthusiasm boosts motivation	Celebrating progress, no matter how small, really motivates me. | Acknowledging any small wins or growth moments helps me leave feeling empowered and not self-critical. | A teacher enthusiastically pointing out even the smallest of achievements really helps aid future motivation, dopamine hits are the way forward for me! Modelling and singing along with my teacher helps me feel supported and more confident. I think it is really important to include moments to appreciate the joy of singing. Having permission to be my quirky, expressive self (even if I make weird noises or stim while learning!) means everything. I would love to be intrinsically motivated I just sing at home for fun and anxiety/stress relief. | I just sing to myself as a stem, I just sing to myself as a stem, I'm not good at listening as my brain won't focus for long enough, A teacher enthusiastically pointing out even the smallest of achievements really helps aid future motivation, dopamine hits are the way forward for me!
	I Need To Regulate	Considering sensory factors Creating a safe learning environment Need for patience and encouragement Nervous system regulation Pauses/space for regulation Performance Anxiety Physical grounding at the start of the lesson Sensory and energy checkins Sensory tools to aid transitions Understanding expectations Vagus Nerve stimulation to manage nerves	within a studio environment is where sensory issues may arise. Thing about things such as volume tolerance for each individual. Some love loud and others like softer. Lighting type, environment factors. Students possible wear noise dampening headsets during breaks or when over stimulated. Fabric or textures when working with microphones, chairs and costumes, props. I think something or some way of helping me not to feel so self conscious when I'm singing. Sometimes , I can't even sing out aloud on my own in my house. | Help with emotional regulation and performance anxiety by validating and normalising nerves. Use

		Welcoming and relaxed environment	grounding techniques, use safe performance setting like one on one small group before public showcases. | I need space to make mistakes and explore things in a way that makes sense to me. | They allowed me to process things in my own time and never made me feel stupid for needing to learn differently. I know I'm going to freeze up and get self-conscious, so in that instance I guess just patience and encouragement? | I can say that in any learning situation, the things that help me most are patience, encouragement, and flexibility. | the teachers and mentors who helped things click, were the ones who were kind, enthusiastic, and open-minded. Breathwork mini moments inbetween or pre sessions. I might ask for pauses, grounding, or re-explaining if I feel overwhelmed and I'm not being difficult, I just need a moment to regulate. I was always too shy and nervous to sing on Karaoke, my anxiety would not let me do it. | Lost my nerve and have always had stage fright | Despite all of that I struggle with confidence in my own voice | I have had stage fright since I was a kid, not public speaking, which I do great at, but just singing. Even if I feel confident, my body will react like I'm in fight or flight mode. After that something physical to relax my body always helps so that I am ready to learn more easily. | Something sensory at the start (like holding a grounding object, a calming sound, or a gentle movement, Breathwork exercise) helps me transition into the learning space. Please check in with me about my energy or sensory needs at the start as they can shift a lot day to day. Something sensory at the start (like holding a grounding object, a calming sound, or a gentle movement, Breathwork exercise) helps me transition into the learning space. I do like to know the reason/science behind the exercise so that I can understand what is expected of me. OR if the teacher would rather reveal that afterwards, to be told that is the order (I hope that makes sense). I always find that vagus nerve regulation works well as a calming tool if I feel nervous which I often do!

