Exploring the Use of Imagery to Synthesise Voice Science and Vocal Artistry When Training Singers in the Youth Choir Context

ABSTRACT

This qualitative practitioner research project seeks to broaden the debate between voice science and artistry by investigating choral conductors' pedagogical needs. In particular, it explores the application of imagery in the vocal training and development of young singers. As the science versus imagery debate continues in the pedagogical community, the interrelationship between physiological accuracy, artistic expression and vocal health is becoming ever more prescient. Despite advances in vocal health research, , relatively few studies exist investigating the impact of imagery use in choir training compared to other areas of voice pedagogy, and fewer still extrapolate findings to consider conductors' professional development. This study seeks to bridge that gap. Six conducting staff members at a British youth choir participated in observations, interviews and a questionnaire aimed at identifying, analysing and evaluating their use of imagery in rehearsals. Investigation of imagery type, function and application during the training of youth choir singers begins to indicate the efficacy of various strategies in synthesising the two competing strands of science and artistry. Where imagery does not adequately unite the technical and artistic, three core themes have been identified as underlying the deficit. Findings suggest that additional training, development of physiologically accurate personalised imagery, and nuanced understanding of professional roles are all vital for ensuring the vocal health of youth choir singers.

INTRODUCTION

Youth choir training continues to operate under traditional master-apprentice models (Green, 2018), with conductors often working with limited assistance from singing teachers (Hill, Jones, & Ash, 2007). Vocal pedagogy training is not often undertaken in sufficient depth by conductors (Smith & Sataloff, 2006), and singers can be confused by ineffectual and inaccurate imagery, which in the worst cases can compromise vocal health (Brown, 2021; Michaels, 2010; Williams, 2019.). The choral conductor's role encompasses a wide variety of skills, such as knowledge of repertoire, technical music skills, vocal pedagogy skills, and communication skills (Corbalan, Perez-Echeverria, & Pozo, 2023; Durrant, 2003; Emmons & Chase, 2006.). Each is unified through the central aim of producing the "most musically effective performance a choir is capable of" (Black, 2015, p.50). For Smith and Sataloff (2006) creating the *"*choral voice*"* (p.161) requires multiple strategies to achieve "blend"—"the degree to which multiple voices are perceived as a single unit." (Tenstrom, Jers & Nix, 2012, p.581). However, many strategies presuppose a level of technical vocal ability that may not exist. For many singers, the choral conductor may be their only vocal teacher (Smith & Sataloff, 2006), meaning pedagogical skills are as important as musical credentials (Jacobsen, 2004).

Fabris (2018) discusses the absence of voice-specific pedagogy among choral conductors and highlights the historical antecedents, as pre-1930 choral conducting was not distinct from orchestral conducting, with texts emphasising non-voice-specific techniques. The persistent master-apprentice model that has perpetuated this imbalance between musical and pedagogical skills is becoming more frequently challenged (Jansson & Haugland-Balsnes, 2020). Choral conductors must combine musical knowledge with "accurate information about the function of the vocal system" (Spencer, 1989, p.28) ensuring their perceptions and interventions are appropriate (Williams, 2019). Without this, there can be vocal health issues for the singers as well as aesthetic challenges (Brown, 2021; Chipman, 2008; Williams, 2019). Denning (2003) sympathises with choral conductors who cannot see the vocal instrument, meaning it is not immediately obvious if technical faults underly artistic challenges (Welch & Sundberg, 2002). Use of imagery is one way choral conductors can compensate for this, as they educate singers on the art of choral singing.

Imagery in Teaching and Learning

Pivotal texts describe imagery as a semiotic system (Piaget & Inhelder, 1971) elucidating perception, strengthening cognition and constructing meaning. Imagery expresses one thing in terms of another, often clarifying the unquantifiable or subjective. It may provide a shortcut for explanation (Lakoff & Johnson, 1980; Ortony, 1975; Schippers, 2006); however, Coney and Lang (2006) caution against this, evidencing the primacy of literal meanings over figurative. Thus, cognitive processing of imagery takes longer (Lakoff & Johnson, 1980) and is constructivist, with its value being contingent on its social situatedness (Giora, 2007); images must be interpreted according to the context and experiences of learners (Paivio and Begg, 1971). Furthermore, to be a *cognitive strategy*, it must be affective, not just illustrative (Piaget & Inhelder, 1971).

