

Project Proposal

Project Title: A study on vocal fatigue resistance training for primary music teachers - singing specialists with experience in both group instruction and one-to-one teaching.

Context

Vocal fatigue is a discomfort associated with vocalising due to the high vocal demands (Hunter et al., 2020). Numerous studies show the need for a strategy to alleviate vocal fatigue experienced by primary music teachers - voice specialists (Connor and Morrow, 2011; Schmidt and Morrow, 2016; Brunkan, 2018; Baker and Cohen, 2017; Banks, Cantor-Cutiva and Hunter, 2022). I will investigate whether music teachers in primary school environments who work in both group and one-on-one settings can achieve a balance in vocal health. I will also examine the literature relating to practices that foster resilience voice.

Justification

Most research on music and singing teachers' vocal health confirms the prevalence of vocal fatigue (Hackworth, 2021). Some proposed solutions include vocal rest, improving room acoustics, and using amplifiers (Dejonckere, 2001). Warm-ups and cool-downs are also recommended (Pasa, Oates and Dacakis, 2007; Sandage and Hoch, 2018). Despite these strategies, voice disorders and career changes persist (Roy et al., 2004). There is a lack of active strategies, such as vocal training for fatigue resistance and vocal training for speaking.

Intended Impact

My research could produce resources for addressing vocal fatigue and influence future research and experiments. Since music and singing teachers comprehend vocal mechanics, they are more likely to promote the practice among other teachers and professional voice users. Researching effective strategies to combat voice fatigue might inform school policy regarding working hours, room acoustics, and the number of students per teacher. I will contribute to the vocal health of my colleagues and my own professional practice.

Outlined Intention, Project Timeline

Mixed methods will be employed as the overarching methodology. Data from the literature review and semi-structured interviews will be analysed deductively to establish the initial understanding. To achieve a detailed understanding and emphasise elements of vocal fatigue resistance training, an inductive process of grounded theory will be applied to the collected data. A maximum of 12 participants—teachers who also teach singing from Slovakia and the UK—will be approached using a snowball sampling technique. Convenience sampling, which includes teachers experienced in teaching group music lessons but excludes one-on-one singing settings, will be used as a backup to gather additional information. The group teaching context will be prioritised due to the nature of primary school music teachers' workplaces and the vocal effort required. Volunteers will receive a consent form and information sheet regarding the research. The literature review focusing on building resilient music teachers' voices will take place in mid-November 2024, prior to the distribution of the close-ended survey (with inclusion criteria also set for mid-November 2024). The collected quantitative data will be further examined by gathering qualitative data through individual in-person and online semi-structured and unstructured interviews at the end of November 2024. This approach will provide flexibility for any participants who wish to share their practices and their effects. Additional naturalistic observations of voice use may be conducted in the classroom (by the end of November 2024). Triangulation of methods, including the potentially twice-repeated remote (Zoom/Teams) focus groups (in mid-December 2024), will explore the most effective and practical ways to address vocal fatigue. Debriefing will be carried out after interviews, observations, and focus groups. The written report (on 6th January 2025) will be presented (in January 2025) and made available to participants upon request.

Ethics and Insider Research

The research activity will commence after receiving the approved Ethical Form, which defines the use of data and includes adherence to ethical guidance documents. The informed consent outlines the purpose of the study, the methods of collecting and processing data, the freedom to withdraw, compliance with anonymity, and the interpretation of results (University of Wales Trinity Saint David, 2022). Clarifying and justifying the role of the researcher is the first step towards ensuring the credibility of the work. I will be positioned as an insider researcher. I find the network of teachers in my workplace to be an advantage. However, there is a risk of pre-analysing the interpretations of respondents (DeLyser, 2001). To avoid bias, I will apply analysis as a rigorous method and reflect in, on, and through action (Schön, 1983) using the reflective journal.

Individual Learning Outcomes

I will gain experience in the research process, summarise, present, and discuss findings retrospectively, and outline my future project.

Project Report

Introduction

Many research studies (McCabe and Titze, 2002; Velsvik Bele, 2008; Gotaas and Starr, 1993; Muthuswamy, 2024) confirm that the majority of occupational voice users suffering from symptoms of vocal fatigue are teachers. Vocal fatigue has been observed and measured closely (Welham and MacLagan, 2003; Lei et al., 2020; Chang and Karnell, 2004; Nanjundeswaran, van Mersberger and Morgan, 2019; Gao et al., 2022). Nowadays, we can undoubtedly describe its symptoms, sources, and consequences (Cantor Cutiva, 2015). However, there is a gap in effective solutions for vocal fatigue, to which I would like to contribute by researching active strategies to decrease, prevent, and ultimately resolve vocal fatigue.

I am a primary music teacher specialising in singing, with experience in both group and individual lessons. I understand the challenges associated with the vocal demands of this profession. At the same time, I believe in effectively addressing vocal fatigue, and this group of occupational voice users has the greatest potential to do so. The history of voice pedagogy has primarily focused on the acquisition of vocal skills (Hoch and Sandage, 2018). However, the training of the speaking voice for endurance and resilience to vocal demands and vocal response tasks has often been overlooked (Ruben, 2014). Furthermore, research on physiological aspects, practical tools for vocal resistance training, their effects, and combinations is lacking. Exercise science principles may offer valuable insights to expand these horizons (Titze, 1992).

I have two objectives to research in this project: determining whether the vocal load of teachers is manageable and gathering the most effective strategies for developing resistance training against vocal fatigue. Summarised strategies from all data-gathering methods may serve as a foundation for crafting exercises. However, the effectiveness of their application may depend on a case-by-case basis, as vocal fatigue can impact various aspects of a teacher's life (de Albuquerque Lopes et al., 2018). I would like to incorporate the findings of the research into my daily practice. At the same time, I will consider various aspects influencing the future development of effective and suitable vocal endurance training. Voice science has explored features of vocal fatigue phenomena (Boucher and Ayad, 2010; Gao, Dietrich and DeSouza, 2021), and it is a natural progression to continue deepening our understanding towards applicable, complex strategies.

Literature review

An effective way to manage vocal fatigue has not yet been fully discovered (Hoch and Sandage, 2018; Casper and Leonard, 2006; Stemple, Roy, and Klaben, 2018; Oates and Winkworth, 2008). The benefits of vocal warm-ups, vocal cord hydration, resonance development, and the application of singing exercises to enhance voice flexibility as strategies for improving vocal performance have been confirmed (Hazlett, Duffy, and Moorhead, 2011). However, there remains uncertainty

regarding the long-term reduction of vocal fatigue among music teachers (Moreno, Calvache, and Canor-Cutiva, 2022), including singing specialists in the primary school environment (Hendry, 2001). As no long-term results on the improvement of occupational voice users were observed, I decided to review studies on the internal processes of vocal fatigue. My intention is to encompass essential areas from which effective strategies will be developed.

The latest research on methods for vocal fatigue has begun to explore the parallels between exercise science principles (Nesbitt, 2023). Theories regarding the psychological and physiological benefits of athletic warm-ups in preventing injuries have been compared to the potential transfer to vocal fatigue resistance training: "Injury prevention is described as a combination of skill acquisition and the development of fatigue resistance" (Powers and Howley, 2014, p. 79), while the goal of fatigue resistance training is also to recover more quickly (Bishop, Jones and Woods, 2008). Bagnall, Dorrian, and Fletcher (2011) mention the observation of the aryepiglottic narrowing just above the true vocal folds. This specific alignment of the laryngopharynx is referred to as a "ring" in the voice or the "singer's formant" and has been effectively used by those with weaker voices to improve projection. It may serve as a quick strategy for busy teachers to access power while simultaneously engaging in ongoing vocal fatigue training, preventing injury during their vocal fatigue resistance practice journey.