			A welcoming environment, to be put at ease rather than have to stand on ceremony.
	I Need To Understand	"no fluff" feedback with compassion Brain shuts down without positive reinforcement Check in for comprehension Clarity and comprehension boosted confidence in singing Delayed feedback unless realtime is requested Frustrated in past when exercises weren't explained Humour is important for engagement Instant feedback preferred Judgement-free and encouraging feedback Ongoing approval seeking Real-time verbal feedback whilst singing Requests for re-explanations Sensitivity to tone of voice Start feedback with positives, offer one improvement	I prefer no fluff but said with compassion. brain will shut down when not positively encouraged. Slow down verbal instruction and check in on comprehension regularly. I liked that with both, I was able to easily master the skill, which made me feel more con fi dent, and feel more excited to do more singing, as opposed to feeling frustrated that I couldn't do what was asked of me. It helps if feedback comes after I've had a go a few times, unless I ask for real-time guidance. When I've had singing lessons before, it's always been frustrating because the instructor just asked me to do something and doesn't really explain how it should feel or give me any kind of comparison on how to actually execute the technique. Also, a sense of humour is vital! If I am relaxed enough with a teacher/student we will always be able to share a joke relevant to them. |I thrive on encouragement and humour and I take the learning seriously, but I love when it feels light and playful. I thrive on instant feedback. I always want to know how I have done. verbal feedback as I sing is best for me as long as it is delivered in a non judgemental but constructive way. I love learning but my brain will shut down when not positively encouraged. I always want to know how I have done. I am constantly seeking approval verbal feedback as I sing is best for me I might ask for pauses, grounding, or re-explaining if I feel overwhelmed and I'm not being difficult, I just need a moment to regulate. I'm quite sensitive to tone, so I really value gentle, encouraging feedback I really value gentle, encouraging feedback that highlights what I did well first, followed by one specific thing to improve.

4. Let Me Choose	Let Me Pick The Path	AI as assistive learning tool	I've been using ChatGPT as a tool to ask for advice, support and strategies on how to improve and feel more confidence on video/camera.
		Choice over chatting or diving straight into the lesson	I also appreciate being o ff ered the choice to chat briefly or dive straight in depending on how I'm feeling that day.
		Experimenting with learning styles	I often had to try different things out with my son. As it varied so much from week to week. Sometimes he totally switched off from something. Like Spelling. So would try different things. Instead of him writing out the words on paper and resulting in melt down we got him to verbally spell the words out.
		Self-expression over perfectionism	Reinforce self expression over perfection and frame their mistakes as exploration.
		Student-led repertoire choices	Provide choices in repertoire that aligns with the students interests or special interests. | a final fun or familiar song
	Let Me See The Map	Clear expectations before next lesson Consistent closing routine helps follow-through Framing feedback as an opportunity to explore not as correction Interest based attention Lesson outline at the start Need For Accountability Need for a clear learning process Recap plus clear goals for next lesson Recapping and summarising helps consolidate learning Setting goals at the start Teacher to clarify if an explanation will follow Wanting to understand the purpose of an exercise	It helps if I know exactly what's expected of me before the next lesson but with room for flexibility. A consistent closing routine would really help me follow through the new skills into my practice. | I love a consistent and calming close to the lesson such as a recap of what we covered, I prefer feedback framed as an invitation to experiment, not a correction e.g., "What would it feel like to try it this way?" instead of "That was wrong." If it's something I'm genuinely interested in or emotionally connected to, that's when I retain it most. I like to know what is planned for the lesson, an outline, just so I know what to expect and can relax. | I feel most ready to learn when there's a clear structure I can see ahead of time, this could be a visual or verbal agenda that helps calm my mind and lets me focus.

			| I love to know what we'll be doing and in what order, even just in bullet points. I find that I really need accountability for motivation. | when I learn something new I need to make sure I have a clear goal, a clear timeline and check points along the way with someone else to make sure I'm staying on track as I can get easily distracted. | completing each step with the teacher / coach. when I learn something new I need to make sure I have a clear goal, a clear timeline and check points along the way with someone else to make sure I'm staying on track as I can get easily distracted. | Going through the process, | Using clear visual checklists, schedules and prompts to help reduce the cognitive overload. | To support executive functioning issues, you can give step by step scaffolding for routines like warm ups or breath control exercises. | Help social interaction challenges by setting clear expectations for feedback, eye contact and turn taking. | When learning something new, what helps me the most is learning practices such as breaking down information into bite-sized steps | When learning something new, going through the process for the first time definitely helps me most A recapping of what we have covered and a few very clear tasks for me to achieve by the next lesson. | a recap of what we covered, a final fun or familiar song, and maybe a few ideas for what to focus on between sessions. Repeating or summarising key information in shorter format. | A recap and practice guidance would be fab | A recapping of what we have covered and a few very clear tasks for me to achieve by the next lesson. | a recap of what we covered, I'd probably like to talk about my goals and how I'd like to improve my voice. I do like to know the reason/science behind the exercise so that I can understand what is expected of me. OR if the teacher would rather reveal that afterwards, to be told that is the order (I hope that makes sense).