The main imagery categories are visual, aural, verbal, kinaesthetic and emotional (Holt, 1964; Paivio & Begg, 1981), applied as simple, multiple, themed, combined or negative strategies (Black, 2015; Jacobsen, 2013). When an image is widely used, it becomes a *stock image* passed down from master to apprentice (Garnett, 2009). For critics, stock imagery is often used uncritically, without regard to fact, although its existence may demonstrate its effectiveness, whatever the relationship to reality (Lakoff, 1993).

Multi-modal applications are key to sustained learning, providing opportunity to develop multiple neural pathways (Jacobsen, 2013; Nanay, 2022; Price & Byo, 2002). Murphy's 2005 study found combining modalities created vivid, efficacious images during cognitive rehearsal, with participants often reaching a flow state (Csikszentmihalyi, 1975; Morris et al., 2004). Integrating cognitive and motor development (Emmons & Thomas, 1998; Lehmann & Jorgenson, 2012) exploits neurological functional equivalence between mental rehearsal and physical practice, particularly in relation to visual and kinaesthetic combinations (Farah, 1989; Jeannerod, 1994). However, in disciplines such as sport, the three stages of skill acquisition are different, shifting from *observe-do-imagine/rehearse* (Hale, 1998) to *do-imagine-do-rehearse* in singing.

Imagery in Choral Rehearsal

The history of the imagery debate in voice pedagogy has been well documented (DeLillis, 2020; Freed, 2000), with scholars agreeing it is an integral strategy. Gardiner's 1983 model of musical intelligence shows imagination as essential to singing, with phonation beginning in

the mind (Callaghan et al., 2012). Smith and Sataloff (2006) champion imaginative processes as necessary to producing choral sound, with imagination being given equal, if not more importance than physiology.

Imagery persists as a strategy thanks to its grounding in replicable physical sensations (Miller, 1996). However, in choirs, there are multiple experiences and potential for confusion. For Sell, (2005) subjectivism is inadequate grounds for a pedagogical system; singers may not have the correct experience and conceptual understanding to render their physical sensations meaningful. Therefore, although "factual information need not replace imagery, […] all imagery should be based upon fact" (Miller, 1987, pp.17-18).

Studies on imagery in choral conducting conclude that it is widely used to "develop conceptual understanding through […] director's imagistic language" (Black, 2015, p.18). Findings agree choral conductors use imagery to:

- communicate aims
- achieve aims
- change thinking
- change practice
- create vocal/musical effects
- save time
- replace technical vocabulary
- elicit emotion

For Daniel (1993), the central theme underlying these intentions is communication. Durrant (2003) and Latukefu and Verenikinia (2001) argue technical language is confusing, whereas imagery informs without stretching singers beyond what they are cognitively capable. Imagery explains the scientific accessibly, relating physical sensations to other experiences (Chen 2007), bridging the gap between conceptual and procedural knowledge—*knowing and doing* (Latukefu & Verenikinia, 2001).

Jacobsen (2013) and Black (2015, 2022) discuss imagery for conceptual clarification and procedural correction, agreeing with Funk's (1982) suggestion that it gives meaning to the "feel" of certain vocal activities, becoming an aide-memoire. However, Jacobsen critiques that imagery shortcuts are often used in place of accurate vocal knowledge, finding that where choral conductors have scientific knowledge imagery is more effective. This is supported by Callaghan (1998), Sataloff (1995) and Williams (2019), who argue imagery needs to be grounded in scientific language.

Despite calls for a shared linguistic framework, strategies are dominated by gesture (Black, 2022; Durrant, 2003; Garnett, 2009). Bonner (2009) found blended sounds were more achievable when choral conductors employed gesture and facial expression. Poliniack's (2014) study concurred, finding singers mirrored choral conductors' gestures, providing a useful tool for training posture and alignment. Mirroring is also found when conductors use aural imagery, with Price and Byo (2002) and Grimland (2001) linking it to negative imagery, with the liminal space illuminating meaning (Barten, 1998). In McCarthy's 2002 research, gesture developed musical understanding by "anchoring" musical knowledge in the "contexts and purposes of specific musical practices" (2002, p. 215), showing the potential of imagery to unify physiology and artistry as in Fabris's 2018 Estill Study.