To resolve peripheral and central vocal fatigue (Shembel and Nanjundeswaran, 2022), it is inevitable to focus on processes occurring at the biomechanical and neurophysiological levels of both intrinsic and extrinsic muscles (Leborgne and Rosenberg, 2024). All participate in the speech production (Honda, 2008). The intrinsic muscles are muscles of a specific group and might function differently than body muscles (Sokolowsky, 1943). However, while exploring the muscle anatomy in general, a significant amount of type I fibres with proven fatigue-resistant motor units were found in thyroarytenoid muscle (Tellis, Thekdi and Rosen, 2004). It functions on a slow-contraction basis and requires more oxygen intake. If the slow-twitch fibres are not employed first due to the lack of energy, the fast-twitch fibres take over (Clark, 2003). To apply this knowledge to our research topic, if the teacher is tired, faster-fatigable fibres might take over vocal responses and tasks. A prevailing quantity of fast-twitch fibres was found in the cricothyroid muscles (Hoh, 2005). The cricothyroid muscle abducts the vocal cords for the higher voice range, while the thyroarytenoid adducts the vocal cords for the lower range (Sapienza and Hoffman, 2020). Due to the morphological, metabolic, and neurological processes in muscle tissues, the impact of applying various exercises may produce differing effects (Baechle and Earle, 2008). Sale (1986) noted that healthy processes within muscles, developed by upregulating training, can be lost if frequency and intensity are not maintained over time. If this knowledge from exercise science pertains to effective vocal fatigue training, a specific voice work training system will be essential (Shewell and Sansom, 2024). The "modern muscle physiological sense" (Hoch and Sandage, 2018, p. 80) is set to expand the horizons of singing pedagogy and enhance singing teachers' competence.

Improving the strength and stamina of laryngeal muscles may not be the definitive strategy. Stemple et al. (2017) suggest stabilising the air pressure and the arrangement of subsystems involved in voice production. Physiological voice therapy exercises combined with connected speech have proven to be effective tools (Behrman and Haskell, 2019) - especially in voice rehabilitation, the essence of which is the restoration of the voice by building vocal habits based on the basic principles of speech phonation. Programmes include approaches from Vocal Function Exercises, The Accent Method, Resonant and Water Resistance Voice Therapy (Guzman et al., 2023). A voice user's awareness of vocal placement during various phonation tasks should be the final successful outcome (Boone, 2015; Lindblom and Sundberg, 2014). Breathwork is an integral part of all of them. Titze and McCabe (2002) explain that the overuse of respiratory muscles contributes to vocal fatigue due to reduced subglottal pressure capacity, while Nanjundeswaran, VanSwearingen, and Abbott (2016) describe how poor oxygen utilisation leads to inefficient muscle work. It appears that breathing exercises form a key component of resistance training against vocal fatigue. Saxon and Schneider (1995) propose a low-intensity cool-down. They state that it shortens the time required for complete recovery, which aligns with exercise science, as a muscle must be retracted and rested before it can be contracted again (Bruce and Carlson, 2019). Another perspective is the precise duration of vocal rest necessary for individuals to maintain their relatively trained voices for both current and future task requirements (Anderson, 1977; Roy et al., 2004). Despite several attempts to integrate voice health measures into Occupational Health and Safety (OHS) (Velsvik Bele, 2008), teachers cease their vocal training once they enter a teaching position. This is due to a lack of time and mental fatigue: "Vocal athletes, unlike other athletes, pay little attention to changes in muscle physiology when the total vocal load falls below what is usually required" (Hoch and Sandage, p. 273). Occupational voice users frequently seek assistance only after noticing a voice problem (Martin and Darnley, 2024), which hinders them from continuing in their profession. Teachers who sing alternate between spoken and sung words, punctuated by abrupt intonation and shifts in dynamic levels throughout their careers. Classroom management and the application of teaching methodologies are highly dynamic. Their consequence is unconscious emotional stress, which is a common cause of voice problems, such as vocal hyperfunction. This is also linked to respiratory mechanisms, constant neurological tension, and classroom management (Morrison et al., 2013). This indicates that unconscious emotional stress should be put under individual control at the expense of fatigue resistance training.

Methodology and Methods

Ontologically, I advocate for a vocal pedagogy approach that can effectively address occupational vocal fatigue, possibly incorporating a combination of current tools alongside methods of practice that future studies are set to unveil. A post-positivist approach was applied to explore the knowledge. A systematic literature review was conducted simultaneously, addressing voice fatigue as a clinical manifestation while recognising the existing gaps in the literature. The findings were compared with the analyses from interviews and summarised in the results. A mixed methodology was selected to explore the topic from multiple perspectives, validating potential findings and

uncovering new gaps. The grounded theory approach minimised researcher bias and broadened the range of possible research outcomes.

The aim was to identify key areas that could inform fatigue resistance training as an active strategy. In this effort, I sought to expand my understanding of effective methods to alleviate vocal fatigue among primary school music teachers due to their vocal demands. Interviews highlighted the limitations of applying these active strategies.

For this study, 19 participants were recruited using the snowball sampling method. Music teachers, who are experts in singing with experience in both curricular and one-on-one music education at primary schools and music institutions, were enlisted. Each participant received a Participant Information Sheet and signed a Consent Form prior to completing an online survey with a predetermined set of responses. The questionnaire took approximately 45 seconds to complete and served as an inclusive criterion for follow-up interviews. All educators possessed a solid understanding of singing techniques. Twelve participants from the UK and Slovakia were chosen based on their affirmative responses to the question: "Have you ever done intentional voice work to strengthen your voice resistance or balance up any of your vocal fatigue symptoms?" This selection aimed to share effective strategies for managing vocal fatigue.

Semi-structured, 20-minute audio-recorded interviews, conducted in person and online (via WhatsApp and Zoom), provided qualitative data, which were subsequently coded and processed through thematic analysis. The identified themes were interconnected with the literature reviews and observations. Personal experiences shared by participants helped refine the effective components of active strategies. Additionally, the interviews highlighted new areas of research, such as the effective application of active vocal fatigue strategies or the transfer of this knowledge to other occupational voice users (non-vocally trained).

At the end of each interview, participants were reassured about the secure storage and processing of their data. I expressed my gratitude to each participant and, if requested, offered helpful links and vocal health advice.

The prepared interview questions helped mitigate internal researcher bias. They directed the interviews appropriately and prevented unnecessary interruptions for respondents. From the outset, keeping a reflective journal was essential. After conducting several interviews, I developed and refined my data-focused approach skills.

The originally planned focus group method was omitted. Music teachers - specialists in singing with both group and individual educational experience, discussed all ideas during the interviews. However, an audio observation of the teacher's method for engaging their voice was included. In accordance with ethical guidelines, parents were informed in advance. The recordings did not include any students' names or personal data; only the teacher's voice was examined and analysed.