			I'd definitely want to know the purpose of the exercise so I can make the connections that need to be made for me to learn. | I do like to know the reason/science behind the exercise so that I can understand what is expected of me. OR if the teacher would rather reveal that afterwards, to be told that is the order (I hope that makes sense). | I benefit most when I understand why we're doing a warm-up, what it's targeting and how it connects to the skill we're working on.
	Let Me Set The Pace	Breaking up learning into shorter engaging chunks Learning breaks in long sessions Movement breaks Option to repeat warmups if needed Pacing is important Preference for slow processing time Record lessons for revisiting between lessons Self-pacing in learning Tracking own learning	I would say some strategies to make voice, speaking or singing lessons easier for neurodivergent brains would be: Chunking lessons down into shorter engaging segments. | I get bored very easily (obviously) so short bursts and recognising I wanted to change song was good x If long learning session like four hours or more. Mini breaks of ten mins every hour to an hour and a half. | Offer brain breaks. Movement breaks or movement while singing. I appreciate warm-ups that are short, playful, and sensory-based, with options to repeat them if I need extra time to drop in. In the imagery lesson for the fi rst part of the exercise there were not enough gaps for me to try out the exercises, and I got lost/fell behind. | The technical explanation lesson felt clearer to me and the exercises better paced. I tend to process information better if I can pause, reflect, or try it slowly first before speeding up. Provide video replays of demonstrations or sessions for their own practice inbetween sessions or for self observation. When learning something new, what helps me the most is learning practices such as breaking down information into bite-sized steps, and when I'm allowed to move at my own pace. | They allowed me to process things in my own time and never made me feel stupid for needing to learn differently. Encourage use of apps or journals to track practice and progress.

	Let Me Try It My Way	Freedom to improvise and personalise concepts Learning from mistakes Learning through play Preference for a playful learning environment	I love having the freedom to improvise or explore a little, especially once I've grasped a concept and this helps make it mine. Also letting me learn from my mistakes, singing it wrong first for example then going over little bits. Introduce improv or playful vocal games to reduce pressure. | Use role playing or scripting to support expressive interpretation I thrive on encouragement and humour and I take the learning seriously, but I love when it feels light and playful.
Contextual Codes		Discovery of diverse learning styles First time Neurodivergence was suspected Genre Preferences Informal Singing Never Had Singing Lessons Singing Exams Singing Lesson History Singing Teacher/Vocal Leader Singing in Choirs Struggles with traditional schooling Watched imagery first Wider musical learning	during my journey with unschooling with my son. It opened my eyes up to how we learn in so many different ways. And how we often learn so naturally but also the right props and materials and environments and support systems etc. Defo help with the learning experience. | Repetition, humour, movement, and freedom to ask questions without feeling judged make a big difference too. during high school and even somewhat in primary school, as this was the first time a teacher picked up on my brain being different when she told my mum when I was aged 9 or 10 to go and see a doctor, because in class she is like this and that, I went to see a doctor but they just brushed it off as me being bored and anxious. I like singing country songs like Shania Twain and I like singing along to songs such as Christina Perri Jar of hearts, The Corrs and some stuff from my teenage years!!! | I do like singing Broadway, and Disney, but I've also been pushing myself to use my chest voice more and do more rock style songs. | I love all sorts of music and have a very eclectic taste (not really that keen on musicals though). Love strong female vocalists and a few male ones too. | I followed abrsm exams (classical) but really my love is in folk, musical theatre and pop. I sing to myself at the grocery store or on errands | just sing at home for fun and anxiety/stress relief.

