

**The effectiveness of SOVT exercises in enhancing vocal technique for beginner singers
with no prior formal training.**

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Module 3

Project Proposal 626 and Project Report 5,200

Total 5,826

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Project Proposal

1. Context

Semi-Occluded Vocal Tract Exercises (SOVTE) have gained attention as valuable tools in vocal training, particularly for singers (Amarante Andrade et.al, 2016; Titze, 2018; Fadel, 2021; Savareh et. al, 2021; Cambridge University Hospitals, 2024).

These exercises involve partially closing the vocal tract while making sound, which can help align the vocal folds better, improve breath control, and reduce strain on the voice (Pinto and Hijileh, 2021; Elson, 2023). While these exercises have been extensively studied and applied among professional singers and trained vocalists (Kapsner-Smith, 2015), their effectiveness for beginners, particularly those without any formal training, remains less explored. This project aims to evaluate whether SOVT exercises can enhance the vocal technique of novice singers, providing valuable insights into their applicability for these individuals.

2. Justification

The potential of SOVT exercises to enhance vocal performance in singers is well-documented (Fadel, 2016). Still, most studies focus on their use among trained vocalists, professionals, or singers with vocal problems or disorders (Rosenberg, 2014). I wish to discover how these exercises may benefit beginner singers and support healthy vocal habits from the start. SOVTEs are easy to use and fit into practice routines, needing little equipment.

3. Intended Impact

The project aims to provide data on the impact of SOVT exercises on beginner singers. If the results positively impact vocal technique, such as improving pitch accuracy, reducing vocal strain, and better breath support, it could encourage more educators to integrate SOVTE into early vocal training. This, in turn, could promote broader participation in singing as a recreational or professional pursuit, contributing to increased confidence (Joseph, 2015) and vocal health (Otolaryngology Associates of Tennessee, 2023) in beginners. If the study does not reflect a positive impact on beginners, it may be that singers could benefit from doing the exercises when they are more trained. This is due to the fact that beginners may find it challenging to sustain proper mouth positioning or steady airflow (Hall, 2023).

4. Outlined Intention and Project Timeline

The main objective of this study is to assess the impact of a structured SOVT exercise program on vocal technique in novice singers with no previous formal training. The

participants will sign a consent form and a sheet detailing the research information by 6th of November 2024. The project will include a baseline assessment of participants' vocal technique, focusing on pitch accuracy, breath control, and vocal strain. These will be measured by a rubric. Four or six weeks of training will be held with the participants with face-to-face training and at-home work. We will meet weekly to discuss their progress, discuss questions, and assign new exercises. Data collected will include audio recordings at the beginning and end of the research, subjective feedback from participants' experiences with the exercises, and questionnaires throughout the research. It will include quantitative and qualitative analysis.

5. Ethics and insider research

This project will follow the United States ethical guidelines for working with people. Participants will be fully informed about the study's goals, what it involves, and any potential risks, ensuring they give consent before participating. Their anonymity and privacy will be protected throughout the study, with all data kept secure and used only for research. As an insider researcher with a background in vocal training, I will stay aware of any personal biases and ensure that evaluations are done fairly, using standardized methods and external feedback to support the results (Saidin, K. and Yaacob, 2017).

6. Individual learning outcomes

- Through this project, I aim to deepen my understanding of SOVTE and its practical applications in vocal pedagogy.
- I hope to develop skills in designing and implementing structured vocal training programs, especially for beginners.
- This research experience will improve my skills as a vocal educator, allowing me to better guide aspiring singers.

Project Report

Introduction

Singing is a complex art form requiring the coordination of various physiological and acoustic mechanisms, yet many beginner singers with no prior formal training may struggle with challenges such as vocal strain, limited pitch control, and restricted range due to inefficient vocal habits (Miller, 1996). Semi-occluded vocal tract (SOVT) exercises have gained recognition in recent years as an effective method for improving vocal technique by promoting healthy vocal fold function, optimizing resonance, and reducing tension in the vocal tract (Dargin and Searl,

2015; Pinto and Hijleh, 2021). SOVT exercises, including methods like lip trills, straw phonation, and humming, have emerged as a promising approach to enhancing vocal technique by promoting healthy vocal fold function, optimizing resonance, and reducing tension in the vocal tract (Dargin and Searl, 2015; Savareh *et al.*, 2021; Elson, 2023). These exercises create back pressure within the vocal tract, encouraging efficient vocal fold vibration and fostering healthier vocal habits (James, 2024). While extensively studied in the fields of speech therapy and professional vocal training (Kapsner-Smith, 2015), the application of SOVT exercises for completely untrained beginner singers remains underexplored. This research seeks to address this gap by evaluating the effectiveness of SOVT exercises in improving vocal quality, with a focus on pitch control, vocal range, and the reduction of vocal strain among beginner singers as part of a vocal warm-up. Performing a vocal warm-up is crucial for avoiding vocal fold injuries and attaining optimal voice performance in both amateur and professional singers (Milbrath and Solomon, 2003; Gish *et al.*, 2012; Shean Terr and Yie Wong, 2022).

The study's objectives are to evaluate whether SOVT exercises can enhance the vocal technique of novice singers by improving pitch accuracy, reducing vocal strain, and promoting better breath support, while also exploring participants' perceptions of the accessibility and ease of these exercises. By identifying the benefits and challenges associated with introducing SOVT exercises to novice singers, this research aims to provide evidence-based recommendations for integrating these exercises into beginner-level vocal training programs. The intended impact of this study extends beyond individual singers; it seeks to influence vocal pedagogy by providing beginner singers and their instructors with accessible methods for building foundational vocal skills from the outset. This approach can potentially broaden access to vocal training, empowering individuals to sing with greater confidence (Joseph, 2015), and technical proficiency, regardless of their previous experience or resources.

The expected outcomes of this research include participants gaining a deeper understanding of the benefits of SOVT exercises and demonstrating measurable improvements in vocal control, such as pitch accuracy, better breath support, and reduced vocal strain, by developing healthier vocal habits that alleviate tension (Cambridge University Hospitals, 2024) and lower the risk of injury (Savareh *et al.*, 2021). This study aims to bridge the gap between existing research and teaching methods for beginner and non-professional singers, providing valuable insights into their applicability at a fundamental level. If the results indicate a positive impact, it could encourage more educators to adopt these exercises as a key component for early vocal training

programs. On the other hand, if the study does not show a significant benefit for beginners, it might imply that these exercises are more effective for singers with more advanced training.

Literature Review

Semi-occluded vocal tract exercises (SOVTEs) are not the invention of a single individual but rather the outcome of decades of research in voice science and therapy (Ricucci, 2019). In the 1960s, Antti Sovijärvi pioneered the use of resonance tubes for vocal training, which was later refined into the modern Lax Vox technique by Marketta Sihvo (Ricucci, 2019). Later, Alfonso Borragán, a Spanish phoniatician, pioneered the ventilation mask technique, which was later documented in his published work in 1999 (Fantini, 2017; Lucchini, 2018). In the early 2000s, Dr. Ingo Titze advanced the concept of resistant straw phonation, further contributing to the field (Titze, 2010). The study of innovative methods to improve vocal skills, particularly among beginner singers, continues to be a prominent focus in vocal pedagogy. Among these methods, semi-occluded vocal tract exercises (SOVTE) have gained recognition for their ability to improve vocal efficiency (Kaneko *et al.*, 2019), balance vocal fold function (Hampala *et al.*, 2015), and promote healthy phonation (Smith and Titze, 2017). Semi-occluded vocal tract exercises are a type of vocal exercise in which the vocal tract is partially occluded, meaning airflow is intentionally restricted or obstructed in some way, such as by narrowing the lips, using a straw, or humming (Amarante Andrade *et al.*, 2016; Flanigan, 2024). This partial occlusion alters the acoustic resistance of the vocal tract, generating backward resonance that interacts with the vocal folds during vibration (Pinto and Hijleh, 2021). While numerous studies have examined the benefits of these exercises for professional singers and individuals in voice therapy, there is limited research focusing on their applicability and effectiveness for beginner singers who lack formal training. This gap in the literature highlights the need to investigate how these exercises can address common challenges faced by novices, such as pitch instability, vocal strain, and inadequate breath support. Understanding the impact of SOVTE in this context could provide valuable insights for educators and contribute to the development of accessible, evidence-based methods for foundational vocal training.