The grounded theory methodology supported the entire research process - its data collection, analysis, and conclusions. Hypotheses regarding the most effective strategies were based on inductive axial coding. I requested that my participants record their lessons while I explained the purpose of this activity. Participation was voluntary. The voice recordings were described, analysed, and compared with both the interviews and findings from the systematic literature review. The core of the audio analysis was based on the following data: the duration of voice use during the lesson, types of vocal responses such as dynamic changes, vocal onset, and breath work. Symptoms of vocal fatigue, as well as their appearance in the teacher's voice during lessons and the quality of vocal performance, were documented despite various workplace factors such as room acoustics and group size. These practical examples could potentially inform the implementation of vocal fatigue strategies. All qualitative data were coded to identify patterns, innovative ideas, experiences, and their impacts. Teachers' perspectives on vocal fatigue resistance training were also considered. I aimed to leverage my insider position and personal experience in reducing vocal fatigue and enhancing the voice to categorise the data into passive and active strategies. Focus groups might have been useful before the interviews to evaluate the effects of the strategies used. Vocal fatigue is a broad phenomenon that can be examined from various perspectives according to its objectives. I believe the chosen framework provided a more nuanced understanding of active vocal fatigue strategies. Conducting interviews immediately after the observations could have sparked fresher ideas. It was quite tempting to veer into discussions about vocal fatigue symptoms instead of focusing on the application of vocal fatigue strategies and their outcomes.

Some mixed-method research has been conducted to demonstrate the prevalence of vocal fatigue among teachers (Muthuswamy, 2024) and its greater impact on music teachers (Hendry, 2001), particularly those who use their voices as instruments. This research includes some acoustic measures and self-reports of vocal fatigue from female teachers (Laukkanen et al., 2008). Vocal fatigue can be assessed using the vocal fatigue index, which measures the difference between maximum and minimum power in vocal response under specific vocal demands (Nanjundeswaran et al., 2015). It can also be assessed through acoustic analysis, vocal self-assessment (de AraújoTorres et al., 2024), or phonation threshold pressure (Chang and Karnell, 2004). However, none of these studies initiated the application or examination of the complex training researched to enhance resistance to vocal fatigue and voice resistance against it.

Results and Findings

A survey was conducted to identify suitable participants for exploring long-term strategies to reduce vocal fatigue and their potential effective applications in the future. Ninety-five percent of my respondents experienced symptoms of vocal fatigue due to their teaching profession, and sixty-three percent have either tried or practised the intended voice work to alleviate those symptoms. My statistics merely confirm the overall trend regarding the prevalence of vocal fatigue among teachers (Moreno, Calvache and Cantor-Cutiva, 2025). I recruited these respondents for an

interview to learn about the types, effects, and additional suggestions regarding resistance training for vocal fatigue.

Class Management

Most interview participants experienced symptoms of vocal fatigue while continuously working with large groups of young children who required significant energy, explanation, or demonstration during project-based learning, when introducing new topics, singing with children to correct their pitch, or directing their focus. "It's a long day, and I find myself working with younger age groups that require more energy. So, I need to project my voice more, encourage them more, demonstrate more, and be present for them a bit more," says Participant 8. Participant 4 experiences symptoms of vocal fatigue every Monday and Friday, particularly when the children are louder, prompting an increase in the teacher's vocal intensity and effort. Participant 9 confirms that vocal fatigue arises from classroom management challenges. Voice intonation and dynamics, including emotions and phonation air pressures, change constantly. This is why a music teacher (singing specialist) must be a vocal athlete in both singing and speaking. The demands of the profession are mentally and physically challenging, necessitating considerable vocal self-control to avoid injuries.

Class management strategies, such as clapping to prompt children to clap back in order to quiet them and create space for the teacher's speech, along with methods for gaining student attention, like using a microphone and improving lesson plans and activities without needing the teacher's voice, were suggested. Participant 3 favours the "lazy teacher's approach" pedagogy, which allows students to learn more effectively by leading the lesson themselves instead of depending on the educator, who adopts a managerial role (Jim Smith, 2021). In contrast, Participant 5 emphasises the significance of emotional self-awareness during lessons: "Firstly, recognise the emotion in your voice that could impact children and consider why that emotion is present - perhaps it's your last lesson and you are tired too. Then, make a switch and regain the control." This participant acknowledged that altering one's vocal tone can lessen the necessity for demanding vocal responses and improve the classroom atmosphere. She compared vocal demands in a class of 20 with those in a class of 10, noting that greater vocal effort was needed in the smaller group due to the effects of the teacher's angry tone on teenage children's behaviour. She observed that in the class of 20, the level of attention was so high that she could even whisper. The impact of emotions on vocal fatigue has an organic origin, as muscles are continuously engaged due to commands from the nervous system. Simultaneously, consciously aligning with current emotions rather than reacting emotionally and vocally unconsciously could be more effective for better-connected vocal placement. Teachers often struggle to manage their vocal responses because of the nature and environment of the job role.

Vocal Rest

One of the most popular strategies among teachers from the primary school environment is vocal rest. Many suggested this approach to restore their voices and simply to be able to speak the following day. Participants 2, 3, 6, 9, and 10 intentionally use vocal rest to conserve their voices for the next day. Participant 3 states: "When I come home, I love to be quiet and read." Two participants had the advantage of living alone, but others with families struggled with communication in their private lives. Participant 7 mentions going through an identity crisis, not only due to losing a singing instrument but also due to the inability to speak with a family member since muscle tension dysphonia occurred: "I was constantly on vocal rest. I couldn't talk to my daughter. Not only as a musician and because of my voice, which I treasure and is so important to me, but it also affects my personal life." The desire for a calm environment and the application of voice rest after an occupational voice user's long-term daily performance relates back to emotional regulation, balancing the neurological processes in muscle tissues. This changes the passive strategy under regulatory conditions into an active part of vocal fatigue resistance training. As previously mentioned in the literature from exercise science, muscles need to be released before they can contract properly again.

The testimonies from the interview method discuss daily limitations in occupational voice use. Speaking voices are affected by their daily vocal tasks, which are constrained by symptoms of vocal fatigue. Participant 6 noted that she must reconsider her after-work social life (e.g., meeting friends) since she feels her daily voice use is limited after many years. Seven out of twelve respondents confirmed their inability to engage in intentional voice work after daily teaching, including practising their own music and vocal techniques. These singing specialists chose to rest their voices rather than risk losing their vocal abilities or exhausting their vocal cords for the quality of the next day's singing. None of my participants have the time or energy to consciously engage in intentional voice work or vocal fatigue resistance training.

SOVT's

Music teachers and singing specialists who confirmed some intentional voice work on vocal fatigue symptoms, their avoidance, and their intention to strengthen the voice and prepare it for the day's vocal load mention the benefits of semi-occluded exercises. Participants 11 and 8 use them to wake up, prepare their voices, during breaks (on the go), or as a cool-down: "I can say I'm doing this regularly. I do this on my own, ad hoc. I'm in the hall, doing lip trills. When I'm walking, during a break, while I'm looking for kids, I do that. And I talk better when I walk into the classroom. I feel stronger. The muscles, too. We need to warm up our voices. It doesn't matter whether you're singing or talking. Teachers' working hours are very challenging because we sometimes have to push our voices when something is happening. And we don't prepare our voices for this." Data from Participant 8 also demonstrates clever time management to accommodate an awareness of

fatigue resistance: “Students always make fun of me when they see me, in between sessions, doing SOVTs on the way to the toilet. Or in a lesson itself.”

Participant 11 benefits not only from the preparation and protection functions of SOVTs but also from the after-phonatory voice recovery effects. However, in this case, the application changes to a softer version with a little air pressure used. She states her muscles rest after SOVTs and acknowledges their possible training function for vocal fatigue resistance by recalling that she feels stronger when time allows her to practice more frequently. Participant 8 also describes SOVT as a method to “widen a space” and relax muscles: “Narrow straws truly broaden everything inside. So, instead of contracting, you achieve a wider space, and then you must learn how to maintain that space. Work gradually and experience the same sensation with various vowels, amusing sounds, and combinations.” She suggests applying this sensation to the speaking voice. The procedure described has significant potential to influence vocal muscle memory for speaking.