			| mainly singing the car where no one can hear me No singing lessons! | I haven't actually had singing lessons, I followed abrsm exams (classical) | eventually had some singing lessons after uni and took Grade 7 (my aural skills are shockingly bad so didn't want to do grade 8 straight away). I took singing lessons from age 12 until 16. | I used to have singing lessons years ago | 've been singing since I can remember and had singing lessons from 14 onwards, singing teacher and vocal workshop leader in schools. | have been teaching performing arts / singing / piano/ under 5s music and movement | I deliver under 5s music classes too so I've been in choirs right from secondary school all through my life until about 10 years ago | I have been singing forever, mostly in choirs (from age 7) All I know is I struggled alot in a school setting. | I often struggled with traditional teaching methods. I found it hard to follow long instructions, sit for long periods listening to the teacher read from books or watch them writing on a black board or white board was painful as F. Sitting still for extended periods without speaking, fidgeting or having restless legs. Struggling to retain information when it was presented in a rigid or fast-paced way. I always knew I was creative and capable, but the school system didn't really support the way my brain works. Imagery-based I am drawn to visual learning. | Imagery-based It was the fi rst one | Imagery-based I usually prefer this way of learning | Participant 3 Imagery-based Because it was fi rst on the list but initially appealed to me more | Imagery-based It was the fi rst link I focused on piano and flute through school and then picked up French horn at uni, too. | I studied music at university | I did my degree in Performing Arts with a bit of music

Appendix F: Supplementary Materials

F1: Video Lesson Transcripts

Imagery-based Lesson

[00:00:00] hello and welcome to your imagery based learning session. In today's lesson, you're going to be learning about a way that we start our sound called aspirate onset or breathy onset. I'm gonna be explaining this concept to you through the use of metaphor, and as we go through this process, I'd like you just to think about how clear or how easy it is for you to understand the concept through the method that I've chosen to explain it and how that helps you in being able to apply that to your singing.

So the aspirate or breathy onset is a way of starting our sound where the breath begins before the sound does. So I'd like you to imagine that you are fogging up the glass or fogging up the mirror with your breath. As if you're gonna draw a little love heart in there or a smiley face.

And as you do so, allow the sound to emerge from that. Something like this, ha ha, where you can hear that breath beginning before the sound does. Give that a little go. Now think [00:01:00] about fogging up that mirror with your breath and letting that sound emerge from it. Great. Awesome. Now if that feels a little bit forced for you, if that doesn't feel very natural, you could also think about it as like kinda sighing at the end of the day, like you've just sat down in a nice big, comfy chair and it's just kind of like a, have a little go at that imagining your body relaxing into that big chair and all of that weight just kind of disappearing. Ha, as you sigh out. Wonderful. Let's try that on a little exercise. So we're just gonna try on a five note descending exercise, subtle sounds, something like this. Ha,

you give back a go. Then we'll just move it up a little bit[00:02:00]

and let's take it up again. Ha

ha. Do you feel that breath coming forth before the sound does? Brilliant.

Well, let's try fogging up that mirror on each of those nerves descending. So we have a

Try that for me. Ha.

Brilliant. Let's step it up

and again.

Wonderful. So let's try using that breathy onset in a little. Lyrical pattern, shall we? Something like this. Hey, how are you? How have you been? You can hear that breath coming through, and I'm thinking about just sort of sighing my way [00:03:00] through it. Imagining that big comfy chair or just fogging up that glass. Hey, how are you?

How have you been? And you can hear that repeated breath coming through. Hey, how are you? How have you? Hey, how are you? How have you been? Let's take it up another notch. Hey, how are you? How have you been? Hey, how are you? How have you been? And let's go. One more. Hey, how are you? How have you been? Hey, how are you?