While existing research has explored SOVT exercises, no studies specifically address the focus of this project. For example, Shean Ter and Yie Wong (2022) conducted a study comparing the effects of SOVT exercises and traditional vocal warm-up (TVW) on vocal quality in untrained female singers in Malaysia. The research aimed to evaluate how SOVT exercises could enhance the singing voices of untrained female singers by analyzing acoustic parameters before and after the exercises. A total of 80 untrained female singers were recruited and divided

into two groups: an experimental group and a control group. Over three weeks, participants performed SOVT and TVW exercises in two 10-minute sessions per day. The experimental group practiced phonatory exercises with a straw and vocalized the melody of the song "Happy Birthday," while the control group performed phonation exercises using the vowel /a/.

Recordings of the participants were made twice, before and after the warm-up exercises.

The study found that the TVW group showed significant improvements in vocal quality, technical singing skills, and vocal efficiency. In contrast, the SP (semi-occluded phonation) group exhibited improvements only in vocal efficiency, with notable changes in maximum intensity (max Int) and the area of the vocal range profile (VRP). Neither group demonstrated significant changes in minimum intensity, an indirect measure of phonation threshold pressure, suggesting no improvement in vocal economy. Overall, the findings suggest that traditional vocal warm-ups are more effective than SOVT exercises for untrained singers seeking to improve their technical singing skills.

Another existing research study for nonsingers is in therapeutic contexts. Kaneko *et al.* (2020), made a research evaluation of the vocal tract function and voice quality in singers and nonsingers with dysphonia after realizing SOVTE. The study involved patients diagnosed with functional dysphonia, vocal fold nodules, and age-related atrophy, with a total of 8 singers and 8 nonsingers. Before and after completing SOVTE, the participants underwent a series of assessments, including stroboscopic examination, aerodynamic testing, acoustic analysis, formant frequency measurements, and self-evaluation. Within the singer group, SOVTE therapy was structured into three phases: (1) developing respiratory support, (2) engaging in resonant exercises, and (3) applying the techniques to singing. To build respiratory support, exercises like water resistance therapy, tube phonation, and lip trills were performed with descending three- to five-note scales or small intervals. Resonant exercises focused on enhancing resonance and airflow, using prolonged vowels like /o/ and consonant-vowel combinations such as /m/ and /n/ with vowels, along with small intervals. Technical exercises included messa di voce (controlling volume), establishing a connection between airflow phonation and resonance (vocal placement), and facilitating smooth register transitions. In the final phase, singers applied these techniques to their vocal performances, focusing on auditory and tactile awareness during singing. They began with slow nursery songs, concentrating on deep abdominal support and forward energy, progressing to their professional songs once they had mastered the techniques. For nonsingers, the approach was similar, with the goal of applying these methods to normal speech. The findings indicated that the singer group experienced significant improvements in

expiratory lung pressure, jitter, shimmer, and self-perceived vocal performance following SOVTE therapy. Similarly, the nonsinger group showed notable enhancements in expiratory lung pressure, jitter, shimmer, and their scores on the Voice Handicap Index-10. However, no substantial changes were detected in formant frequencies in either group, highlighting the specificity of the improvements to other vocal parameters.

As no research project exists with the exact details of this study, there are studies that share common elements. After reviewing these studies, this research is designed as a five-week project where participants engage in weekly SOVT vocal exercises aimed at improving pitch control, vocal range, and reducing vocal strain. Data collection methods include audio recordings to objectively analyze vocal changes, a rubric to evaluate specific vocal parameters, and participant diaries to gather subjective feedback on their experiences and perceptions of the exercises. Data analysis will involve comparing pre- and post-exercise recordings using the rubric criteria and integrating qualitative insights from the participants' diaries to offer a detailed evaluation of the exercises' influence on vocal development.

Methodology and Methods

For the research, ontologically, this paradigm takes a pragmatic approach, recognizing that reality can be understood in different ways (Guarino, Oberle, and Staab, 2009). This approach benefits the study's objectives by focusing on practical outcomes and actionable insights (Ormerod, 2023), ensuring the findings are relevant to improving beginner singers' experiences and skills. It acknowledges both objective aspects (Open University, 2024), such as measurable improvements in vocal techniques, and subjective experiences (Ziv and Omer, 2010), like how singers perceive their progress. Combining these perspectives, the study captures a more comprehensive understanding of how the exercises influence beginner singers.

Epistemologically, this research combines two approaches to knowledge (Al-Ababneh, 2020). It incorporates positivism, which focuses on objective, measurable data (University of Nottingham, 2023), like sound production and airflow changes, to understand vocal improvement. For example, sound analysis software might be used to track frequency accuracy or vocal intensity changes over time (Kreiman, Antoñanzas, and Gerratt (2010). It also includes constructivism which values personal experiences and perceptions (University of Buffalo, 2024), such as how singers feel about their progress and challenges. An example of this interplay is when researchers compare quantitative improvements in pitch accuracy with qualitative feedback from singers about their confidence and ease during performances (Cesari, Iengo, Apisa, 2021). By blending these perspectives, the study provides a fuller picture of vocal development,

considering both measurable outcomes and individual experiences. This dual approach ensures that technical proficiency and personal growth are given equal weight (Hughes *et al.*, 2024), recognizing the complexity of vocal training. The integration of these perspectives allows the research to generate findings that are both generalizable and deeply grounded in the lived experiences of participants, ultimately enhancing the study's practical relevance and richness.

A mixed-methods research paradigm (Harvard Catalyst, 2022) is well-suited for exploring the effectiveness of SOVT exercises in beginner singers, combining the advantages of both quantitative and qualitative approaches (Ahmed, Pereira, and Jane, 2024). This methodology allows for the integration of both methods, providing a more comprehensive understanding of the research topic (Almalki, 2016). Quantitative methods will be used to collect measurable data, such as improvements in vocal range, pitch accuracy, and sound production, through a rubric at the beginning and end of the research (Thompson, 2017). The rubric ensures consistency across participants by providing standardized criteria for assessment, allowing for objective comparisons of progress (Herell, 2014). Additionally, it mitigates potential bias as an insider researcher by relying on predefined, measurable indicators rather than subjective judgments, ensuring the data collected remains impartial and replicable (Scott, 2022).

Simultaneously, qualitative methods will capture the subjective experiences of the participants, such as their perceptions of progress, challenges, and emotional responses to the exercises (Bhandari, 2024). Participants will be required to complete two questionnaires and maintain a diary to record their progress and experiences with the vocal exercises. This combination ensures that the study considers not only the measurable outcomes of vocal improvement but also the personal experiences and nuances that may influence the effectiveness of SOVT exercises for beginner singers (Steerfkerk, 2019).

To improve compliance, the study could offer incentives such as certificates of completion or even feedback on individual progress, which would encourage participants to engage consistently with the process (Flanagan, 2024). Ethically, these incentives align with the goal of motivating participation without compromising the integrity of the data (Flanagan, 2024). Additionally, simplifying the diary submission process by providing structured prompts could make the task less time-consuming and more manageable. This approach would ensure that participants can provide meaningful feedback while minimizing any burden associated with maintaining the diaries.