None of the strategies, whether drinking plenty of water, vocal rest, or SOVT exercises, were successful for Participant 7 after three years of teaching. “When I first started teaching in the classroom, I faced significant challenges. Eventually, I became more resilient to these issues. For a few years, I managed quite well despite the extreme tension. Throughout those two years, I performed satisfactorily. However, during the third year, the intensity increased significantly. I began to experience muscle tension dysphonia, and none of the strategies—whether SOVT or voice rest—provided relief; it felt futile.” The participant engaged in vocal therapy and vocal physiotherapy. The Accent Method of breathing alleviates tension in the vocal area and promotes abdominal release (Chapman and Morris, 2006), alongside posture exercises and manual tension release techniques such as self-vocal massage. Rehabilitation techniques assist music teachers, particularly singing specialists, in changing their vocal habits: “I didn’t do speech therapy at all, but I utilised many of the techniques I’ve learned, which genuinely improved my speaking voice and helped me bridge the gap” (Participant 8). Vocal fatigue resistance training is already integrated into voice rehabilitation approaches, and once occupational voice users learn and apply these techniques, they naturally pass them on to their clients.

This indicates that regulated vocal rest and intentional voice work with SOVTs may assist in managing vocal load and the consequences of vocal fatigue during the training phase, but the use of SOVTs is limited during the pathology phase. To address symptoms of vocal fatigue at this stage, it is essential to engage more fundamental aspects of the vocal system. Speech therapy and physiology concentrate on muscle function, neurological connections, engaging the appropriate muscle groups, and phonation processes. It is advisable to explore the applications of voice physiotherapy training and rehabilitation therapy for both vocal fatigue recovery and resistance training.

Breathwork

I also interviewed a participant who didn't experience any vocal fatigue and attributes this to good vocal preparation during and after her college years. Respondent 12 credits her resilience to the excellent breathing techniques she acquired from her vocal hygiene singing teacher. The participant began attending her classes when her neck muscles were overcompensating for her previous vocal technique: "The correct breathing has helped me significantly in practical life. I work with many children with challenging behaviour as well as choirs simultaneously, and I have no problem using my voice effectively with dynamics without harming it. Of course, there are times when I am not focused, and then my voice gets a little tired. However, it has never happened that I couldn't sing the next day or lose my singing or spoken voice. I don't feel vocal fatigue." This participant may have admitted to a lack of creative energy for her own children after the workday, but it stems from her mental state rather than physical factors. This was described as a specific, intentional breathwork to release tension from the strained area and to refocus it for more efficient use. Her voice quality evaluation was based on her perception and feelings. She confesses that the vocal hygiene teacher basically rehabilitated her voice and helped her recreate her bad vocal habits: "It took me a long time because I used my vocal muscles in a certain way. She rehabilitated my muscles. Whenever I lose my focus, I slip back into the old habits and realise it."

Concentration, breathwork, time management, and knowledge of voice rehabilitation exercises are integral to vocal fatigue resistance training. Although it may seem that strength training needs to be intense, laryngeal muscles function differently from other body muscles and are much more delicate. Therefore, this practice must be consistent, tailored to the individual, and based on gradually revealed key strategic areas.

Participant 4 also mentions a proven strategy to reduce her vocal fatigue for both spoken and sung voices through Strelnikova's Breathing Gymnastics, a specific set of breathing exercises and body movements originating from Eastern cultures that involve active inhalation: "It helps to preserve the voice. It redirects the air to the correct areas of the body for speaking and singing." Vocal warm-up breathing exercises were noted as beneficial for alleviating vocal fatigue and supporting resistance training. As outlined in the literature review, muscles and their metabolic and so mechanical processes cannot function properly without adequate oxygen input. Breathwork is undoubtedly one of the essential elements of effective vocal fatigue resistance training.

Opinions on the Vocal Fatigue Resistance Training (VFRT)

All my participants understand the hidden necessity of engaging in voice work to enhance their performance as occupational voice users. However, time management, vocal overload, and frustration are preventing them from exploring vocal fatigue resistance training. Simultaneously, nearly every one of them has adopted a strategy to alleviate symptoms of vocal fatigue to function effectively in their roles. Many have faced vocal pathologies, and through our discussions in pursuit

of effective strategies, a calm state of mind emerges as an often-overlooked aspect. A passive vocal strategy, such as vocal management, is vital in supporting vocal fatigue resistance training. It safeguards against daily vocal overload and creates space for gradual, intentional voice work once the voice has rested. Participant 1 confided that her voice improved after years of teaching by simply concentrating on her vocal placement while speaking. The mindset shared by participants 1, 5, 8, 12, and 11 thus becomes a powerful tool for sustaining future voice training. Some participants have resigned from their jobs due to voice problems, which also serves as a motivating starting point for training. This selected group remains curious about their voice use, as they are singing specialists and musicians.

Five teachers out of twelve are aware of vocal fatigue resistance training, which remains largely unknown and unclear. Participant 1 states, "If I exercised daily, I would be in better shape with my vocal cords. I feel that they're ageing, and my voice is losing its range." Participant 3 recalls exercises from the laryngologist she visited ten years ago. She mentions that she needs to return to these exercises and practice them consistently because of the recurring issues she faces each year, which, like others, remains an unresolved professional challenge. Participant 4 remembers the Strelnikova Gymnastics exercises only when her voice starts to suffer. Teachers are both mentally and vocally fatigued, and the timing and dosage of the resistance training are crucial for its effectiveness. Participant 12 warms up with the choir, believing that demonstrating the sound image and proper alignment has also been practised by her. The same method was used with participants 8 and 11.

Looking back, the ideal approach for a music teacher (a specialist in singing) in a primary school environment should be relaxed—considering the sudden muscle contraction response in the voice. This approach requires following class management strategies that minimise vocal responses, managing time effectively during SOVTs, and showing interest in voice therapy applications. Passive strategies reinforce active strategies.

Observations

Observations of teachers' voices were conducted and analysed to support findings from the literature review and interviews. Four teachers out of twelve agreed to observe their vocal work during the challenging lesson, specifically participants six, eight, seven, and five. The class setting varied slightly depending on the activities and content of the lesson. All participants projected their voices throughout the entire duration of the lesson. The vocal work shifted between vocal tasks and vocal responses. Both vocal tasks and responses required slightly more vocal effort; however, the vocal tasks appeared to be under control, while the vocal responses were not always conscious due to unpredictable class management.

Voice use differs according to participants' teaching styles, class settings, and activities. Participant 6 worked with small children, participant 8 conducted a choir rehearsal, participant 7 focused on

Christmas song harmonies with a medium-large group of teenage students, and Participant 5 held a regular yet pre-Christmas class with a medium-large group of KS1 children. To gain the attention of the group, Participant 6 employs a glottal onset and projects her voice during the first instructional sentence. She also incorporates a focused instruction, saying, “We are listening now,” in between. She needs to use another glottal onset to instruct a student and prevent him from disrupting the activity. Once class management is under control, the teacher can calm her vocal phonation. Whenever an emotional reaction arises from a student, the teacher uses her vocal onset (accent) again.

She relies on her vocal demands when explaining the activity. Her vocal responses for class management often occur unexpectedly. From her vocal work, the teacher views vocal tasks as part of her role — explaining the activity and aiding students' understanding of the topic. However, the vocal responses for class management are additional skills worthy of athletic training. The teacher raises her voice to coordinate activity control while managing the crowd.