Although Fabris's study rescinded stock *verbal* imagery, the literature demonstrates metaphor *is* prevalent yet physiologically incongruent (Avenno, 1989; Carter, 1993; Lehemann, 1985). For Jacobsen (2013), this is problematic. Unlike other systems of communication, imagery is not codified, leaving evaluation to sensory feedback, which can be inaccurate. Jacobsen (2013) and Williams (2019) suggest metaphor can be confusing due to potential myriad interpretations. For example, *spin* can refer to breath or tone, and *energy* can refer to tone, volume or pace (Williams, 2019, p.25). How are singers to know which one the conductor is referring to and how to produce the affect?

Applying lens theory (Brown, 2021) and body mapping (Allen, 2016; Leigh-Post & Burke, 2009) may help. Often used clinically (Crits-Cristoph & Singer, 1981), Bozeman (2017) applies body mapping to elucidate correct feelings for healthy voice production. This could be applied for the avoidance of faulty imagery, as a way of "checking in" with the resultant sensations. Linked with findings stating effective imagery is personalised (Chipman, 2008; Emmons & Chase, 2006), this would be an interesting study and could provide a potential way to develop individual voices within a group context.

Encapsulating the essence of connectivism (Downes, 2005; Siemen, 2004) and experiential learning (Kolb, 1984), images can link personal experience to the choral context. However, in groups, personal imagery can remain internalised (Paivio, 1971), making choral sound harder to achieve. Therefore, choral conductors must give feedback and check singers' understanding (Liebermann, 2004), so singers know when they have performed correctly and can replicate activity (Emmons & Chase, 2006). This corresponds to the broader literature base surrounding teacher-talk, with Schippers (2006) suggesting that teachers lack understanding in how to select appropriate vocabulary to communicate their intended purpose(s). To avoid confusion, choral conductors need to be clear about their intentions *and* how singers can achieve them.

Imagery continues to be used as a rehearsal tool, most often in relation to musical skills. The range of imagery strategies is limited to stock metaphor and gestures, often applied individually, and there is little discussion of how imagery impacts vocal technique. Given these limitations, investigation into *how* imagery is used to synthesise the technical and artistic in the context of a youth choir provides the foundation for this study, as well as exploring the reasons why it may not be successfully applied.

METHODOLOGY

This paper operates within a relativist ontological framework, accounting for the social situatedness of insider researchers (Morse, 1991; Vygotsky, 1962), allowing for a diverse range of methods to be utilised (Baghramian, 2010; Baghramian & Carter, 2021). Two research paradigms (Khun, 1962) have shaped project design: *Constructivism* (Bruner, 1960) and *Pragmatism* (Ayer, 1968; Dewey, 1938; Peirce, 1878). Constructivism mitigates the challenges of insider research by including potential bias in the research design (Bryman, 2008; Crotty, 1998), with the result that meaning from data is co-constructed by researcher and subject (Hammersley & Atkinson, 1995). The coupling of this paradigm with pragmatism allows flexibility throughout the process (Hickman & Alexander, 1998), acknowledging a range of qualitative and quantitative interpretations arising from both the occupational context and the researcher's values (Winter, 2020).

Research Aims

This paper aims to explore choral conductors' imagery strategies in the context of youth choir training. Specifically, it asks whether strategies used are congruent with current understandings of anatomy and physiology during singing, while maintaining the centrality of artistic expression and interpretation in choral singing. As well as this, it considers learning from studies exploring use of imagery in educational and their relevance to choral conducting as an important part of vocal training for young people. The study asks the following research questions:

1. Do conductors effectively use imagery to synthesise voice science and artistry?
2. If artistry and science are synthesised using imagery, how is this done?
3. If artistry and science are not synthesised using imagery, why not?

Participants

The professional context necessitated convenience sampling, including the researcher as participant. Six male and female participants were invited from among the conducting staff at a British Youth Choir, with five consenting via University of Wales Trinity St David ethically approved forms. Participants ranged in age and experience from recent graduate early career professionals to others with decades of conducting experience. All participants work with auditioned singers, male and female, aged 7-19. Participants had a range of conducting and vocal teaching experiences and qualifications. Some participants had master's level conducting qualifications, while others had developed their skills through practical experience. Similarly, some had master's level practical singing qualifications and identified as professional singers, while others had non-professional experience and no specific vocal instruction. Some participants had specific pedagogical training, although not all qualifications were related to vocal teaching. Due to the small sample size, exact details of qualifications and experience are excluded here to protect participant anonymity.