Have you been. Wonderful. Thank you very much for this very short lesson and your attention during it. Now, there are a couple of questions for you to respond to back over on the Google form where you've linked to this lesson. If you [00:04:00] could head back to that form now and fill in those questions whilst everything is fresh in your mind, that would be absolutely fantastic Don't forget to indicate which of these lessons you watched first, and if you haven't watched the other one, please go do that now. Thank you.

Technical Explanation Lesson

[00:00:00] Hello and welcome to your technical explanation based learning session. In today's lesson, you're going to be learning about an onset a way we start the sound called glottal onset.

Now, the way that I'm gonna be explaining this onset is through the use of technical explanation, so guiding you through what is happening anatomically as we begin the sound using this particular onset. As we go through this process, do you have a think about how clear it is for you, how easy it is for you to understand the concept and the method that it's being delivered with? How easy it is for you to then take that explanation and apply it to your singing.

Now, at the end of the lesson, you'll be guided back to the Google form you've just come from so that you can record your responses,

for now, let's get stuck into our explanation. So the glottal onset is where the vocal cords are in a closed position at the start of the sound. Now, in order to understand the muscles that [00:01:00] we're using there and for you to be able to isolate them, what we're going to do is stop and

inhale. So we're gonna breathe in and we're gonna stop that breath, and you'll feel the vocal cords coming together to stop your inhale.

Try that for me now. You might feel as you stop the breath, there's a little bit of pressure behind those vocal cords. It's what we call subglottic pressure. Take that inhale and stop it again for me, feel it. And then when we release that pressure.

That is the beginning of our glottal onset. So instead of just releasing the breath, we also release the sound. We allow the vocal chord to come together and vibrate. Uh, can you hear that? Uh, have a go now. Take your inhale, stop that breath, and then release the sound in the air at the same time. Uh uh, so let's try that on a descending scale. So we're [00:02:00] just gonna have, uh,

uh, can you hear that pop of the air, that pop of the pressure that I was building up behind those closed vocal chords? Uh, there's that glottal answer. So let's try up just a notch. Uh

uh.

Great. I'm gonna go up again. Uh, your 10. Uh, and one more. Uh,

uh. Fantastic. Now to make sure you've really got the hang of that coordination. So bringing those vocal chords together and then releasing that subglottic pressure. Let's try on staccato exercise. So we're [00:03:00] gonna do detached notes.

It'll sound like this. Uh,

you try it. Ah, good. Let's take it up a notch. Ah,

and again,

You might also notice as you're doing that, that pull at the diaphragm or pull at the belly button inwards as you are releasing that air,

That's the core muscles helping to create some of that sub pressure that you're releasing when you sing. So let's try that on a lyrical exercise, shall we? So We're gonna take a little snippet from the entire cruise song, dynamite, if anybody remembers that one. And it's in the pre chorus, and we're gonna do. On and on and on, [00:04:00] on and on and on. Where on the ons. We're gonna put that glottal on set. On and on and on, on and on and on.

Let's try that. On and on and on, on and on, and on. Excellent job, and thank you so much for completing this lesson, and if you haven't watched the other one yet, then please do so. Head back over to the Google form. You'll find the link for it there. Remember to indicate the order in which you've watched the lessons and to record your feedback As promptly as you can whilst it's still fresh in your memory, and I look forward to reading your responses.

F2: Reflexive Journal Template

Metaphors or Mechanics? Exploring Vocal Learning Preferences in Adult AuDHD Singers

KATE HOGAN VOCAL STUDIO

Researcher Reflexive Journal

Entry Date:

Current Stage of Study:

What's happening this week?

What am I currently grappling with in the research process?

- Any tensions, uncertainties, or decisions I'm sitting with?
- Anything I'm resisting, avoiding, or over-attached to?

How is my identity or positionality showing up in this process?