The intonation of her voice changes when addressing a group (projecting) versus an individual student (where her voice lowers, and tension decreases to convey information to one student), especially when class management cues aim to swiftly gain a student's attention. Whenever confusion arises from students regarding the activity, the teacher phonates unconsciously in response to the required reaction. She remains responsible for the lesson content and leads the activity. When a student is confused, the teacher must repeat the rules of the activity, emphasising them with her voice. While demonstrating, she continues to speak.

The teacher's voice does not sound weak; at times, it becomes husky at the ends of words. Throughout the lesson, she projects her voice to clarify the activity until the students comprehend. She also addresses students' emotions and expressions with vocal feedback. Consequently, vocal tasks should be limited (strategy), and vocal response necessitates training, as emotions do not always align with conscious phonation control. The teacher also regulates students' vocal loudness and intensity with her own voice. As a leader, she manages behaviour.

Participant 8 leads a choir rehearsal, projecting and elucidating the correct vocal techniques and the purpose of the practice for 18 minutes from the start. Her vocal efforts require considerable stamina to engage the listeners' excitement. During her speech, vocal responses are unnecessary. She manages her vocal demands while still exerting significant phonation effort over an extended period. Once the choir begins to warm up and work on the song, the choir leader frequently interrupts to correct the activity and demonstrate. Similar vocal scenarios arise with Participant 7 as she rehearses harmonies with a group of teenagers. The singing teacher directs the lesson throughout its duration; she also demonstrates the entire song at the end as an example for a student. The lesson lasts for 30 minutes, and although the teacher showcases the correct pitch with her singing voice, it resembles more of a speaking voice. The transitions between spoken explanations, giving instructions, singing, and providing vocal guidance occur regularly.

Participant 5's vocal tasks are unexpectedly disrupted by the children's pre-Christmas excitement. She copes well, but the demands of vocally leading the lesson while managing sudden classroom interruptions seem mentally taxing. It would be beneficial to gather and analyse observations of class voice work from participants who have positive experiences regarding vocal fatigue and resistance in order to find additional strategies.

Conclusion

Some discussion points have been included between the interview and observation results. The findings from the data obtained from both the interviews and observation reports support the conclusions of the systematic literature review. Vocal fatigue resistance training is an active strategy to address the vocal fatigue experienced by music teachers (singing specialists). This study has shown that no alternative method exists. A passive strategy—vocal rests—remains the most popular among teachers, but it does not adequately prepare the voice for their vocal tasks. It serves as an important complementary strategy under regulated conditions. Muscles must be rested yet exercised if we want to achieve greater stamina. Another significant complementary strategy, primarily used by experienced singing teachers in group settings, is effective time management and SOVT exercises. Rehabilitation exercises and their application have been shown to be effective in key areas of vocal fatigue resistance training. While their use is acknowledged for rehabilitating voice pathologies and restoring function, future studies should explore how they operate in the context of vocal fatigue resistance training.

The systematic literature review intentionally examines objectives from a slightly different perspective than thematic analysis. As the conductor of this research, I aimed to explore and understand the mechanical, chemical, and neurological factors first. This knowledge has been correlated with testimonies from my participants to draw logical and effective conclusions geared towards resolving vocal fatigue. Simultaneously, I have sought to understand the passive vocal fatigue strategies that numerous teachers employ and have begun incorporating them into an active vocal fatigue training programme. As previously mentioned, the application and strategy of these exercises will be vital to the success of the ongoing training. Nevertheless, this study confirms that active strategies are significantly more effective than passive ones in reducing vocal fatigue and gradually building resilience for professional performance.

Key strategic areas explored in this study include breathwork to supply muscles with oxygen, thereby ensuring suitable mechanical processes for their proper function; ongoing vocal muscle training derived from voice physiotherapy and rehabilitation techniques to strengthen and preserve the voice; and minimising unconscious vocal responses and conscious emotional control interconnected with voice use that affects the neurological muscle processes. The training principles have the potential to be transferable to other occupational voice users, too, although the strategy of minimising vocal effort in the work environment may differ.

References:

- Hunter E. J. et al. (2020), 'Toward a Consensus Description of Vocal Effort, Vocal Load, Vocal Loading, and Vocal Fatigue', *Journal of Speech, Language, and Hearing Research*, 63(2), pp. 509-532.
- Connor S. L. and Morrow N. P. (2011), 'Comparison of voice-use profiles between elementary classroom and music teachers', *Journal of Voice*, 25(3), pp. 367-372.
- Schmidt P. and Morrow S. L. (2016), 'Hoarse with no name: chronic voice problems, policy and music teacher marginalisation', *Music Education Research*, 18(1), pp. 109-126.
- Brunkan M. C. (2018), 'Preservice music teacher voice use, vocal health, and voice function before and during student teaching', *Journal of Music Teacher Education*, 27(3), pp. 80-93.
- Baker V. D. and Cohen N. (2017), 'University vocal training and vocal health of music educators and music therapists', *Applications of Research in Music Education*, 35(3), pp. 3-61.
- Banks R. E., Cantor-Cutiva L. C. and Hunter E. (2022), 'Factors Influencing Teacher' Experience of Vocal Fatigue and Classroom Voice Amplification', *Journal of Voice*. Available at: <https://doi.org/10.1016/j.jvoice.2022.06.026> (Accessed: 15 October 2024).
- Hackworth R.S. (2021), 'Vocal Health Implications for Music Teachers: A Literature Review', *Update: Applications of Research in Music Education*, 42(1), pp. 3-80.
- Sandage M. and Hoch M. J. (2018), 'Exercise Science Principles and the Vocal Warm-up: Implications for Singing Voice Pedagogy', *Journal of Voice*, 32(1), pp. 79-84.
- Roy N. et al. (2004), 'Voice disorders in teachers and the general population', *Journal of Speech, Language and Hearing Research*, 47(3), pp. 542-551.
- Dejonckere P. H. (2001), *Occupational Voice: Care and Cure*, The Hague: Kugler Publications.
- Pasa G., Oates J., and Dacakis G. (2007), 'The relative effectiveness of vocal hygiene training and vocal function exercises in preventing voice disorders in primary school teachers', *Logopedics Phoniatrics Vocology*, 32(3), pp. 128-140.
- Scott S. (2022), 'Insights, Considerations, and Suggestions for the Practitioner-Researcher in Voice Studies', *Voice and Speech Review*, 18 (2), pp. 146-165.
- University of Wales Trinity Saint David (2022), *Research Ethics & Integrity Code of Practice*.

Available at: <https://www.uwtsd.ac.uk/sites/default/files/2024-02/REICoP-July-2022.pdf> (Accessed: 16.10.2024).

DeLyser, D. (2001). “Do you really live here?” Thoughts on insider research’, *The Geographical Review*, pp. 441-453.

Schön D. A. (1983), *The Reflective Practitioner: How Professionals Think In Action*, London and New York: Routledge.

Titze IR and McCabe DJ (2002), ‘Chant Therapy For Treating Vocal Fatigue Among Public School Teachers: A Preliminary Study’, *American Journal of Speech-Language Pathology*, 11 (4), pp. 356-369.

Velsvik Bele I. (2008), ‘The Teacher’s Voice: Vocal training in teacher education’, *Scandinavian Journal of Educational Research*, 52 (1), pp. 41-57.

Gotaas C and Starr CD (1993), ‘Vocal Fatigue Among Teachers’, *Folia Phoniatrica et Logopaedica*, 45 (3), pp. 120-129.

Muthuswamy V. V. (2004), ‘Music Teacher Mental Health and Job Performance: ‘Role of Voice Fatigue and Vocal Performance’, *Educational Sciences: Theory and Practice*, 24 (1), pp. 1-13.