Ethics

University guidelines were followed and further informed by Bryman and Bell's (2007) 10 ethical principles.

Consent was gained at all stages in the research process, and open dialogue with participants was prioritised to ensure ongoing consent, particularly during filmed observations (Denscombe, 2003). In the project report, participants are anonymised using reference codes (Figure 2) facilitating an open approach and removing the fear of professional judgments. Data were stored in password protected files with paper materials being kept in a locked cabinet. Researcher bias was mitigated through the chosen constructivist methodology, which was facilitated through ongoing dialogue with colleagues and supervisors and the employment of a reflective journal.

Methods

Investigation of the research questions was facilitated using audio-visual recorded rehearsal observations. Each participant was observed in two 45-minute rehearsals (junior and senior singers). Observation was selected as a research tool, as it was easy to complete within the ongoing routines of everyday work (Edwards & Talbot, 1994), as well as providing an accurate

record from which to carry out coding and analysis. It also allowed the participants to be less aware of the observation, avoiding interruption of the natural ecology of the rehearsal. To ensure ethical compliance and mitigate against participants losing awareness of being observed (Edwards & Talbot, 1994), ongoing dialogue was needed to ensure continued consent (Boud et.al., 2006; Ghaye, 2000).

Following observations, a questionnaire was administered to all participants—except the researcher. To ensure the questionnaire examined its purported topic (Bell, 2010), it was designed in comparison with an existing model (Black, 2015), was proofread by an academic tutor, and piloted by a choral conductor who was not part of the study. There were two main aims for the questionnaire. The first was to gather nominal data to search for patterns related to participants' training and experiences. The second collected ordinal data utilising a Likert scale to assist in easier coding and analysis (Denscombe, 2003; Juncos, 2019) to discover conductors' perceptions and intentions surrounding imagery.

Using the 4Ws imagery framework as a guide, questions considered the where, when, why and what of imagery. For example, questions including the following:

- Thinking about imagery, which strategies do you use with the younger singers?
- Where and when in rehearsals are you most likely to use imagery?
- How effective do you find aural imagery for achieving the desired sound?

The researcher did not complete the questionnaire to avoid biased responses as a result of having completed a literature review potentially causing an adjustment in practice. Instead, a reflective diary recorded observations, thoughts and interpretation using Driscoll's 2007 '*What Model'*.

It was noted that a risk of Likert scales is that participants are either too negative or too positive (Bell, 2010). To mitigate this, the questionnaire was followed up with discussion, with results offering more detailed and nuanced answers (Berg, 2001).

This follow-up discussion consisted of one focus group and one semi-structured interview, with one participant unable to attend either. The use of both these methods reflects the nature of the workplace and the difficulty in getting all participants together at the same time.

Extracts from observations and questionnaire data were used to shape conversations thematically rather than with set questions. Using an ethnographic approach, participants were asked to explain their use/non-use of imagery and ascribe meaning to their practices (Hammersley & Atkinson, 1995).

Coding

To analyse findings, image categories needed to be defined. In the first instance, these were informed by the psychological literature (Holt, 1964; Paivio & Begs, 1981) and then refined using voice pedagogy literature (Black, 2015; Grimland, 2001; Jacobsen, 2004), leading to the development of a thematic key for imagery type/modality (Figure 1).

This key was then utilised alongside Lens Theory (Brown, 2021; Wiltsher, 2019) to analyse the imagery observed during rehearsals, evidencing whether the imagery in question offered a true synthesis of both artistic style and accurate voice science. This facilitated a double-deconstructivist reading of the data through the dual lenses of voice science and vocal artistry (Brown, 2021). Codes, patterns and themes from each reading were then compared and analysed alongside findings from the literature reviewed.

Discussion transcripts were analysed with the assistance of thematic coding using the Open, Axial and Selective Strategy (Williams & Moser, 2019). This was applied to the interview data and provided a narrative framework for discussion of results. A scrap book was kept for each participant (Flowers, 2008) where the emergent themes were distilled and compared with those from the literature. These books were then compared to one another, searching for similarities, differences, frequencies, sequences, correspondence and causation (Hatch, 2002, p. 155). They were used to guide discussions with participants.