Ethical considerations are central to this research ensuring that the study adheres to the University of Wales Trinity Saint David's ethics policies and the codes of practice within the workplace. Participant consent will be obtained through a clear and detailed information sheet and consent forms, ensuring they understand the purpose, methods, and potential risks of the study (see Appendix A). Confidentiality and anonymity will be maintained by securely storing the data and removing identifiable information during the analysis. As an insider researcher, it is crucial to mitigate potential biases and power dynamics, especially when participants are friends or acquaintances (Unluer, 2012). This will be addressed by maintaining professional boundaries, ensuring voluntary participation, and using third-party evaluators where necessary to prevent undue influence (Wilkinson, and Kitzinger, 2013). By aligning the research design with institutional guidelines and workplace codes of conduct, the study aims to uphold the highest ethical standards while minimizing risks to participants.

Between mid-October and early November, participants were invited on a voluntary basis and asked to fill out a questionnaire through Google Forms to assess their eligibility for the study (see Appendix B). Participants were required to have had no more than three vocal lessons prior to participation. Once eligibility was confirmed, a consent form was sent via email for participants to review and sign. A total of seven participants were recruited for the study.

The research project was designed as a five-week program, combining one-to-one sessions and at-home exercises, conducted from November 16 to December 14, 2024 (see Appendix C). In-person sessions were held at the investigator's academy in San Juan, Puerto Rico. The weekly structure involved the same set of vocal exercises being assigned for the first and fourth weeks, as well as for the second and third weeks. Each group of exercises was practiced for two weeks, and in the final (fifth) week, the exercises were combined, see Figure 1.

Week Vocal Exercises Schedule (Summarized)		
Weeks	Exercises	
Week 1 & 4	Lip Trills	Sustain Lip trill (single pitch)
		Glides up and down the pitch range
	Straw Phonation (water)	Humming 1:5 scale notes /o/ 1:5 scale notes
Week 2 & 3	Hand Over Mouth	Humming 1:3 scale notes
	Straw Phonation (water)	Glides up and down the pitch range /i/ 1:5 scale notes
	Tongue Trills	1:5 scale note
Week 5	Lip Trills	Sustain Lip trill (single pitch)
		Glides up and down the pitch range
	Tongue Trills Straw Phonation (water)	1:5 scale note Humming 1:5 scale notes

Figure 1. Week Vocal Exercises Schedule (summarized)

Over the course of the five-week program, participants gradually increased the frequency of their exercises, following a structured yet flexible schedule. In the first week, they completed the exercises three times, selecting the days at their discretion before the next session. During the second and third weeks, the frequency increased to four sessions per week. By the fourth week, participants repeated the initial set of exercises but maintained the four-session requirement. In the final week, exercises were performed only once under the direct supervision of the investigator to ensure consistency and accuracy in their execution. This allowed the investigator to observe and assess the participants' application of the exercises, address any persistent issues, and gather qualitative insights on their progress. The reduced frequency was also due to the researcher's limited time availability, focusing the session on collecting accurate and reliable data for the study's conclusion.

Each day that participants completed the exercises, they were asked to document their activities in the diary given to them by the investigator, as shown in Appendix D. For a detailed breakdown of the weekly schedule, see Appendix C. The selected melody for assessing participants' progress was *"Happy Birthday."* Recordings of participants singing the melody were used by the investigator to complete a rubric assessing breath control, pitch accuracy, and vocal range on a scale of 1 to 5 (see Appendix E).

The research project commenced on November 16, 2024, with an initial session where the study's purpose and the concept of SOVTE were explained in detail. Participants were introduced to the exercises and their potential impact on vocal development. Following this explanation, participants were asked to sing the melody *"Happy Birthday"* while being voice-recorded. They were then assigned the week's vocal exercises. Weekly assignments and

instructions were provided on Saturdays, outlining the exercises for the upcoming week. During the final week, participants completed the assigned vocal exercises and were again asked to sing and record the melody.

Findings and Results

This research aims to explore the effectiveness of Semi-Occluded Vocal Tract (SOVT) exercises in improving vocal technique among beginner singers who lack prior formal training. Specifically, the study investigates whether SOVT exercises can enhance fundamental aspects of vocal performance, such as pitch accuracy, breath control, and pitch accuracy, in individuals without structured vocal education. By analyzing the impact of these exercises, the research aims to provide insights into their viability as a simple and accessible method for developing vocal techniques in novice singers, offering potential benefits for music educators, vocal coaches, and self-taught learners alike.

For this investigation, seven participants were selected for a five-week investigation. On the first day of contact, participants were asked to complete a Google Form to determine whether they met the study's eligibility criteria. To qualify for participation, individuals should have taken no more than three vocal technique classes or none at all. Most participants reported that they had not participated in formal vocal technique classes, as illustrated in Figure 2. Despite this, all participants reported actively singing in settings such as church, music bands, or as solo performers.

How many vocal classes have you participated in?/¿Cuántas clases de canto has tomado?

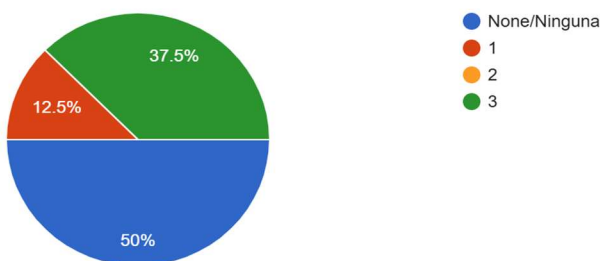


Figure 2. Participant Chart

Furthermore, the majority of participants were unfamiliar with Semi-Occluded Vocal Tract (SOVT) exercises, as shown in Figure 3. When asked individually if they had heard of these exercises, some participants mentioned they had encountered them on platforms such as Instagram or had briefly been introduced to them by a previous vocal teacher. This highlights a

general lack of awareness or formal knowledge of SOVT exercises among the participants, despite their active engagement in singing.

Have you heard of the semi-occluded vocal tract exercises? / ¿Has escuchado acerca de los ejercicios de tracto vocal semi-ocluido?

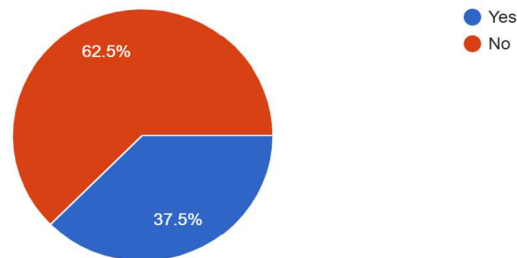


Figure 3. Participants SOVTE knowledge chart.

The vocal exercises selected for this project were lip trills, straw phonation in water, hand over mouth, and tongue trills, as mentioned in Figure 1. Semi-occluded vocal tract exercises (SOVTEs) vary based on the type and degree of occlusion (blockage) introduced in the vocal tract (Amarante *et al.*, 2016). Exercises such as trills, which create oscillatory semi-occlusion, have been used over the years in voice therapy to improve vocal quality (Kapsner-Smith, 2015; Elson, 2023). Oscillatory semi-occlusion refers to a partial blocking of the vocal tract that creates vibrations or fluctuations in airflow, commonly used in vocal exercises to improve sound production and reduce tension (Kapsner-Smith, 2015).

The lip and tongue trills were selected because of a study made by Dargin and Searl (2015). They researched some of SOVTE's aerodynamic and electroglottographic measurements in signers. They said that 'trills have been incorporated into the training of singers and vocal warm-up routines with a variety of intended purposes' (2015, p. 155). They described SOVT exercises as techniques that help reduce tension in the jaw, tongue, and lips while also aiding in the creation of smooth, connected vocal lines. Some vocal instructors believe that exercises like trills and raspberries create a feeling of increased pressure in the upper vocal tract, which can encourage singers to use less force when producing sound (Dargin and Searl, 2015).