Welham NV and MacLagan MA (2003), ‘Vocal Fatigue: Current Knowledge and Future Directions’, *Journal of Voice*, 17 (1), pp. 21-30.

Lei Z et al. (2020), ‘Investigation of Vocal Fatigue Using a Dose-Based Vocal Loading Task’, *Applied Sciences*, 10 (3), pp. 1-15. Available at: <https://doi.org/10.3390/app10031192> (Accessed 19th December 2024).

Chang A and Karnell MP (2004), ‘Perceived phonatory effort and phonation threshold pressure across a prolonged voice loading task: a study of vocal fatigue’, *Journal of Voice*, 18 (4), pp. 454-466.

Nanjundeswaran C, van Mersberger M and Morgan K (2019), ‘Restructuring the Vocal Fatigue Index Using Mokken Scaling: Insights Into the Complex Nature of Vocal Fatigue’, *Journal of Voice*, 33 (1), pp. 110-114.

Gao X et al. (2022), ‘A rapid, non-invasive method for fatigue detection based on voice information’, *Frontiers in Cell and Developmental Biology*, 10. Available at: <https://doi.org/10.3389/fcell.2022.994001> (Accessed 19th December 2024).

Cantor Cutiva LC (2015), *Causes and consequences of voice disorders among teachers*. Dissertation.Erasmus MC: University Medical Center Rotterdam. Available at: https://repub.eur.nl/pub/78597/150915_Cantor-Cutiva-Lady-Catherine.pdf (Accessed: 19th December 2024).

Hoch M and Sandage MJ (2018), 'Exercise Science Principles and the Vocal Warm-up: Implications for Singing Voice Pedagogy', *Journal of Voice*, 32 (1), pp. 79-84.

Ruben RJ (2014), 'The hygiene of the vocal organs: A study in longevity or durability', *The Laryngoscope*, 124 (2), pp. 522-530.

Titze IR (1992), 'Vocal Efficiency', *Journal of Voice*, 6 (2), pp. 135-138.

de Albuquerque Lopes MCL et al. (2018), 'Factors associated with vocal health and quality of life in teachers/professors', *Revista Cefac*, 20 (4), pp. 515-531, Available at: <https://pdfs.semanticscholar.org/6cda/176c48b527c4571376d1d57888256aecec99.pdf> (Accessed 19th December 2024).

Boucher VJ and Ayad T (2010), 'Physiological Attributes of Vocal Fatigue and Their Acoustic Effects: A Synthesis of Findings for a Criterion-Based Prevention of Acquired Voice Disorders', *Journal of Voice*, 24 (3), pp. 324-336.

Gao Y, Dietrich M and DeSouza GN (2021), 'Classification of Vocal Fatigue Using sEMG: Data Imbalance, Normalization, and the Role of Vocal Fatigue Index Scores', *Applied Sciences*, 11 (10), 1-13/no pagination, Available at: [10.3390/app11104335](https://doi.org/10.3390/app11104335) (Accessed 19th December 2024).

Casper JK and Leonard R (2006), *Understanding Voice Problems - A Physiological Perspective for Diagnosis and Treatment*, 3rd edition, Lippincott Williams & Wilkins.

Stemple JC, Roy N and Klaben BK (2018), *Clinical Voice Pathology: Theory and Management*, 6th edition, San Diego, CA: Plural Publishing.

Oates J. and Winkworth A. (2008), 'Current knowledge, controversies and future directions in hyperfunctional voice disorders', *International Journal of Speech-Pathology*, 10 (4), pp. 267-277.

Hazlett D. E., Duffy O. M. and Moorhead S. A. (2011), 'Review of the Impact of Voice Training on the Vocal Quality of Professional Voice Users: Implications for Vocal Health and Recommendations for Further research', *Journal of Voice*, 25 (2), pp. 181-191.

Moreno M, Calvache C. and Canor-Cutiva L. C. (2022), 'Systematic Review of Literature on Prevalence of Vocal Fatigue Among Teachers', *Journal of Voice*, no pagination.

Hendry KL (2001), *Burnout and self-reported vocal health among music teachers and other educators*, Dissertation (Degree of Doctor of Education), Teachers College, Columbia University.

Nesbitt N. (2023), *Exercise science and the singing voice* [thesis, Doctor of Music degree], Indiana University, Faculty of the Jacobs School of Music. Available at: <https://scholarworks.iu.edu/iuswrrest/api/core/bitstreams/3d91e2a6-c878-424c-b48c-321a97d9e4c9/content> (Accessed 25th December 2024).

Bishop PA, Jones E and Woods AK (2008), 'Recovery from Training: A Brief Review', *Journal of Strength and Conditioning Research*, 22 (3), pp. 1015-1034.

Bagnall AD, Dorrian J and Fletcher A (2011), 'Some Vocal Consequences of Sleep Deprivation and the Possibility of "Fatigue Proofing" the Voice with Voicecraft Training', *Journal of Voice*, 25 (4), pp. 447-461.

Shembel A.C and Nanjundeswaran CH. (2022), 'Potential Biophysiological Mechanismus Underlying Vocal Demands and Vocal Fatigue', *Journal of Voice*, no pagination. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9943805> (Accessed: 25th December 2024).

Leborgne WD and Rosenberg MD (2024), *The Vocal Athlete*, 3rd edition, San Diego, CA: Plural Publishing.

Honda K (2008), 'Physiological Processes of Speech Production' in *Handbook of Speech Processing*, Springer.

Sokolowsky RR (1943), 'Effect of the Extrinsic Laryngeal Muscles on Voice Production', *Archives of Otolaryngology*, 38 (4), pp. 355-364.

Tellis CM, Thekdi A and Rosen C (2004), 'Anatomy and Fiber Type Composition of Human Interarytenoid Muscle', *Annals of Otology, Rhinology & Laryngology*, 113 (2), pp. 97-107.

Clark HM (2003), 'Neuromuscular Treatments for Speech and Swallowing', *American Journal of Speech-Language Pathology*, 12 (4), pp. 400-415.

Hoh JFY (2005), 'Laryngeal muscle fibre types', *Acta Physiologica Scandinavica*, 183 (2), pp. 133-149.

Sapienza C and Hoffman B (2020), *Voice Disorders*, 4th edition, San Diego, CA: Plural Publishing.

Baechle TR and Earle RW (2008), *Essentials of Strength Training and Conditioning*, 3rd edition, Human Kinetics Publishers.

Sale DG, Gonyea WJ and Gonyea FB (1986), 'Exercise induced increases in muscle fiber number', *European Journal of Applied Physiology and Occupational Physiology*, 55, pp. 137-141.

Shewell C and Sansom R (2024), *Voice Work: Art and Science in Changing Voices*, 2nd edition, Wiley-Blackwell.

Stemple J et al. (2017), 'Vocal function exercises for normal voice: The effects of varying dosage', *International Journal of Speech-Language Pathology*, 21 (1), pp. 37-45.

Behrman A. and Haskell J (2019), *Exercises for Voice Therapy*, 3rd edition, San Diego, CA: Plural Publishing.

Guzman M et al. (2023), 'Physiologic Voice Rehabilitation Based on Water Resistance Therapy With Connected Speech in Subjects With Vocal Fatigue', *Journal of Voice*, 37 (2), pp. 300.e1-300.e10.

Boone DR (2015), *Is Your Voice Telling on You?: How to Find and Use Your Natural Voice*, 3rd edition, San Diego, CA: Plural Publishing.

Lindblom B and Sundberg J (2014), 'The Human Voice in Speech and Singing' in Rossing (ed.). *Handbook of Acoustic*. Springer, pp. 703-746.

