

Respiration in operatic singing: Intention to communicate

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Abstract

Professional operatic singing can be performed technically for practice and rehearsal, or with heightened emotion through intention to communicate with an audience. Previous studies of respiration in operatic singing have not taken into account the professional performer's ability to differentiate at will between rehearsal and performance modes of singing. The aim of this thesis is to investigate the differences between singing 'with intention to communicate' (as if performing) and singing 'technically' (as if in rehearsal). The hypothesis is that this specified change of condition would change the respiratory patterns employed by the singers. Estimation of respiratory patterns was obtained using magnetometers. Performance singing was labelled 'IC' (intention to communicate). Rehearsal singing was labelled 'T' (technical) and also included 'TL' (technical loud) and 'TS' (technical soft). Each of the five singers performed two tasks (a free choice aria in Italian, and a set song). Only intra-subject analysis was used. One thousand and one breaths were analysed. These were then matched, so that only complete musical phrases (sung six times by the same singer) were compared with each other. Seven hundred and sixty-two matched phrases were analysed in this way. Measured variables were initiation lung volume (ILV), termination lung volume (TLV), the amount of lung volume expired (LVE), %VC released per second (Flow), the expiratory time (Te), and inspiratory time (Ti). Sound pressure level (SPL) was measured. This study also examined the ability of experienced listeners to distinguish between the T and IC performances from DAT recordings. Findings show that in comparison with T singing, IC singing used more air, with a greater percentage of vital capacity expired per second, but without a simple association with sound pressure level or expiratory time. Listeners were able to distinguish IC from T performances, demonstrating a perceived difference in the quality of the vocal output. These results demonstrate that performance intention to communicate, compared to rehearsal, results in a measurable difference in respiratory parameters, and therefore needs to be specified in future research.

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Preface

Technique is of no value except as it makes communication possible.

Miller 1986, p.204.

As a performer and teacher I have always been fascinated at the way in which performance makes the technical side of singing both easier for the singer and more convincing for the audience than a purely technical effort. I believe that both aspects are necessary. This thesis takes as a starting point that the reason for developing technique (the functionality aspect of singing) is to be able to communicate to an audience. This work sets out to consider the moment in performance at the inception of the phrase. This is the moment before the singer takes the breath for each phrase.

As defined by Richard Miller in his book *The structure of singing. System and art in vocal technique* (1986), this moment is a point of fusion between the technical and the communicative aspects of singing. Miller talks about the discipline with which singers use the memory of previous experience to bring together the many technical aspects of singing into one concept, which becomes a psychological attitude.

...the singer fuses into one whole the many technical facets of singing: a single mental concept at the inception of the phrase combines them into one musical act. At the same time, in the musical realm, an equally important happening takes place: conception of the entire contour of the musical phrase in that instant in which the phrase commences. Collected into one split second of insight, by the same psychological process by which any conceptual thought can be born in an instant, the singer should sense the contour, the shape of the entire musical phrase and its literary idea, prior to the initiation of the phrase in word and tone.

Miller 1986, p.203.

Miller goes on to say that this procedure has already been well established in daily thought and speech, but that due to the real-time aspect of the performance of singing, singers face the temptation of thinking of individual components of their art instead of fusing them into one experience through "simultaneous anticipation of them at the inception of the phrase". Miller then

discusses the discipline required to practise making this technical and artistic unity, which must be developed and mastered as in the use of any other technique.

At the moment before the professional singer takes the breath for each phrase, the various technical aspects of singing fuse into one whole with emotional connection as the singer focuses on communicating the meaning of the music. Professional singers can also increase technical thinking in rehearsal mode, for example, if various technical aspects need to be individually addressed. Then, in performance mode, once again the technical aspects are fused as the singer's intention becomes focused primarily on communicating to an audience.

The aim of this thesis is to compare lung volume behaviour in operatic singers during rehearsal mode (technical singing, where the singer increases awareness of individual technical components) with lung volume behaviour during performance mode (fusing the technical components and increasing intention to communicate). Professional singers are expected to be able to make this differentiation between rehearsing and performing. The main question of this thesis is whether these changes in intention result in a measurable difference.

The basic hypothesis of this thesis is that such changes in intention will be reflected in physiological differences, showing changes in breathing patterns. The secondary hypothesis is that listeners can perceive these changes of intention.

This thesis is divided into two parts. Part 1 (Chapters 1, 2 and 3) gives an introduction to operatic singing, while Part 2 (Chapters 4 to 9) presents the original research.

In Part 1, Chapter 1 traces the history and origins of operatic singing, particularly with respect to its emphasis on communicating to an audience. Chapter 2 summarises performance aspects of operatic singing, including technical and stylistic components, and reviews the literature related to how performers communicate emotionally with an audience. Chapter 3 discusses and defines the intention to communicate.

Part 2 begins with Chapter 4, which gives a voice science literature review, with critical assessment of previous research in the areas of singing, respiration and emotion. The main focus here is on the singing respiration studies based on the two-compartment method of Konno and Mead (1967) from which the methodology of my original contribution is taken. This methodology

is described in Chapter 5, along with the description of data collection (respiratory, sound pressure level and perceptual). Chapter 6 comprises the results section, and Chapter 7 provides a discussion of the main findings of these investigations in the light of previous research. Pedagogical speculation and implications for singing pedagogy are discussed in Chapter 8, and Chapter 9 presents the final conclusions.