Data Analysis

When analysing the data, three approaches were interwoven:

- Hermeneutic spiral (Paterson & Higgs, 2005)
- 4Ws imagery analysis (Munroe et al., 2000)
- Lens theory (Brown, 2021; Wiltsher, 2019)

While a hermeneutic approach was utilised throughout to ensure the central research question was kept in focus, Lens Theory of Imagination and 4Ws analysis were applied to the observation data in order to identify imagery types and their connection to artistry and/or voice science. Instances of imagery were analysed using a timeline proforma (Silverman, 2006), and where an image was observed to effectively synthesise voice science and artistry, a

second process of analysis was applied using the 4Ws framework alongside thematic coding from the literature review. This data was triangulated with questionnaire responses, which were analysed using a grid (Munn & Drever, 1999) and compared with observational data.

Subsequently, interview data was analysed using Open, Axial and Selective coding to explore the reasons why imagery was not used or why it was used without synthesising both science and artistry. Three themes were identified and provide a narrative framework for discussion of the findings and conclusions.

FINDINGS AND DISCUSSION

Observational data show that imagery is commonly applied in youth choir rehearsals and *is* used *on occasion* to unite vocal function and artistry. As in the literature, gesture was the most dominant imagery type (Durrant, 2003), closely followed by verbal metaphor (Jacobsen, 2013). Most imagery was applied simply, addressing one area of instruction or interpretation. Verbal imagery was often negative, and three of the conductors consistently applied this in conjunction with aural imagery (demonstration/modelling). For example, C2 sang deliberately incorrectly followed by the statement *"*don't do it like this!*"*. Participants C2 and C4 agreed that the humour often involved in negative imagery is important for building rapport with singers, as well as helping them to make sense of instructions by illustrating the liminal space between the negative image and the correct skill (Barten, 1998). C4 added that humour embedded the skill in singers' memories, as it was an unusual event within the overall context of the rehearsal, providing a novel and vivid image (Murphy, 2005).

Imagery was observed during the warm-up phase across all participants and provides the foundations of imagery for science/artistry synthesis. Frequently, vocal intentions centred on posture and alignment and breath management. Participants C5 and C1 made excellent use of imagery combining gesture, visual, negative and positive modalities. This was coupled with playful imitation to instruct younger singers in correct posture and alignment, for example, playing a game where singers were instructed to *"*stand like a monkey, stand like a soldier, stand like a singer*"*. This developed technical aspects of posture necessary for efficient singing, as well as artistic presentation skills. These images were then drawn upon during repertoire coaching, providing a visual shortcut reminding students of the necessary postural skills without interrupting the flow of vocalisations (Ortony, 1975).

Participant C3 also used the warm-up phase to instruct on staggered breathing techniques. Here, metaphor and gesture were combined to illustrate adaption of individual strategies for a sustained choral sound (Tenstrom et al., 2012). C3 used their arms to draw the direction of the descending diaphragm on inhalation, followed by the direction of airflow on exhalation. The intensity of the air pressure needed was demonstrated by the rigidity of the arms during this manoeuvre. For example, the first attempt did not create the desired sound, as subglottic air pressure was too low. C3 added tenson to their gesture on the second attempt, resulting in increased air pressure in the singers, which created the desired sound. This gesture was accompanied by the verbal metaphor *"*imagine you are singing a golden thread and each time you breathe you must not break it*"*. However, this was followed by a clarificatory instruction to *"*not breathe at the same time as your neighbour*"*. While this resulted in more sustained breath control and smoother onsets, which combined to create a more continuous and balanced choral sound, it demonstrates how imagery use relies upon either a foundation of technical knowledge (Miller, 1987) or further instruction providing context (Lakoff & Johnson, 1980).

As the observations of junior singers were conducted first, the researcher's reflective diary notes that this focus on basic concepts of posture and breath was due to the age and stage of singers. However, observation of the older singers showed the same basic features were most common. There was only one instance of more advanced technique being developed using imagery. Participant C4 made use of a simple verbal image during song coaching, with the perceived intention of improving pitch, resonance and tone. The instruction to *"*sing like a choir of angels proclaiming God's praises*"*, resulted in singers opening their mouths wider and raising their tongue dorsum, which encouraged the larynx to rise a little higher, contributing to more accurate pitch and an increase in resonance. Although a simple image, it influenced a variety of functional skills, as well as improving musicality and developing meaning through understanding of the text and musical intentions.

