

EXPLORING LEARNING AND UNLEARNING (III): MENTAL TRAINING FOR PROFESSIONAL SINGERS

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SUMMARY. Mental training has become an essential component of high-level performance across domains such as clinical psychology, neuroscience, elite sports, corporate leadership, and performing arts. Opera performance requires the integration of multiple cognitive emotional and physical processes. Professional singers must simultaneously manage vocal technique, musical interpretation, stage movement and dramatic characterization while performing in front of an audience. The cognitive demands of musical performance include complex memory processes, attention control, and rapid decision-making. Opera singers require an integrated model of mental preparation that extends beyond vocal technique. In my previous articles from the series “*Exploring learning and unlearning in singing*” (“Breath”, 2023 and “Effective Study Methods for the Individual Practice of Professional Singers”, 2025) I followed the elaborate process of training an opera singer from the dynamic perspective “Learning - Unlearning - Relearning” (LUR). Each article aims to create a theoretical basis, developed both from my own experience as a professional singer and teacher, correlated with research and studies recently published on the topics addressed. The purpose of these articles is to discuss the essential processes that a professional singer faces in his preparation for a lyrical career, and to permanently maintain a balance between theoretical and practical aspects, as is the study of singing. This article proposes a structured mental training curriculum for cognitive, emotional and artistic performance optimization, specifically designed for professional singers. The article is organized around three core phases of artistic activity: preparation and study, performance under evaluative pressure, and post-performance psychological recalibration. Drawing on research in performance psychology, self-regulated learning, neuroplasticity, mental imagery, and self-determination theory, the article integrates theoretical frameworks with concrete exercises applicable to daily vocal practice and stage performance. Special attention is given to multidimensional musical memory, meta-attentional flexibility, emotional

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regulation and resilience in critical incidents in long-term artistic careers. The paper concludes with a discussion of “unlearning” maladaptive cognitive habits that limit artistic authenticity and vocal freedom.

Keywords: mental training, learning, unlearning, opera singers, performance psychology, music performance anxiety, self-regulation, mental imagery, resilience

Opera singing represents one of the most demanding forms of musical performance requiring a high level of technical mastery, expressive interpretation and psychology resilience. Unlike many other instrumental disciplines, opera singers rely on the human voice, which is highly sensitive to physiological and psychological states. As a result, factors such as concentration, emotional regulation and self-confidence, can significantly influence vocal performance.

Opera performance involves a unique combination of psychological and physiological demands. Unlike many other musical activities, opera singers must integrate vocal technique with dramatic interpretation while performing live under intense pressure. Responding to multiple demands, opera singers must manage several complex cognitive processes: memorization of musical scores and lyrics; multilingual pronunciation; coordination with orchestra and conductor; interpretation of dramatic roles; real-time adaptation to stage conditions. These processes require strong working memory, attention and mental flexibility.

Opera performance involves deep emotional expression. Singers must embody dramatic characters while maintaining vocal control and technical precision. This requires abilities such as emotional awareness, emotional regulation, and psychological resilience. Performers must be able to experience and communicate strong emotions without allowing these emotions to interfere with vocal technique

In recent decades, researchers in music psychology and performance science have increasingly focused on the role of mental training in enhancing artistic performance. Mental training refers to a set of psychological strategies designed to improve cognitive, emotional and behavioral aspects of performance. These strategies include techniques such as mental imagery, goal settings, attention control, emotional regulation, and anxiety management.

In my previous article “*Effective Study Methods for the Individual Practice of Professional Singers*” I have already mentioned² some of important tasks in the mental training of professional singers, such as awareness, mental representations, breathing techniques for managing stress, nervousness and stage fright; and cultivating resilience and determination. Mental training is so complex and ramified that an article can only outline the directions for approaching this topic, which has been extensively studied both in psychology studies and in other fields, from performance sports to neuroscience.

Mental training represents a multidisciplinary field spanning clinical psychology, cognitive neuroscience, elite sports, organizational leadership, and performing arts. Interventions such as attentional control training, mindfulness-based stress reduction, cognitive-behavioral restructuring and imagery rehearsal have demonstrated concrete benefits in performance optimization, anxiety reduction and resilience enhancement.

In clinical psychology and psychotherapy, mental training is used in the treatment of anxiety and depression, resilience development, cognitive-behavioral therapy, mindfulness, and emotional regulation.

In the field of neuroscience and medical recovery, mental training is used in stroke rehabilitation programs, cognitive recovery, and neuroplasticity stimulation. Recent developments in neuroscience have provided important insights into how mental training affects brain function³. One key concept is neuroplasticity, which refers to the brain’s ability to reorganize neural connections in response to experience and training. Mental practice and visualization activate neural networks similar to those involved in physical performance.

In elite sport, systematic mental preparation is considered as crucial as physical conditioning, as documented in *Foundations of Sport and Exercise Psychology*. Professional teams in leagues such as NBA integrate sport psychologists into their performance systems, for increasing concentration, controlling emotions and anxiety, mental visualization of performance, managing competitive pressure.

Mental training is also used in the military and special forces for extreme stress control, quick decision making, and psychological resilience.

In the corporate sector, organizations such as Google have implemented structured mindfulness programs to enhance focus, creativity, and stress

² Radu, Cristina, *Exploring Learning and Unlearning (II): Effective Study Methods for the Individual Practice of Professional Singers*, Studia Universitatis Babes-Bolyai Musica, 70(1), 2025, see “Mind Training & Stress Management”

³ In neuroscience, studies on neuroplasticity (like “*Neuroplasticity: Changes in grey matter induced by training*” Draganski, B., et al., 2004) demonstrate structural brain changes following sustained mental and motor training.

management. Mental training helps make decisions under pressure in business, increase productivity, develop emotional intelligence, and prevent burnout.