The hand-over-mouth technique creates significant resistance by using the hand to partially block airflow, leaving only a small gap between the fingers for air to pass through (Andrade, 2014). This SOVT technique works by creating back pressure in the vocal tract, which balances the air pressure above and below the vocal folds (Fantini, 2017). As a result, the hand-over-

mouth SOVT technique enhances vocal efficiency by reducing strain, improving breath control, boosting resonance, and promoting more efficient and controlled vocal production (Pozzali, 2021).

An article written by Speech-Language Pathologist Nerenberg (2024) explains the benefits of straw phonation. Straw phonation in water supports the healing and protection of vocal folds by minimizing the impact of their collisions. It enhances voice clarity by promoting improved vocal fold closure and reduces the energy required to produce sound. Using a straw with its tip submerged 1–2 centimeters in water increases resistance and provides visual feedback. The bubbles generated during phonation act as a visual indicator, making this exercise an excellent tool for boosting vocal health and efficiency (Nichole, 2024).

On the first day, the participants were recorded singing the melody "Happy Birthday." The investigator then evaluated the first recording using a rubric (see Appendix E) and scored each participant from 1 to 5. The mean rubric scores for the seven participants were calculated to provide an overall evaluation of their performance, focusing individually on breath control, pitch accuracy, and vocal range. The average score for breath control was 3.43 (see Figure 4), for pitch accuracy was 3.57 (see Figure 5), and for vocal range was 3.43 (see Figure 6). The scores reflect typical challenges faced by beginner singers, such as developing consistent breath control, achieving accurate pitch, and expanding vocal range (Elevation Voice Academy, 2024).

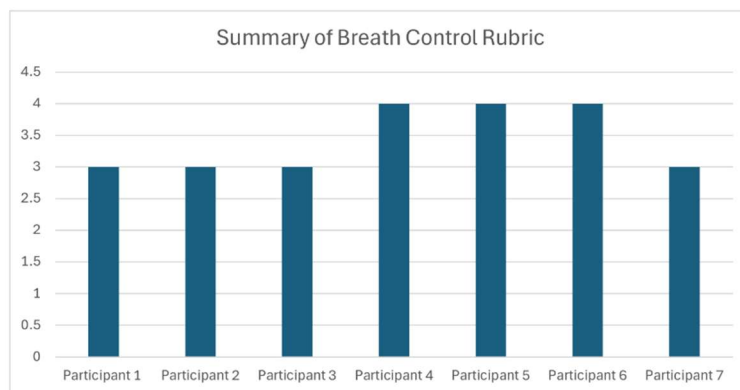


Figure 4. Summary of Breath Control Rubric

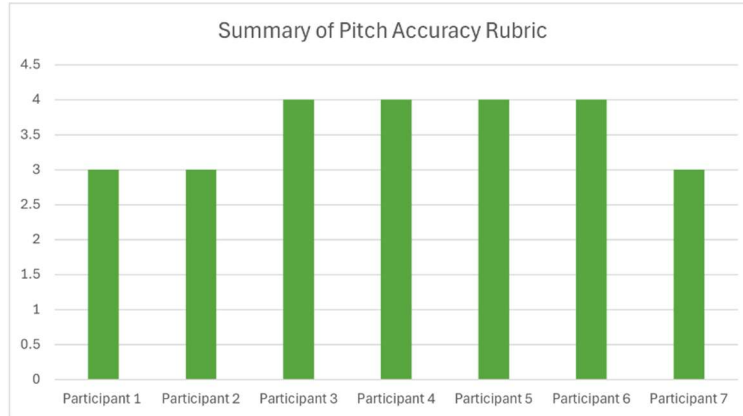


Figure 5. Summary of Pitch Accuracy Rubric

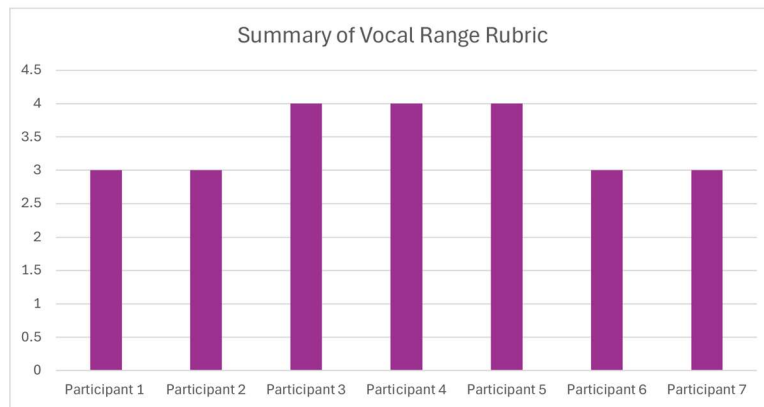


Figure 6. Summary of Vocal Range Rubric

Aside from the rubric provided by the investigator, participants were asked to complete daily diaries to document their practice sessions. However, only one participant submitted their diary, which created a significant challenge, as the diaries were intended to provide valuable feedback regarding the participants' experiences with the exercises at home. This limitation may compromise the reliability of the qualitative data, as it offers a limited perspective on the participants' experiences (Ross and Zaidi, 2019). With limited data, there is a risk of bias in the findings, as the single participant's perspective may not represent the broader range of experiences or challenges encountered by other participants (Ross and Zaidi, 2019). This lack of comprehensive feedback could also reduce the depth of the analysis, as the study is unable to fully capture the variation in individual responses to the exercises.

During week 1, the assigned exercises included lip trills and straw phonation. Participant #2 noted that the lip trills caused a "tingling and itchy sensation in the nose." By week 2, the same

participant reported feeling a noticeable change in their voice, suggesting some progress from the exercises. By week 4, the participant also noted experiencing "a change in their voice" during straw phonation. The score for breath control remained the same at 3, while the score for pitch accuracy rose from 3 to 4, and the score for vocal range increased from 3 to 4. The mean score for this participant, at week one, was 3, by the end of the research project it increased to 3.67. This quantitative data indicates a measurable improvement in the participant's vocal technique across key areas, suggesting that the exercises had a positive impact on their vocal development. The increase in scores reflects progress in breath control, pitch accuracy, and vocal range, demonstrating the potential effectiveness of the interventions. However, the participant also mentioned that the hand-over-mouth exercise was the most challenging to perform. Additionally, during the individual meetings, the majority of them reported difficulties with tongue trills, highlighting a common area of struggle.

At the conclusion of the investigation, only four participants successfully completed the study. On the final day, the participants were recorded singing the melody "Happy Birthday" once again. The investigator evaluated this second recording using the same rubric as the initial evaluation. To provide an overall assessment of their performance, the mean rubric scores for the four remaining participants were calculated, with a detailed analysis of each individual section. The average score for breath control was 3.75 (see Figure 7), for pitch accuracy was 4.0 (see Figure 8), and for vocal range was 4.0 (see Figure 9). This comprehensive evaluation highlights the participants' progress and areas of improvement across the key vocal elements measured. However, this increase is statistically not significant due to the small sample group, which limits the generalizability of the findings.