Curiously, the questionnaire data from this participant showed that they placed a mid-value on the importance of CC's vocal knowledge, yet the focus group offered an insight into how they *"*pass everything, image or otherwise through a filter [lens] to check whether it will hurt their voices*",* indicating, along with corroborating observation data, that perhaps they value vocal pedagogy more highly in practice. It is interesting to note they did not have the most advanced vocal pedagogical training, suggesting this is the result of practical experience.

Although the application of lens theory to these images has demonstrated unity of science and artistry, overwhelmingly imagery was concerned solely with musical intentions or artistry. Grid analysis of the observational data shows this clearly, and was corroborated by questionnaires, highlighting that all but one participant viewed imagery as most effective and relevant in a

choral setting for developing performance techniques and musical accuracy. The outlying respondent saw voice science and artistry as less dichotomous, although (as discussed below), they clarified this balance was to be found across the organisation and not within the role of the conductor.

The reasons behind the assertion that imagery in choirs is solely an artistic strategy were not clear from the observational and questionnaire data, and so an interview and focus group were undertaken. Working ethnographically, discussion sought to elucidate the meaning underlying this perception of imagery and explore why science and artistry are not synthesised more often during rehearsals.

Pedagogical Knowledge

"How do you describe things if you can't see them?*"*

This illuminative question raised by participant C2 strikes at the heart of challenges faced by all those who teach singers. We cannot see the vocal instrument, rendering it difficult to explain the mechanics of creating vocal sounds, particularly when one has limited time in choral rehearsals. As highlighted by Ware (2013)*,* vocal educators have limited access to visual imagery showing the internal functions of the voice, necessitating use of other strategies. However, many choral conductors do not have advanced pedagogical training, with questionnaire data confirming a wide range among participants, with a clear bias towards master-apprentice *"learning-on-the-job"*. Most participants had professional experience as performers and reported re-using stock phrases they themselves had found useful as singers, with little awareness in the discussion of this being potentially problematic. However, participants with most vocal training did contemplate the existence of *"vocal myths"* (Michaels, 2010), but were unsure how to recognise and challenge them.

A lack of shared terminology between voice scientists, pedagogues and choral conductors (Sataloff, 1995) seems to underly this, as participants reflected "I don't know if I have the right terms", alongside concern technical terms could confuse singers. For most, anatomical and physiological voice teaching lacked meaning "if you can't see it" (C2), leading to suggestions imagery should never be used in any vocal training. However, C2 did add "you can see tension and so you can tell if someone hasn't got 'it'*",* and C5 reflected that singers' body language can indicate if an image has been successful, suggesting a willingness to explore imagery's potential efficacy. Despite this, three of the participants mused they would not necessarily know what to do with postural feedback aside from basic stretching or resting. C2 and C4

agreed there is a lot of "trial and error in rehearsals", and this is all part of the *experimental*, creative process. This suggested that the lack of technical rehearsal strategy may arise from deficits in vocal and teaching pedagogy, as highlighted by Wolf's research into the wider landscape of music education (2019). Yet a fluid approach has benefits, allowing for responsiveness in the moment and creative/improvisatory musicianship. However, in the case of youth choirs, a more strategic approach to vocal development is advisable. The educational emphasis of the youth choir necessitates a holistic approach to choral instruction, as pedagogical gaps potentially limit the progress of individual singers.

Personalised Learning

How the individual voice is developed in a choir was a recurring theme across all participants. It was generally felt that imagery was difficult to employ in a group because, as seen in the literature (Emmons & Chase, 2006), it needs to be personalised to the individual to have meaning. As in the work of Piaget and Inhelder (1971), C2 and C3 both stated that imagery needs to be connected to singers' existing conceptual frameworks. While an individual lesson may facilitate this, time limitations in choral rehearsals make gaining knowledge of students' experiences and personal frames of reference challenging. C4, C1 and C5 agreed they use imagery less in choral rehearsals than in one-to-one lessons, with C4 stating that imagery in choir "needs to be more generic and then it is not as useful*", with* C2 adding that *"*if you use the wrong image you can lose them and then you waste time*"*. C4 discussed using generic images as *"gateways"* to learning: "by using a generic image you encourage the individuals to put their own perspective on it or perhaps develop a new image". While this may encourage singers to make links between what they know and what they need to know, it still does not address the challenge of the choral conductor finding out the individual learning needs of each singer.

