8: The application of Embodima (KMI gesture) to Singing

Following on from previous articles regarding kinaesthetic motor imagery (KMI) and the basis of forming motor memories and where these are stored in the brain, this last article will look briefly at how we may activate this process in singers where the movement and coordination of muscles is not seen and that what is felt may not give accurate feedback about what is actually going on.

Athletes can see the track, the hurdle, the ball. They can see and feel their limbs as they move along the track or towards the goal. Musicians can touch their instrument or hold it in their hands so the motor imagery they might use to train their muscles to perform complex tasks may be far more accessible and overt. In singers however, additional help is required to ensure the correct activation and coordination of numerous muscles acting simultaneously to carry out a number of tasks all of which are unseen because they are hidden within the body. This is why a gesture that can encapsulate the overall pattern of muscle activity is so crucial. Once the pattern of activity is established in the singer's body via motor memory, it can be recalled at the mention of the image to fulfil the demands of the song.

Ultimately the only way a singing teacher can assess if technical vocal training of the student has been accurate is from listening for change. The singer relies on the sensations created in the body (proprioception) by the motor image and the teacher can assess whether these are correct through what she hears.

KMI/Embodima ™ gesture is not genre-specific and can be used in technical training for all forms and styles of singing from opera to CCM to jazz, folk and world music. It is a valuable tool at all levels, from beginner to top professional, and for all types of student. It is a fast and efficient way of correcting entrenched bad vocal behaviours, a powerful tool for

beginners in a naïve state of knowledge to set them up correctly. It corrects overthinking and makes an immediate connection between the body and the voice to express authentic feeling.

It has been used on adult learners, children, conservatoire students, choirs, singing teachers and young professionals. It is also of great value in rehabilitation after vocal injury.

 Embodima ᴛᴍ gesture has been shown to be successful with students with such learning difficulties as dyspraxia, dyslexia, ADHD and those on the autism spectrum. For example, learners who have dyspraxia will often struggle to create and maintain motor memories when taught by standard methods but are able to achieve this more effectively with KMI gesture. Students with dyslexia may struggle with instruction-based learning, but learn well through the body, so a gesture- based system may help circumvent their difficulties.

With the enormous scope of KMI as additional teaching tool for singers, it is vital that these images should be codified and recorded in an unambiguous form, and then taught physically. Historically, the use of imagery in the teaching of singing has been a personal rather than a universal approach, therefore it is important to create a standardised lexicon of motor images, each with a defined purpose. Standardisation of the images will mean that when students move between teachers, cities and even countries, the image vocabulary used will always be the same.

The theory of motor imagery is one thing, the practical application of that theory to the teaching of singing is an entirely different matter. In view of this, a lexicon of around 40 *Embodima ᴛᴍ* motor images has now been created to standardise the use of imagery in singing and singing teaching. These should be taught physically and practically.

Further reading

Gregg MJ, Clark TW, Hall CR. 2008. Seeing the sound: An exploration of the use of mental imagery by classical musicians. Music Sci 12(2):231-247.

Ridderinkhof KR, Brass M. 2015. How Kinesthetic Motor Imagery works: A predictive-processing theory of visualization in sports and motor expertise. J Physiol-Paris 109(1-3):53-63.

Schack T, Essig K, Frank C, Koester D. 2014. Mental representation and motor imagery training. Front Hum Neurosci 8:328.

NOTE : These eight articles are the result of nine years research at University of Oxford, UCL, Cardiff University, co-working with neurologists and anatomists. None of this would be possible without the generous input of my colleague Dr Alan Watson with whom I worked closely on much of the testing and in collaboration in this series.