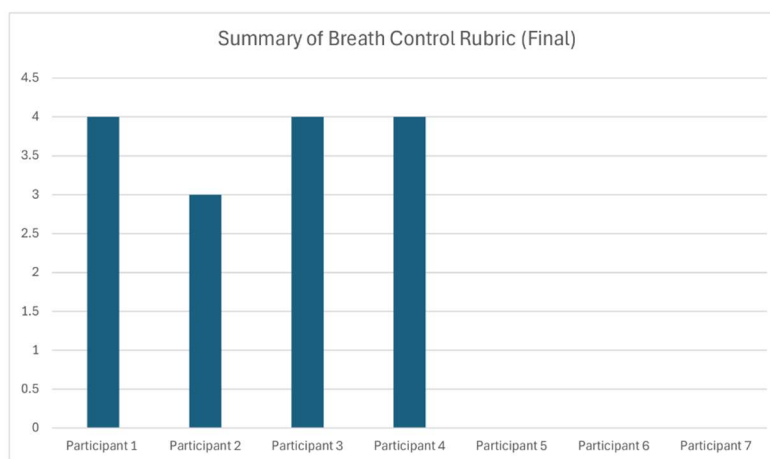


Figure 7. Summary of Breath Control Rubric (Final)

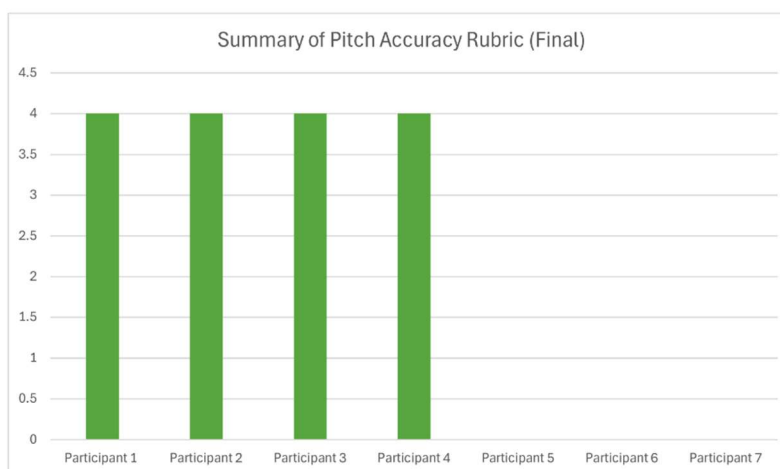


Figure 8. Summary of Pitch Accuracy Rubric (Final)

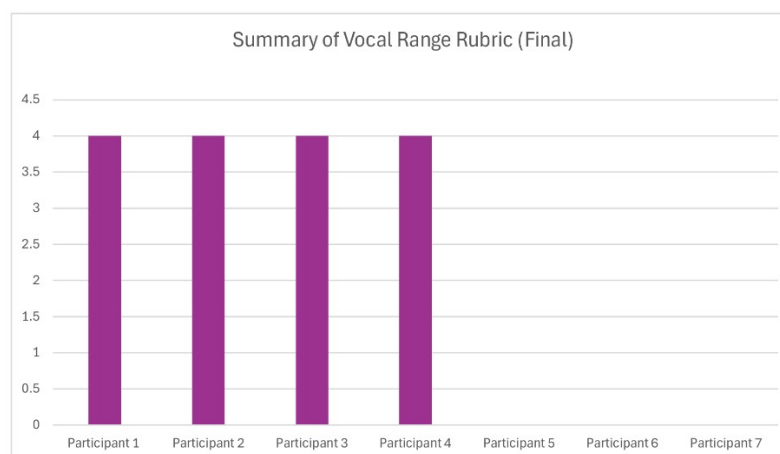


Figure 9. Summary of Vocal Range Rubric (Final)

Of these four, only three participants filled out the final survey, see Appendix F for the survey. All three respondents indicated that they had noticed an improvement in their voice over the past five weeks. One participant also noted in the "other comments" section that "more time, in general, would further perfect the voice." The participants did not demonstrate a significant difference when comparing the initial and final rubric scores. A longer intervention period might have been necessary to observe more substantial changes, particularly with participants who were not actively singing during the study. However, this was not the case, as these participants actively sang in church or in a music band. It is likely that a group of novice singers with little to no prior singing activity would have shown greater variation in their initial and final scores, providing a clearer indication of progress over time.

When asked which vocal exercise they found most challenging, two participants selected tongue trills, while one selected lip trills with glides (see Figure 7). This feedback highlights the varying levels of difficulty participants experienced with the different exercises.

Which was the hardest SOVT exercise? / ¿Cuál fue el ejercicio más difícil?

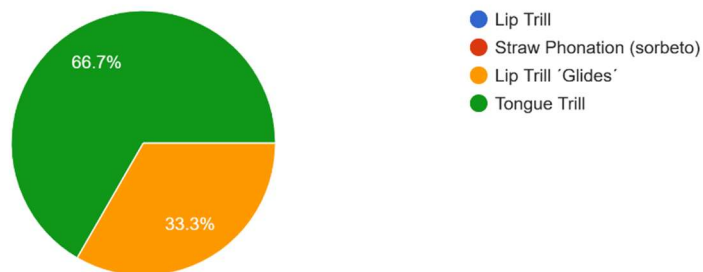


Figure 10. End of Research Survey

The participants were also asked which vocal exercises they liked the most. Two participants chose straw phonation, while one selected lip trill "glides" (see Figure 11). One participant specifically noted that performing the straw phonation exercise "felt like being in a spa and helped relax the voice." This feedback highlights the perceived benefits of these exercises, particularly their ability to promote relaxation and vocal ease (Costa *et al.*, 2015).

Which exercise did you like the most? / ¿Cuál ejercicio te gustó más?

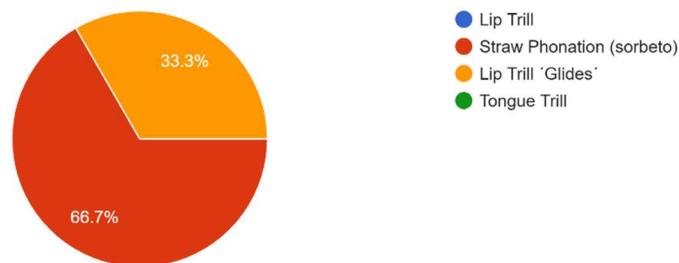


Figure 11. End of Research Survey

The findings of this investigation into the use of Semi-Occluded Vocal Tract Exercises (SOVTE) highlight their effectiveness in enhancing key vocal parameters, including breath control, pitch accuracy, and vocal range. The analysis of pre- and post-intervention recordings revealed measurable improvements in these areas, with participants demonstrating progress in maintaining steady breath support, achieving greater pitch precision, and extending their vocal

range. Additionally, participant feedback underscored the perceived benefits of specific SOVTE exercises, such as straw phonation, lip trill, and hand-over mouth, in fostering vocal relaxation and ease. While the study was limited by its small sample size and short duration, the results suggest that SOVTE can serve as a valuable tool for developing fundamental vocal skills, particularly in singers seeking to improve technique. Future research with larger, more diverse groups and extended intervention periods could provide further insights into the lasting benefits of SOVTE for vocal training.

Conclusion

In conclusion, this research examined how Semi-Occluded Vocal Tract Exercises (SOVTE) can positively influence aspects of vocal performance, particularly breath control, pitch accuracy, and vocal range. The investigation aimed to provide both quantitative and qualitative insights into the potential benefits of SOVTE for singers, particularly those actively engaged in music through settings such as church choirs or bands. By assessing participants' vocal abilities through structured rubric evaluations and collecting feedback on their experiences with specific exercises, the study adds valuable perspectives to the understanding of SOVTE as a practical method for vocal training.

One of the key findings of this research was the positive impact of SOVTE on breath control. Participants demonstrated improvements in their ability to sustain airflow and manage breath pressure, as evidenced by increased rubric scores in this category. Effective breath control is essential for producing consistent and supported tones, and the exercises used in this study, such as straw phonation and lip trills, helped participants develop greater awareness and mastery over their breath support mechanisms (Dev, 2021). Participant feedback further emphasized the efficacy of these exercises, with some describing the calming and stabilizing effects of straw phonation in particular.

In addition to breath control, the study revealed improvements in pitch accuracy among participants. Accurate pitch production requires precise coordination between auditory perception and vocal production (Heller Murray, and Stepp, 2020), and regular engagement with SOVTE appeared to support this skill (Hijileh, 2021). The semi-occluded nature of the exercises, which creates back pressure in the vocal tract, helps singers achieve better vocal fold closure and resonance, leading to more precise pitch control (Holiday, 2017). Participants' rubric scores reflected this improvement, and their feedback highlighted increased confidence in maintaining accurate pitch during singing.