The discussion highlighted the three key steps needed to apply personalised imagery in a choral context:

1. Finding out what images produce your desired effects.
2. Finding out what images work with your singers.
3. Finding out how to apply these so everyone in the group arrives at the same interpretation and outcome.

The first of these links to the earlier theme of pedagogical knowledge. If choral conductors have awareness of vocal function and how it can be taught/trained, they will be able to develop

an understanding of which images can be used in which situations. As highlighted by C2, auditions could be the time to audit this knowledge, as well as working with other professionals.

The second and third steps are more difficult, as the existing imagery literature does not widely address choral settings. C2 believed that personalising images to the groups' needs was easier with younger children, as they were more inclined to provide immediate feedback, whereas teenagers were generally more reluctant and reserved. C2 maintained a belief, however, that although teenagers were less demonstrative, they had a propensity for understanding more complex phenomena. On the other hand, the literature on cognitive development highlights the seismic neural restructuring that is ongoing during puberty (Williams, 2019), and it is possible that this limits teenage singers' ability to process the meaning of more abstract concepts and techniques such as imagery, as well as perhaps contributing to difficulty in understanding somatic experiences. This may be linked to C2's thoughts that teenagers are less receptive and is an area not addressed in this study, but one that deserves further consideration.

Exploring the importance of context for personalisation of imagery during rehearsals would be a fruitful study. C2 suggests that meaning from imagery as a semiotic system may be more readily available in liturgical choirs rather than secular, as *"*the meaning is more obvious and the singers, especially choristers, tend to have that as a frame of reference and context already*".* Secular music does not offer this as clearly, as there are many more interpretations available. With this in mind, it is suggested that the use of emotional imagery may be the most effective modality to employ in a liturgical setting, perhaps in combination with the rich visual imagery available in the Christian tradition. However, the extent to which such imagery can be linked to the technical aspects of learning to sing is unclear and would need further investigation.

The issue of multiple interpretations is also not fully resolved in this context. Reflections from the researcher's diary suggest that an exploration of how to apply existing whole class teaching techniques, such as Socratic Questioning, to choral rehearsals may provide a strategic approach towards meeting this challenge. Alongside this, coaching strategies such as Clean Language and perhaps Somatic Coaching and/or Body Mapping, may be synthesised into an approach that allows for both the personalisation of imagery in a group context and the unification of technical and artistic vocal instruction.

Professional Roles

Throughout the pedagogical discussions, an underlying theme emerged and was present across all conversations, epitomised by a response from C5's questionnaire:

> "it's not really my job here to teach singing. Singing needs to be trained individually and in choir the conductor brings all these individual sounds together to make a choir – that is about communication, interpretation and performance."

C2 and C4 agree with this statement, which was tied to their belief that the purpose of imagery, particularly gesture, was for communicating artistic interpretation and not technical instruction. There was an overriding sense that choirs are about more than "just voices" (C2), and the role of the conductor is to create a space that unites other aspects of the group experience (including teamwork, listening, interpretation, fun), drawing from a range of strengths and weaknesses to make the best sound possible.

C2 strongly maintains that vocal instruction ought to be reserved for 1:1 lessons, and that it was not possible to teach technique well in a group. However, C4 disagrees slightly, and argues that there was a place for technical work, but that this was often limited to short snippets during warm-ups. They highlighted the necessity of this particularly when working with male adolescent voices, as changes happen from week to week and therefore more guidance is needed to help them get the best from the choral experience. C1 and C4 were very clear that they would intervene if they believed there were vocal health issues, but the other respondents were unclear as to how you would notice this in a group. All respondents agreed that this was in part due to time constraints during rehearsals, but there was also a feeling of not wanting to step on the toes of the children's other singing teachers. C4 and C5 were particularly cautious about this, with C2 adding that they did not feel sufficiently skilled in vocal pedagogy to make such judgements.

C4 reflects on how feedback from parents and other professionals is important for choral conductors, but that relies on having a good network of professionals with open dialogue. C2 added that this is the reason there were vocal coaches on the youth choir team and that they were the ones who had professional vocal knowledge and ought to be working with choral conductors to bridge any knowledge gaps between them or among the students. C1 questions whether this was currently happening, and there was consensus that there was potential to develop this aspect further.