Nanjundeswaran CH D, VanSwearingen J and Abbott KV (2016), 'Metabolic Mechanism of Vocal Fatigue', *Journal of Voice*, 31 (3), pp. 378e.1-378e.11.

Saxon K and Schneider CM (1995), *Vocal Exercise Physiology*, Singular Publishing Group Inc.

Bruce M and Carlson MD (2019), 'The Muscular System' in *The Human Body*, Academic Press.

Anderson VA (1977), *Training the Speaking Voice*, 3rd edition, Oxford University Press.

Roy N et al. (2004), 'Voice Disorders in Teachers and the General Population: Effects on Work Performance, Attendance, and Future Career Choices', *Journal of Speech, and Hearing Research*, 47 (3), pp. 542-551.

Martin S and Darnley O (2024), *The Working Voice: Vocal Health and Effective Communication*, Routledge.

Morrison M D et al. (2013), *The Management of Voice Disorders*, San Diego, CA: Springer-Science+Business Media, B.V.

Laukkanen AM et al. (2008), 'Acoustic Measures and Self-reports of Vocal Fatigue by Female Teachers', *Journal of Voice*, 22 (3), pp. 283-289.

Nanjundeswaran et al. (2015), 'Vocal Fatigue Index (VFI): Development and Validation', *Journal of Voice*, (29) 4, pp. 433-440.

Torres RVN et al. (2024), 'Phonatory Tasks and Outcome Measures for Assessing Vocal Fatigue: A Scoping Review', *Journal of Voice*. Available at: 10.1016/j.jvoice.2024.02.005 (Accessed: 31st December 2024).

Chapman JL and Morris R (2006), 'Breathing and Support', in Chapman JL, Morris R and Platt J, (4th ed.) *Singing and Teaching Singing: A Holistic Approach to Classical Voice*. San Diego, CA: Plural Publishing.

Velsvik Bele I. (2008), 'The Teacher's Voice: Vocal training in teacher education', *Scandinavian Journal of Educational Research*, 52 (1), pp. 41 - 57.

Moreno M, Calvache C. and Canor-Cutiva L. C. (2025), 'Systematic Review of Literature on Prevalence of Vocal Fatigue Among Teachers', *Journal of Voice*, 39 (1), pp. 105-112.

Appendix

01 Approved Ethics 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:	Alia El Hage Hasík			
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:	aliaelhage@gmail.com
6	Contact Telephone Number:	+44713850518 +421911209588
For students:		
7	Student Number:	2316806
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 (Institute for Management and Business Studies) 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	The General Data Protection Regulation (GDPR)	☒
	Data Protection Act (DPA)	☒
	Code of Scientific Integrity and Ethics in Slovakia	☒
	The European Code of Conduct for Research Integrity.	☒

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:	Can we minimise or balance up vocal fatigue of music teachers working with groups and individual singing students? If yes, what would be the best effective strategies for vocal fatigue?		
2	Proposed start date:	26/09/2024	Proposed end date:	31/01/2025
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: • <i>Purpose of Research Activity</i> • <i>Proposed Research Question</i> • <i>Aims of Research Activity</i> • <i>Objectives of Research Activity</i> Demonstrate, briefly, how <u>Existing Research</u> has informed the proposed activity and explain • <i>What the research activity will add to the body of knowledge</i> • <i>How it addresses an area of importance.</i>				
3	Purpose of Research Activity • To minimise and avoid the vocal fatigue of music teachers. (this box should expand as you type)			
4	Research Question Can we minimise or balance up vocal fatigue of music teachers working with groups and individual singing students? If yes, what would be the best effective strategies for vocal fatigue? (this box should expand as you type)			
5	Aims of Research Activity • Contributing to the practice of vocal health among occupational voice users. • Spreading the word about vocal health among teachers as occupational voice users. (this box should expand as you type)			

6	Objectives of Research Activity - Investigate the vocal load and practices used against the vocal fatigue of singing teachers working with both large groups in primary school settings and individual singing students. - Compare and research the most effective and practical possible ways of resolving the vocal load of teachers working with large groups. (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	Overarching methodology: mixed methods - Literature review - Surveys - online or paper close-ended questionnaire with possible dynamic feature - Interviews - individual semi-structured, individual unstructured - Focus Group (s) - Single Focus Group, remote/online - Observation- naturalistic (in the classroom) - Grounded theory - Field notes - digital/written - Reflective journal - digital/written - Literature review will be held prior to the construction of surveys. - Surveys will be held to gather initial descriptive statistics. - Gained quantitative data will be further investigated by gathering qualitative data - individual semi-structured or unstructured interviews will be performed. - Focus groups and observation might be held to brainstorm the most effective and practical ways of resolving the vocal load of participants. - Interviews, focus groups and observations will lead to grounded theory method of the data collection and analyses. *Literature review is proposed to work with grounded theory approach throughout the research process. - Field notes will be used to support qualitative collection of data from interviews and their analysis. - Reflective journal will be a method to avoid researcher's bias by informing and reviewing own professional behaviour and maintaining the focus on data collection. (this box should expand as you type)

	Location of research activity Identify all locations where research activity will take place.
8	UK, Slovak Republic, Zoom, Teams, Whatsapp. (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	• The General Data Protection Regulation (GDPR) & Data Protection Act (DPA) - protecting personal information of participants. • Code of Scientific Integrity and Ethics in Slovakia & The European Code of Conduct for Research Integrity - compliance with ethical obligations and requirements of scientific integrity during research in the territory of the Slovak Republic & European Union. There are no ethical stipulations beyond those usual in the UK. All mentioned guidelines are in line with those in UK. (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?	Estimated numbers of participants: Maximum of 12 and minimum of 6 participants - if Focus Group applied. Minimum 3 participants - if unstructured interviews applied. (this box should expand as you type)
11	Who will the participants be?	Mostly female trained singing teachers, currently non-gigging, teaching group music lessons at primary schools. • Colleagues at current workplace • Colleagues from other schools • Colleagues from music schools (also running afternoon individual singing lessons). (this box should expand as you type)
12	How will you identify the participants?	I will aim to contact my participants live, by email and on social media. I will also use the snowball sampling. (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 re-search 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			
	<i>(this box should expand as you type)</i>			

	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			
	Mobile phone for voice recording of interviews. Laptop for recorded online meeting sessions. <i>(this box should expand as you type)</i>			

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: • Sharing private vocal health experience and information, feeling uncomfortable during interview. <i>(this box should expand as you type)</i>	How you will mitigate the risk to participants: • Maintaining anonymity, informing participants about what to expect, how the data will be processed and stored. Informing about the aims of research to help motivate my participants. <i>(this box should expand as you type)</i>	
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		
	In case of any distress, I will provide my participants with links for mental health support. I can also refer them to vocal health professional. <i>(this box should expand as you type)</i>		
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: • Oversharing personal data about the health of the vocal cords in order to create a confidential environment. • Being emotionally involved in the research topic (risk of anxiety, bias) <i>(this box should expand as you type)</i>	How you will mitigate the risk to the investigator: • Act as a professional researcher. Chose the approach or position of sharing personal information if necessary. • Continuous self-reflection. • Start with semi-structured interview. • Reflective journal. <i>(this box should expand as you type)</i>	

5	University/institutional risks For example: adverse publicity, financial loss, data protection	
	Risk to the University: Adverse publicity. Data protection. <i>(this box should expand as you type)</i>	How you will mitigate the risk to the University: Considering each step taken when manipulating with research results. Password data protection storage. Deleting any data related to research after final assessment. <i>(this box should expand as you type)</i>
6	Environmental risks For example: accidental spillage of pollutants, damage to local ecosystems	
	Risk to the environment: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to environment: N/A <i>(this box should expand as you type)</i>