- As a neurodivergent teacher/researcher, how am I being affected or shaped by the work?
- Are my values, lived experiences, or perspectives influencing how I'm designing, interpreting, or engaging?

Where am I noticing strong emotional responses?

- Moments of joy, discomfort, anxiety, pride, vulnerability, or doubt
- How are these responses guiding or interfering with the work?

What patterns or shifts am I observing in myself over time?

- Any recurring behaviours, thought loops, or unexpected strengths?
- Am I becoming more aware of anything in my teaching, learning, or research self?

What does 'ethical' or 'aligned' practice feel like right now?

- Are my current decisions sitting well with me?
- Where might I need to slow down, check in, or adjust?

What do I want to remember or capture from this stage?

- Any fleeting realisations, metaphors, connections, or curiosities?
- Anything I might want to return to during analysis or write-up?

Next questions, reflections, or actions

- What's emerging that I want to follow, journal about again, or explore further?

F3: Recommendations for Voice Teachers Developing AuDHD Inclusive Practices

The following framework illustrates how the four themes can be actioned in practice. It provides principles for developing strategies which can be tailored to various vocal objectives (e.g., breath management, resonance, articulation, range, tone, phrasing). This approach reflects the interwoven nature of the findings, showing how safety, clarity, embodiment, and choice can be integrated.

Theme	How To Generate Strategies	Illustrative Examples
Metaphors AND Mechanics	- **When introducing a concept**: Create at least two explanations: one metaphorical and one technical. **- Ask:** What image would capture this? and What anatomical detail would clarify it? - **Consider sequencing:** Should the metaphor come first to reduce cognitive load, or should the mechanics come first for grounding?	Offering parallel explanations and allowing learners to compare; encouraging students to generate their own language for a skill.
My Body Helps My Brain Learn	- **When designing an activity, ask:** How can this be experienced through the body? - **Add a sensory or physical anchor** (gesture, prop, visual feedback) alongside the vocal task. - **Use contrast** (exaggerated vs refined) to heighten sensory awareness.	Using a gesture to track airflow, adding props to externalise sensation, or building in moments of exaggerated vs subtle movement.
I Need To Feel Safe So I Can Trust The Process	- **Before introducing a challenge, ask:** What would help the student feel grounded? - **Provide multiple entry points** (low-stakes to high-stakes). - **Use language that normalises difficulty** and frames mistakes as part of learning. - **Check for understanding:** Do they grasp why we're doing this?	Offering grounding activities at the start; scaling challenges with options; using affirming language that reduces performance pressure.
Let Me Choose	- **At planning stage,** design multiple pathways to the same goal (e.g., technical, metaphorical, embodied).	Presenting a visual choice menu for lesson activities; offering tempo or sequencing

	- **Make the "map" explicit** so learners see structure and can anticipate steps. - **Build in choice points** where learners can set pace, order, or approach. - **Encourage co-creation** by asking learners to adapt or invent their own versions.	options; inviting students to modify an exercise or propose their own approach.

The development of interconnected strategies requires the following approach:

1. **Begin with Safety (Theme 3)** by creating grounding or low-stakes entry points that precede technical demands.
2. **Add in Hybrid Explanations (Theme 1)** include both metaphorical and technical explanations.
3. **Introduce Embodiment (Theme 2)** by asking students to describe their experiences through physical sensations and visual observations and external manifestations.
4. **Build in Choice (Theme 4)** Design multiple routes which allow students to determine the order, pacing, and format.

This lesson planning template could allow teachers to consistently address all four themes regardless of their vocal technique focus.