The investigation also examined changes in vocal range, with participants showing a modest but consistent expansion in their ability to access both higher and lower notes. This improvement likely stems from the way SOVTE encourages efficient vocal fold vibration (Kim, 2021) and reduced tension in the vocal mechanism (Matthews, 2021). Exercises like lip trill glides, which involve smooth transitions across pitches, were particularly effective in promoting flexibility and extending range (Cambridge University Hospitals, 2025). Participant feedback indicated that these exercises contributed to a sense of vocal freedom and fluidity, further supporting their value in vocal training.

Beyond technical improvements, the study highlighted participants' subjective experiences with SOVTE. Many reported feeling relaxed and at ease during and after performing the exercises. For instance, one participant described the straw phonation exercise as feeling "like being in a spa," emphasizing its calming effect on the voice. These holistic benefits are significant, as they suggest that SOVTE not only improves technical proficiency but also promotes mental and physical well-being, which are crucial for sustainable vocal practice (Di Natale, 2022).

While the results of this study were promising, it is important to acknowledge its limitations. The small sample size and short intervention period limited the generalizability of the findings. Also, some participants could not finish the investigation. Additionally, because participants were already actively singing in contexts like church choirs and bands, their baseline abilities may have influenced their responsiveness to the exercises. Future studies should include larger, more diverse participant groups, such as schools offering beginner-level vocal training, with an extended intervention period to explore the cumulative and long-term effects of SOVTE.

Despite these limitations, this study offers important contributions to the field of vocal pedagogy. It demonstrates the practical benefits of incorporating SOVTE into regular vocal training routines, particularly for developing breath control, pitch accuracy, and vocal range. The exercises used in this study are accessible and easy to implement, making them suitable for singers with varying levels of experience (Nelson, 2023). Moreover, participants' positive feedback regarding the enjoyable and relaxing nature of the exercises suggests that SOVTE can enhance not only technical skills but also the overall experience of vocal practice.

In summary, this study emphasizes the promise of SOVTE as a valuable tool for enhancing vocal performance. The findings suggest that these exercises can help singers enhance key technical skills while fostering relaxation and enjoyment, making them a holistic approach to

vocal training. Further research is needed to fully understand the enduring benefits and broader applicability of SOVTE, but this study provides a foundation for future exploration.

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Appendices

Appendix A

Title Project: The effectiveness of SOVT exercises in enhancing vocal technique for beginner singers with no prior formal training.

Consent to take 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 in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves perform a series of Semi-Occluded Vocal Tract (SOVT) exercises regularly, track their progress, provide feedback on any changes they observe in their vocal technique, and keep a track on a diary.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview and classes 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 and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in dissertation, presentations, and published papers.
- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original audio recordings will be retained in drives and personal computer. The researcher and University will only have access until the exam board confirms the results of their 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 while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Researcher Contact:

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Voice Study Center at University of Wales Trinity Saint David

Signature of Research Participant

Signature of Participant Date

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

Signature of Researcher

Signature of Researcher Date

Appendix B

Research Project- SOVT Exercises

My name is Adriana Ramírez, a master's degree student at the Voice Study Center. I am conducting a research study on whether semi-occluded vocal tract (SOVT) exercises can help improve vocal technique in beginners with no prior formal training from ages 18 to 30. These exercises involve partially closing the vocal tract while producing sound, which can help align the vocal folds more effectively, improve breath control, and reduce strain on the voice (Pinto and Hijileh, 2021; Elson, 2023). This study aims to determine if simple, guided SOVT exercises can enhance essential vocal skills such as breath control, pitch accuracy, and vocal range. Over a 5-week period, participants will complete short vocal exercises, tailored specifically for beginners, for about 10-15 minutes per session, 3-4 times per week. Sessions will include a mix of in-person meetings for guided instruction, virtual sessions to allow flexibility and instructor feedback, and at-home practice sessions to reinforce skills independently. I will track each participant's progress, enabling you to reflect on your own vocal growth throughout the study. This study provides a unique opportunity to gain foundational singing skills while contributing to valuable research on effective vocal training methods. If you are interested, please fill out the form. Thank you!

Mi nombre es Adriana Ramírez y soy estudiante de maestría en el Voice Study Center. Estoy realizando un estudio de investigación sobre si los ejercicios de tracto vocal semi-ocluido pueden mejorar la técnica vocal en principiantes de 18 a 30 años sin entrenamiento formal previo. Estos ejercicios consisten en cerrar parcialmente el tracto vocal mientras se produce sonido, lo cual puede alinear las cuerdas vocales de forma más efectiva, mejorar el control de la respiración y reducir la tensión en la voz (Pinto y Hijileh, 2021; Elson, 2023). Este estudio busca determinar si los ejercicios SOVT (por sus siglas en inglés) guiados y simples pueden mejorar habilidades vocales esenciales, como el control de la respiración, la precisión del tono y el rango vocal. Durante un periodo de 5 semanas, los participantes realizarán ejercicios vocales breves, diseñados específicamente para principiantes, durante aproximadamente 10-15 minutos por sesión, de 3 a 4 veces por semana. Las sesiones incluirán una combinación de reuniones presenciales para instrucción guiada, sesiones virtuales para flexibilidad y retroalimentación del instructor, y sesiones de práctica en casa para reforzar las habilidades de manera independiente. Realizaré un seguimiento del progreso de cada participante, lo que permitirá reflexionar sobre el propio crecimiento vocal a lo largo del estudio. Este estudio ofrece una oportunidad única para adquirir habilidades básicas de canto mientras se contribuye a una investigación valiosa sobre métodos efectivos de entrenamiento vocal. Si está interesado, por favor complete el formulario. ¡Gracias!

* Indicates required question

1. How many vocal classes have you participated in?/¿Cuántas clases de canto has tomado? *

Mark only one oval.

☐ None/Ninguna

☐ 1

☐ 2

☐ 3

☐ Other: _____

2. Are you currently singing at a church, in a music band, or solo? / ¿Estás cantando actualmente en una iglesia, en una banda de música o de manera independiente? *

Mark only one oval.

☐ Yes

☐ No

3. Have you heard of the semi-occluded vocal tract exercises? / ¿Has escuchado acerca de los ejercicios de tracto vocal semi-ocluido? *

Mark only one oval.

- ☐ Yes
☐ No

4. What is your name? / ¿Cuál es tu nombre? *

5. What is your phone number? / ¿Cuál es tu número de teléfono? *

6. What is your email address? / ¿Cuál es tu correo electrónico? *

7. Are you available to meet on Saturdays? / ¿Estás disponible para reunirte los sábados? *

Mark only one oval.

- ☐ Yes
☐ No
☐ Other: _____

8. Are you available to start on mid November? / ¿Estás disponible para empezar a mediados de noviembre? *

Mark only one oval.

- ☐ Yes
☐ No
☐ Other: _____

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Appendix C

Detailed Scheduled of Research Project

Week 1: Baseline Assessment and Introduction to SOVT Exercises

Date: November 16, 2024

- **Goal:** Assess participants' initial vocal abilities and introduce SOVT exercises.
- **Exercises:**
 - **Baseline Assessment:** Record each participant singing “Happy Birthday” melody rating on breath control, pitch accuracy, and vocal range.
 - **Explain:** Correct singing posture.
 - **Lip Trills**
 - Sustain a lip trill on a single pitch
 - Glides up and down the pitch range to warm up the vocal folds.
 - **Straw Phonation:**
 - Use a straw in water to create bubbles while humming, focusing on steady airflow,
 - Then, while doing an /o/ vowel.
- **Duration:** Approx. 3 minutes per exercise, 3 times a week.
- **Evaluation:** Write on a diary observations and comments for each day.