CONCLUSIONS

This study has found that in the youth choir context, choral conductors *do* use imagery as a rehearsal device and that at times this imagery does unite voice science and artistry. Where Lens Theory analysis has shown that the imagery serves both the technical and artistic, this was mainly achieved through the application of verbal, gesture and aural imagery. Most synthesised imagery was used in warm-up and addressed vocal functions that are more obviously observed, such as posture, alignment and breathing. On occasions, the use of imagery for resonance and articulatory functions was reported. Discussion found these images are less physiologically accurate, tending towards repetition of stock phrases.

Most instances of imagery employed single images, with simplicity that did not allow for the development of both technical skill and artistry. There are three reasons underlying this:

1. Choral conductors can lack vocal pedagogical knowledge and refrain from addressing technical aspects of singing, or do not have sufficient understanding to recognise when the imagery they use is inaccurate.

2. Choral conductors struggle to apply imagery to technique due to the subjective nature of singing as a somatic experience and the varied cognitive frameworks present within a choir. As imagery forms a semiotic system, its interpretation is necessary if meaning is to be derived. However, the cognitive abilities of individuals within a choir will be wide and varied and therefore a multitude of interpretations is possible, making it challenging to apply imagery effectively.

3. Choral conductors perceive that it is beyond their professional remit to train the mechanics of vocal production, and that is a function of singing teachers and vocal coaches. The choral conductors' role is to provide musical interpretation and unite the voices in the realisation of that interpretation through performance.

There appears an underlying assumption that singers will be receiving technical instruction elsewhere and that choral conductors can expect a base level of singing competence upon which they build other musical and performance skills. This is not always the case, and for young singers, choir may be their only opportunity for vocal training. Therefore, we must attend to the role of choral conductors in youth choirs, where there is a responsibility towards vocal development and vocal health, as well as wider musical skills. If the choral conductor is not placed to offer technical instruction, then strategic use of other professionals, such as vocal

coaches and singing teachers must be developed to ensure a holistic, robust and sustainable vocal education is provided.

More emphasis ought to be given to the importance of vocal pedagogy for choral conductors during their training, and this would be assisted by the development of a shared language between singers, teachers, voice scientists and choral conductors to ensure that young singers are given the best and most accurate training and development for continued, healthy lifelong engagement in singing.

Figures

Figure 1 ***Imagery Type Thematic Key***

Imagery Type Thematic Key

(After Black, 2015)

Imagery Type	Key
Visual	V
Aural	A
Verbal	Vb
Kinaesthetic	K
Gesture	G
Emotion	E

**If imagery used is a stock image / is placed after the code.*

***If imagery used is applied negatively // is placed after the code.*

Musical Intention	Key
Tone/Blend	Tb
Rhythm	R
Pitch	P
Dynamic	D
Tempo	T
Phrasing	Ph
Texture	Tx
Textual Interpretation	Ti
Musical Interpretation	Mi
Emotional Expression	Ee
Performance Presentation Skills	Pp

Technical Vocal Intention	Key
Posture and Alignment	Pa
Breath Management	B
Registration	Rg
Larynx Structures (e.g., height, thyroid tilt, etc)	L
Vowels	Vo
Articulation (inc. diction)	Ar
Resonance/projection	Re

Example of use:

Conductor has used gesture with the intention of increasing dynamic and with awareness of resonance strategies to do this. Code = **GDRe**

Conductor has used verbal imagery with the intention of correcting pitch. A negative image was used, with no awareness of technical vocal techniques. Code = **VbP//**

Figure 2 ***Participant Reference Codes***

Data Referencing Codes

Conductor Code	Choir Group Observed (Codes)
C1	Juniors/Seniors (J/S)
C2	Juniors/Seniors (J/S)
C3	Juniors/Intermediates (J/I)
C4	Juniors/Seniors (J/S)
C5	Juniors/Intermediates (J/I)

Rehearsal Stage Codes
Warm up (W)
Song Teaching (ST)
Song Rehearsal (SR)
Performance Practice (PP)

Type of Data	Referencing Information	Referencing Code Example
Examples from Rehearsals	Conductor code, choir group, rehearsal stage	C1, J, W
Questionnaires	Conductor code, Question Number	C4, Q7
Interview Quotes	Conductor code, Choir group referenced	C2, J

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