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?
---	--

	I will provide my email address so that they will be able to contact me in case of research results interest. In case of holding the focus group session and interviews - final de-briefing will be held at the end of the meeting. I will thank my participants, provide them with supportive links and overview my further steps. Each participant can contact me if interested in the research results. <i>(this box should expand as you type)</i>
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.
	• Emphasise voluntary participation and withdrawal at any time. • Describing the upcoming research process and what to expect prior to consenting in advance. • Explain how data will be collected, protected and stored. In case of any paper questionnaire - signed consent form required. In case of online questionnaire - first page with information will be provided, by clicking “next”/“start” or simply just commencing answering the questionnaire will participants consent. When recording interview - asking the participant for the recorded consent. <i>(this box should expand as you type)</i>
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.
	• No names will be collected in surveys • No names will be used in recorded interview • No names mentioned in any research publications <i>(this box should expand as you type)</i>

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	• Audio data of participants • Name, signature or any other personal data on the consent form (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 as 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	• Any mental health condition resulting from discussed physical condition might be discussed. • Medical condition as a result of vocal fatigue might be discussed. • Physical or mental health condition resulting from the profession’s workload might be discussed. (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 company’s/University’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. • 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. <i>(this box should expand as you type)</i>		

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 Company's/University'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 will be deleted immediately if the participant requests this, in which case the data will not be used in the project. <i>(this box should expand as you type)</i>		
22	List all who will have access to the data generated by the research activity:		
	Principal researcher. If necessary, also supervisor. <i>(this box should expand as you type)</i>		
23	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Principal researcher. <i>(this box should expand as you type)</i>		
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 Company's/University'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. The data will be stored until the completion of the project and then deleted. <i>(this box should expand as you type)</i>		
25	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtسد.ac.uk/). If so please explain. <i>(Most relevant to academic staff)</i>		
	N/A <i>(this box should expand as you type)</i>		
26	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtسد.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:	<i>Alia El Hage Hasik</i>	Date: 13/08/2024

For STUDENT Submissions:

2	Director of Studies/Supervisor:	Laura James	Date: 17.10.24
3	Signature:	<i>Laura James</i>	

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) <i>ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT</i>
☒	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.

02 Self-Permission Letter

ALIA EL HAGE HASÍK
aliaelhage@gmail.com
Flat 16, Morrison Buildings North,
35A Commercial Road
London, E1 1LB

Dear UWTSD,

RE: 'Can we minimise and balance up the vocal load and fatigue of music teachers working with both large groups at primary schools and individual singing students continuously? What could be the resource of implementing the right practice to cope with vocal fatigue of these occupational voice users?'

I confirm that I approve of the research proposed into 'voice fatigue of music teachers' to be carried out by me, Alia El Hage Hasík, between September 2024 and January 2025.

Kind Regards,
Alia El Hage Hasík

A handwritten signature in black ink, reading 'Alia El Hage Hasík' in a cursive script.

03 Participant Consent Form

Consent Form

Project Title: A study on the vocal health management strategies of music teachers (singing specialists) who experience vocal fatigue while teaching in both class and one to one settings.

Independent Researcher: Alia El Hage Hasík

This is done as a part of MA studies at University of Wales Trinity Saint David.

Taking part in research:

I voluntarily agree to participate in this research study.

- I understand that even if I agree to participate now, I can withdraw at any time.
- I understand that I can refuse to answer any question involved during the research process without any consequences of any kind.
- I have had the purpose and nature of the study explained to me and I have had the opportunity to ask questions about the study.
- I understand that participation involves taking part in survey, interview, observation and online focus group meetings with the researcher.
- I understand that I will not benefit *directly* from participating in this research.
- I agree to my interview being audio-recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name (identifier) and disguising any details of my interview which may reveal my identity or the identity of people I speak about. This will be done by changing my name to interviewee 1/ 2/ 3.
- I understand that disguised extracts from my interview may be quoted in dissertation and in presentation, with which the researcher will defend and discuss the study in front of moderators.

- I understand that signed consent forms and original audio recordings will be retained in the researcher's personal computer until the exam board confirms the results of dissertation.
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board.
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time whilst it is in storage as specified above.
- I understand that I am free to contact the researcher (Alia El Hage Hasík) to seek further clarification and information.

The participant is giving informed consent to participate in this study.

Date: 24th November 2024

Signature of research participant:

Signature of researcher: Alia El Hage Hasík

04 Participant Information Sheet

Participant Information Sheet

'A study on the vocal health management strategies of music and singing teachers who experience vocal fatigue while teaching in both group and one to one settings.'

This research has been approved by the University of Wales Trinity Saint David (UWTSD) Research Ethics Committee.

I, Alia El Hage Hasík (the researcher) invite you to participate on the Study of the vocal health management strategies of both music and singing teachers who experience vocal fatigue while teaching in group and one to one settings. This study has a potential impact for future studies and for developing effective strategies for managing vocal health of teachers and other occupational voice users. I am inviting teachers who teach music (with a particular interest in singing).

I am a music and singing teacher working in primary school environment. I will investigate strategies to improve vocal fatigue resistance. As both, music teacher coming from a school environment and as a singing teacher with one to one experience, I am interested in developing effective strategies for reducing vocal fatigue for teachers. The purpose of my research is to explore what strategies are used for reducing vocal fatigue and developing vocal strength and stamina.

The survey will take 5-10 minutes to complete. All data will be kept confidential. After completing the survey you may be contacted for the follow up interview. Interviews are audio recorded and all information treated confidentially. If agreed, class observations might be held to understand teacher's voice work. You may be invited to one or two zoom group meeting (focus group), each lasting 20 minutes, to discuss the topic as a further follow up. Whole participation is voluntary and refusal to participate will involve no penalty. The participant may discontinue at any time.

Request for access to results can be made and sent to: aliaelhage@gmail.com. Advice on voice health services, vocal therapy, vocal hygiene or voice specialists can be provided by the researcher on request.

Thank you for considering taking part in the study.

This research has been approved by the UWTSD Research Ethics Committee.

05 Survey

Survey

PARTICIPANT GIVES INFORMED CONSENT BY CLICKING THE "START" BUTTON.

Full Consent Form document and Research Information are emailed along with the survey link.

1. What best describes you?

- A. Primary Music Teacher (singing specialist).
- B. Primary Music Teacher (any other instrument specialist).
- C. Primary Teacher with some music teaching experience.
- D. Primary Teacher without any music teaching experience.
- E. Singing Teacher with both group and one-to-one teaching experience.
- F. Singing Teacher with one-to-one teaching experience.

2. Have you ever experienced vocal fatigue?

- A. Yes, quite often.
- B. Yes, sometimes.
- C. No, never.
- D. No, I'm not aware of vocal fatigue.

3. If yes, how do you treat your vocal fatigue?

- A. Vocal hygiene
- B. Vocal rest
- C. Class management strategies
- D. Vocal exercises (including breathing)
- E. I don't have any experience with vocal fatigue.

4. Do you have experience with any vocal exercises that have helped you reduce vocal fatigue?

A. Yes

B. No

5. Have you ever done intentional voice work to strengthen your voice resistance or balance up any of your vocal fatigue symptoms?

A. Yes, I tried once.

B. Yes, often.

C. No, never.

D. I don't know any exercises that might help the vocal resistance and reduce vocal fatigue.

Thank you for participating in this survey.