Week 2 and 3: Developing Breath Control and Pitch Stability

Date: November 23, 2024 (Week 2)

Date: November 30, 2024 (Week 3)

- **Goal:** Develop breath control and pitch stability.
- **Exercises:**
 - **Hand Over Mouth:**
 - Hum while placing a hand over the mouth lightly, providing gentle back pressure to reinforce breath control. (1:3 scale notes)
 - **Straw Phonation with Scales:**
 - Glide up and down scales through a straw in water, helping with smooth pitch transitions.
 - Then, moving through scales with an /i/ (1:5 scale notes)
 - **Tongue Trills:**
 - Roll the tongue while moving through first five notes of scale sustaining the 5th note, encouraging breath support and gentle vocal cord closure.
- **Duration:** Approx. 3 minutes per exercise, 4 times a week.
- **Evaluation:** Write in diary observations and comments for each day.

Week 4: Improves Phonation and Vocal Health

Date: December 7, 2024

- **Exercises:**
 - **Lip Trills**
 - Sustain a lip trill on a single pitch
 - Glides up and down the pitch range to warm up the vocal folds.
 - **Straw Phonation:**
 - Use a straw in water to create bubbles while humming, focusing on steady airflow,

- Then, while doing an /o/ vowel.
- **Duration:** Approx. 3 minutes per exercise, 3 times a week.
- **Evaluation:** Write on a diary observations and comments for each day.

Week 5: Final Assessment and Consolidation

Date: December 14, 2024

- **Goal:** Assess improvements, consolidate techniques, and gather feedback.
- **Exercises Combined:**
 - **Lip Trills**
 - Sustain a lip trill on a single pitch
 - Glides up and down the pitch range to warm up the vocal folds.
 - **Tongue Trills:**
 - Roll the tongue while moving through first five notes of scale sustaining the 5th note, encouraging breath support and gentle vocal cord closure
 - **Straw Phonation:**
 - Use a straw in water to create bubbles while humming, focusing on steady airflow (1:5 scale notes)
 - **Final Recording:** Record the same melody from Week 1 to evaluate changes in breath control, pitch accuracy, clarity, and tone.
- **Duration:** Approx. 3 minutes per exercise
- **Evaluation:**
 - Recordings assessed for overall progress in technique, compared to the baseline.
 - Participant feedback on ease, comfort, and perceived improvement with SOVT exercises.
 - Hand-in of the diary.

Appendix D

Diary for Participants

General Instructions: Each practice day, please note the specific SOVT exercises you completed, their duration, and any immediate sensations or vocal changes. Reflect on any improvements or challenges, such as breath control, pitch stability, or tone quality. Feel free to record any questions or insights for future sessions to help track your progress and identify areas for growth.

Week 1: (Realize exercises 3 times a week; entry for 3 different dates)

Date: _____

Exercises practiced:

- 1.
- 2.
- 3.
- 4.

Observations in general or of each exercise (please specify when writing):

Comments:

Date: _____

Exercises practiced:

- 1.
- 2.
- 3.
- 4.

Observations in general or of each exercise (please specify when writing):

Comments:

Date: _____

Exercises practiced and duration of each:

- 1.
- 2.
- 3.
- 4.

Observations in general or of each exercise (please specify when writing):

Comments:

Week 2: (Realize exercises 4 times a week; entry for 4 different dates)

Week 3: (Realize exercises 4 times a week; entry for 4 different dates)

Week 4: (Realize exercises 4 times a week; entry for 4 different dates)

Week 5: (Realize exercises with researcher and write feedback)

Appendix E

Participant Name:

Date:

Rubric for Breath Control

Score	Description
5	Excellent breath control; steady, consistent breath support throughout phrases without noticeable strain.
4	Good breath control; mostly steady support, with slight wavering or minor breathiness in longer phrases.
3	Adequate breath control; some inconsistencies, with occasional breathiness or strain on challenging parts.
2	Limited breath control; noticeable inconsistencies, breathy tone, and difficulty maintaining support.
1	Poor breath control; breath is frequently audible, with significant strain and difficulty sustaining phrases.

Rubric for Pitch Accuracy

Score	Description
5	Excellent pitch accuracy; all notes are consistently on pitch, with smooth transitions between pitches.
4	Good pitch accuracy; mostly accurate, with only minor off-pitch moments that are quickly corrected.
3	Adequate pitch accuracy; occasional pitch issues, especially in transitions, but the melody is recognizable.
2	Limited pitch accuracy; frequent pitch deviations, making the melody less recognizable.
1	Poor pitch accuracy; significant pitch issues throughout, with melody difficult to recognize.

Rubric for Vocal Range

Score	Description
5	Excellent vocal range; comfortably reaches both high and low notes without strain or pitch instability.
4	Good vocal range; can reach most notes in the melody with ease, with minor strain on extreme notes.
3	Adequate vocal range; reaches most notes but struggles slightly with higher or lower extremes.
2	Limited vocal range; noticeable strain or pitch loss on higher or lower notes, limiting expressive range.
1	Poor vocal range; unable to reach multiple notes in the melody due to significant range limitations.

Comments:

Appendix F

End of Research Project- Survey

Thank you so much for participating. I am truly grateful for all of you. Next, I kindly ask you to complete this survey.

Muchas gracias por participar. Estoy realmente agradecida con todos ustedes. A continuación, les pido amablemente que completen esta encuesta.

* Indicates required question

1. How was your overall experience in the research? / ¿Cómo fue tu experiencia general en la investigación? *

2. Did you notice any improvement in you voice in 5 weeks? / ¿Notaste alguna mejoría en tu voz durante las 5 semanas? *

Mark only one oval.

- ☐ Yes
☐ No

3. If answered no, do you think more time would have helped to hear improvement in your voice? / Si no, ¿crees que más tiempo habría ayudado a ver mejoría en tu voz?

Mark only one oval.

- ☐ Yes
☐ No
☐ Other: _____

4. Which was the hardest SOVT exercise? / ¿Cuál fue el ejercicio más difícil? *

Mark only one oval.

- ☐ Lip Trill
☐ Straw Phonation (sorbeto)
☐ Lip Trill 'Glides'
☐ Tongue Trill

5. Which exercise did you like the most? / ¿Cuál ejercicio te gustó más? *

Mark only one oval.

- ☐ Lip Trill
☐ Straw Phonation (sorbeto)
☐ Lip Trill 'Glides'
☐ Tongue Trill

6. Did you hear and/or feel improvement in your voice when doing this exercises before singing? / ¿Escuchaste y/o sentiste una mejoría en tu voz al hacer estos ejercicios antes de cantar? *

Mark only one oval.

- ☐ Yes
☐ No

7. Additional comments

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Appendix G



PG2 / E1 FORM

APPLICATION FOR ETHICAL APPROVAL

RESEARCH STUDENTS

This form is to be completed by the student within **SIX** months for full-time students and **TWELVE** months for part time students, after the commencement of the research degree or following progression to Part Two of your course.

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

This document is also available in Welsh.