F4: Suggestions for the Application of Universal Design for Learning (UDL) Principles in the Voice Studio

UDL Principle	Relevant Themes	How To Generate Strategies
Multiple Means of Engagement The “why” of learning	**Theme 3:** Safety & Trust **Theme 4:** Let Me Choose	- **Ask:** How can I reduce anxiety and increase motivation? - **Offer** choices in activity order, challenge level, or practice approach. - **Build** emotional regulation activities into lesson planning. - **Provide** options for collaboration vs independent exploration.
Multiple Means of Representation The “what” of learning	**Theme 1:** Metaphors AND Mechanics **Theme 2:** My Body Helps Me Brain Learn	- **Ask:** How can this concept be shown in different ways? - **Provide** metaphorical, technical, visual, and physical representations of the same skill. - **Encourage** students to co-create metaphors or draw diagrams to externalise learning.
Multiple Means of Action & Expression The “how” of learning	**Theme 2:** My Body Helps My Brain Learn **Theme 4:** Let Me Choose	- **Ask:** How can learners show what they’ve learned in different ways? - **Allow** verbal, physical, written, or sung reflections. - **Invite** learners to adapt or invent exercises to demonstrate understanding.

Appendix G: Glossary of Terms

Aspirate onset: A breathy start to a vocal sound.

Asynchronous design: Data collection methods allowing participants to engage at their own pace rather than in real time.

AuDHD: A non-clinical term used in neurodivergent communities for people with both autism and ADHD traits. (Cannon, Hernández-Saca and Johnson, 2024)

Cognitive Load Theory: Proposes learning is more effective when unnecessary mental effort is minimised. (Sweller, 1988)

Co-regulation: When teachers or peers help learners regulate emotions through supportive interactions.

Constructivist learning principles: Theory suggesting knowledge is actively built by learners through experiences rather than passively received. (Gorobeț, 2024)

Double empathy problem: Theory suggesting communication breakdowns between autistic and non-autistic people stem from mutual misunderstandings rather than autistic deficits. (Milton, Gurbuz and López, 2022)

Dual Coding Theory: Suggests learning improves when information is presented in both verbal and visual forms. (Paivio, 1990)

Embodied cognition: Theory suggesting thought processes are rooted in bodily interactions with the world. (Gallagher, 2005)

Embodied learning: Learning through physical movement, sensory experiences, and bodily awareness rather than abstract explanation alone.

Emotional regulation: The ability to manage emotional states to enable focus and learning.

Executive function difficulties: Challenges with planning, organisation, and self-regulation often associated with ADHD and autism.

Glottal onset: A sound that begins with the vocal cords closed, creating a small burst of sound at the start.

Hybrid model: Combining metaphorical and technical approaches to teaching.

Identity validation: Acknowledging and respecting learners' identities and experiences to support inclusion.

Insider research: Research conducted by someone within the community or setting being studied.

Interpretivist-constructivist paradigm: Research perspective emphasising subjective meanings and co-constructed knowledge.(Creswell and Poth, 2024)

Mechanical / technical explanation: Teaching using anatomical or scientific description of vocal processes.

Metaphor-based learning: Teaching using imagery or analogies to explain vocal processes.

Multisensory learning: Using visual, auditory, tactile, and kinaesthetic input to enhance understanding.

Neurodivergent / Neurodiversity paradigm: Framework viewing neurological differences as natural variations rather than deficits. (Walker and Raymaker, 2021)

Neuronormative: Assumption that neurotypical ways of thinking and learning are standard or preferable.

Participatory Action Research (PAR): Research approach involving participants as co-creators rather than passive subjects. (Galletta and Torre, 2019)

Reflexive journaling: Researcher practice of documenting thoughts, decisions, and emotional reactions to increase self-awareness and reduce bias. (Finlay, 2002)

Reflexive Thematic Analysis (RTA): Qualitative analysis method focusing on researcher reflexivity when identifying themes in data. (Braun and Clarke, 2022)

Reflexivity: Researcher awareness of their own influence, biases, and assumptions during the study. (Finlay, 2002)

Universal Design for Learning (UDL): Framework promoting accessible learning for diverse needs through multiple ways of representation, engagement, and expression. (CAST, 2024)

Vocal pedagogy: The study and practice of teaching singing.