RESEARCH STAFF ONLY

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

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

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

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

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

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

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

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

SECTION A: About You (Principal Researcher)

1	Full Name:	Adriana Sofia Ramírez González			
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			
	Campus:	Carmarthen			
5	E-mail address:	ramirez.adriana545@gmail.com			
6	Contact Telephone Number:	787-944-3464			
For students:					

7	Student Number:	2316808
8	Programme of Study:	MA Professional Practice (Voice Pedagogy)
9	Director of Studies/Supervisor:	Louise Emmanuel/Julie Crossman/Debbie Winter

SECTION B: Approval for Research Activity

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

SECTION C: Internal and External Ethical Guidance Materials

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

SECTION D: External Collaborative Research Activity

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

1	Institution	
2	Contact person name	
3	Contact person e-mail address	
4	Is your research externally funded?	YES ☐ NO ☐
5	Are you in receipt of a KESS scholarship?	YES ☐ NO ☐
6	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary YES ☐ NO ☐
7		Employed YES ☐ NO ☐
8	Is the research being undertaken within an existing UWTSD Athrofa	If YES then the permission question YES ☐ NO ☐

	Professional Learning Partnership (APLP)?	below does not need to be answered.				
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 SOVTE exercises effectively enhance vocal technique in beginner signers with no prior formal training?			
2	Proposed start date:	September, 26 2024	Proposed end date:	January 31, 2024	
	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 Existing Research 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 The purpose of this research is to explore the effectiveness of Semi-Occluded Vocal Tract Exercises (SOVTE) in improving the vocal technique of beginner singers who have never undergone formal vocal training. This study will aim to investigate whether SOVTE, a widely used technique among voice professionals, can serve as an effective and accessible method for novice singers to improve their vocal skills, such as pitch accuracy, breath control, and vocal range. (this box should expand as you type)				
4	Research Question To what extent can SOVTE exercises improve vocal technique in beginner singers who have no prior formal vocal training? Additionally, the study will explore participants' perceptions of the effectiveness of SOVTE exercises in their vocal training. Furthermore, the research will compare the effectiveness of SOVTE exercises with the absence of structured exercises to determine which method is most beneficial for novice singers. (this box should expand as you type)				
5	Aims of Research Activity To compare the effectiveness of SOVTE exercises with the absence of structured exercises in beginner singers, determining which method yields the most significant improvements in vocal technique. To gather qualitative data on beginner singers' experiences with SOVTE exercises, including any challenges they face and the perceived benefits of these exercises. The results could offer important insights into vocal pedagogy and help shape the creation of training programs designed for amateur and beginner singers.				

	(this box should expand as you type)		
6	Objectives of Research Activity The objective is to offer recommendations for vocal training programs specifically designed for individuals with no prior formal training, based on the study's findings, and to identify potential areas for further research. To develop and implement a consistent, structured training program that includes SOVTE exercises for beginner singers. (this box should expand as you type)		
	Proposed methods (maximum 600 words) Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project.		
7	First, I will recruit voluntary beginner singers who have no prior formal vocal training and obtain their consent. I may ask questions about their musical background to gain information about where they've sang. I will conduct an initial assessment to evaluate the participants' baseline vocal technique. This may include tests of pitch accuracy, breath control, vocal range assessment, and/or overall vocal quality evaluation. Quantitative and qualitative analysis will be used to collect and analyze data. Quantitative may work as a comparison of pre and post-test results for pitch accuracy, breath control, vocal range, and/or overall vocal quality using the Voce vista software and other internet tools like Vocal Pitch Monitor. On the first and last meeting I will undertake this tests to see the participant's capability and its improvements. Qualitative data may be used for surveys, interviews, observation and/or participant diary. Mixed methods may also be included. Literature review will also be involved. If there are enough participants focus group(s) will be held. Also, audio recording may be used to hear the participants progress from the beginning to the end of the research. (this box should expand as you type)		
	Location of research activity Identify all locations where research activity will take place.		
8	- San Juan, Puerto Rico in Unique Music Academy facilities. - or Bayamón, PR at Casa de Adoración Yahweh. (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	I live in the country where the research will take place. Ethical guidelines in Puerto Rico are similar to the UK but differ in some areas. In Puerto Rico we follow U.S.federal regulations like HIPAA for data protection. In P.R. we go beyond to emphasize on cultural sensitivity, especially in local communities. The UK has its own set of laws governing research ethics, while Puerto Rico follows U.S. federal regulations. (this box should expand as you type)		
10		NO	☒

	Use of documentation not in the public domain: Are any documents NOT publicly available?	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. <i>(this box should expand as you type)</i>		

	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:		
	<i>(this box should expand as you type)</i>		

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: Tests of pitch accuracy, breath control, vocal range assessment, and/or overall vocal quality evaluation. Using, audio, spectrogram, internet software like Voce Vista, and/or Vocal Pitch Monitor. (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?	3 to 10 adult participants (this box should expand as you type)
11	Who will the participants be?	

		Adult singers with no prior formal vocal training (ages 18+) <i>(this box should expand as you type)</i>
12	How will you identify the participants?	Via text message (WhatsApp), social media, and/or email <i>(this box should expand as you type)</i>

	Information for participants:	YES	NO	N/A
13	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
14	Will you tell participants that their participation is voluntary?	☒	☐	☐
15	Will you obtain written consent for participation?	☒	☐	☐
16	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
17	If the research is observational, will you ask participants for their consent to being observed?	☒	☐	☐
18	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
19	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
20	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
21	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
22	If NO to any of above questions, please give an explanation			
	<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			
	Line 25: Will use cameras/voice recorders to record singing sessions and a laptop for surveys, interviews, and/or tests, and/or recording software. <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?	<table border="1"> <tr> <td>Yes</td><td>☐</td></tr> <tr> <td>No</td><td>☒</td></tr> </table>	Yes	☐	No	☒
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: Vocal harm occurring from exercises I ask them to perform. Participants may also feel emotionally vulnerable when they sing to a professional. <i>(this box should expand as you type)</i>	<i>How you will mitigate the risk to participants:</i> Provide detailed guidance and demonstrations for proper exercises. Create a supportive environment, build trust, provide emotional support on the process and have good communication. <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					
	N/A <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: Having participants drop out of the study before its conclusion. Risk to reputation if students do not respond well to the study. <i>(this box should expand as you type)</i>	<i>How you will mitigate the risk to the investigator:</i> To minimize participant dropout, clearly communicate the study's goals, offer flexible scheduling, provide regular support, and ensure a convenient and engaging experience. To mitigate reputation risk, ensure clear communication, ethical design, and provide ongoing support and feedback. <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: Violation of data protection rules. <i>(this box should expand as you type)</i>	<i>How you will mitigate the risk to the University:</i> To mitigate violations of data protection rules, implement strict data handling protocols, secure consent, and comply with relevant data protection regulations. <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>	<i>How you will mitigate the risk to environment:</i> 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 an email address that the participants may write for further details or results. If the focus group is being carried out, I will make time to do a debrief. <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. Consent will be asked at the beginning of the research. If using an online questionnaire, then I should have a screen before the questions start that acts as a consent form, informing participants that by clicking on the NEXT button they are providing consent. If using a paper questionnaire, then I should have the participants sign an appropriate consent form. <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. Anonymity will be offered. Participants names will not be used. <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	This includes audio/video data of participants but can also include IP addresses and usernames. Personal data such as names, addresses, emails, phone numbers, and consent forms will be collected. Participants will sign the consent form before participating and before filling out questionnaires. Names will be collected solely for the investigator to communicate with the participants, but no names will be included in the research. Addresses will be used to determine if participants are able to take part in the study, due to the location of the research. Emails and phone numbers will be used for communication between the investigator and the participants. <i>(this box should expand as you type)</i>		
	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	<i>(this box should expand as you type)</i>		

	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 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 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:		
	Normally the principal researcher. <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:		
	Normally the 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 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.uwtsd.ac.uk/). If so please explain. <i>(Most relevant to academic staff)</i>		
	No <i>(this box should expand as you type)</i>		
26	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	YES	☒
27	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	YES	☒

SECTION K: Declaration

	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/	
1	Signature of applicant:	
		Date: August 12, 2024

For STUDENT Submissions:

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

For STAFF Submissions:

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

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

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

RESEARCH STUDENTS ONLY

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

RESEARCH STAFF ONLY

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

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

Appendix H



Adriana S. Ramírez
10 Quebrada Grande, Urb. Corrientes, Trujillo Alto PR, 00976
August 12, 2024

Dear UWTSD,

RE: Can SOVTE exercises effectively enhance vocal technique in beginner signers with no prior formal training?

I confirm that I approve of the research proposed into 'SOVTE vocal exercises for beginner singers' to be carried out by Adriana S. Ramírez, owner of Unique Music Academy during lessons with the company between September 2024 and January 2024.

Kind Regards,

Adriana S. Ramírez