In the field of education, mind training aims to improve memory, concentration techniques, accelerated learning, and managing emotions in exams. Numerous studies target the impact of cognitive training on academic performance.

In music performance research, increasing attention has been paid to music performance anxiety⁴, attentional focus, and self-regulated learning⁵. Yet, within vocal pedagogy, mental training is often addressed fragmentarily rather than as a coherent curriculum.

This article proposes a comprehensive, structured mental training framework for professional opera singers, aligned with three fundamental phases of artistic activity:

- study and preparation;
- stage performance and evaluative contexts;
- post-performance recalibration and career longevity.

This paper will aim to define in a succinct synthesis, the various directions and perspectives of mental training, with practical application in the life of a professional opera singer. The structure of the information resonates with the pedagogical paradigm “Learning – Unlearning – Relearning,” emphasizing continuous cognitive flexibility and artistic evolution.

1. Mental Training in Study and Preparation

This chapter addresses practical aspects related to mental planning and time management; but also procedures related to body-mind-voice integration during individual study; phrasing, structure and interpretative intention; meta-concentration and cognitive self-regulation; multidimensional musical memory; advanced mental representation (mental imagery).

1.1. Practical aspects related to mental planning for vocal study and self-regulation

- Self-regulation, place an important role in musical learning and performance. Self-regulation refers to the ability to monitor and control one's thoughts, emotions and behaviors in pursuit, a specific goal in music, education. For opera singers' self-regulation is particularly

⁴ Kenny, Dianna, *The psychology of music performance anxiety*. Oxford University Press, 2011.

⁵ McPherson, G. E., & Zimmerman, B. J., *Self-regulation of musical learning*, 2011.

important because vocal training requires long-term development and careful management of vocal health. Self-regulated learning involves processes such as planning, practice sessions, monitoring, progress, evaluating performance outcomes, adjusting strategies when difficulties arise. Highly successful musicians are able to maintain focus during practice, set realistic goals, and use feedback effectively to improve performance. According to Garry McPherson and Barry Zimmerman⁶ self-regulated learning involves three cyclical phases: forethought, performance control, and self-reflection. Such structuring reduces diffuse repetition and enhances neural consolidation. Advanced musicians display higher metacognitive awareness and goal specificity compared to novices.

- Planning the time dedicated to study (Time Management), as well as clear objectives for each individual musical score, in a structured set of objectives. This can include long-term goals (career, repertoire); daily training goals; performance goals (concert, competition).
- Reducing external interference in mental concentration during study
- Flexible training, using techniques such as “random start practice”, “reverse practice”, “emotional mapping”, “silent singing”, visualization and performance simulation.
- Another essential principle in mental training is alternating between “practice mode” and “performance mode”: practice (analysis and corrections) and then play non-stop (like in a concert).
- Self-monitoring and self-evaluation by regularly listening to personal recordings during individual study/or rehearsals with accompaniment, can lead to more accuracy of the emission (intonation), improvement of melodic-rhythmic correctness, clarity of articulation and correctness of diction, or more effective realization of interpretative intentions. However, there is a danger that through repeated auditions we get used to much to our own voice and even to our own mistakes (in sound emission etc.). That is why external control by a teacher or a college, who can give more objective feedback, is periodically necessary. The goal is to develop a critical and analytical sense, but also to notice the positive things achieved, for a balance in perception and also to maintain optimal motivation for work.
- Finding anchors and support points when you reach an impasse during your studies or when you face a vocal impasse. Advice from a good singing teacher can help a lot even for a singer who is already launched in his career. Also, collaborative learning with other singers can

⁶ McPherson, G. E., & Zimmerman, B. J., *Self-regulation of musical learning*, 2011.

bring multiple benefits. Collaborative learning⁷ allows singers to listen to each other, collaborate and solve complicated problems together, improve their understanding of the subject, exchange information, give each other feedback⁸ regularly, and develop a sense of collaboration, responsibility, and mutual support.

- International exposure through vocal master classes and interactions with various artists, is very effective in keeping alive the curiosity and desire to explore and experiment with new vocal techniques, new perspectives in interpretation. Also to identify artistic values and the technical and interpretative rigors of today's artistic world.
- A good balance between practice and mental-training: unlike regular practice, where intense physical repetition prevails, elite musicians use 30–40% mental practice and 60–70% physical practice in their study. This reduces physical fatigue, improves emotional control, increases memory accuracy, and refines their interpretation. In the last few days before the concert, they recommend reducing physical training and increasing mental training, because the technique is already stable, and the brain needs consolidation, not mechanical repetition.
- A flexible memory: Before the recital, the musician should be able to go through the piece completely in his mind; start the piece from any point; play the entire piece without stopping.
- Preventing artistic burnout: dosing effort in study and artistic practice, from micro-perspective (dosing effort within the musical phrase or within an aria) to macro-perspective (dosing energy within a recital/performance).

Exercises

For beginners, short daily routines (5–10 min) in which can be alternate strictly vocal study with various tasks such as text analysis or translation, then increase the time allocated, to practice long-term concentration.

For more advanced singers, a work session could look like this:

Phase 1 – Forethought

- Define a technical micro-goal (for example: stabilizing passaggio coordination).

⁷ Simion, Anca, *Transferability In Music Education: From Practice Routines To Performance-Based Learning and Evaluation Across Disciplines*, STUDIA UBB MUSICA, LXX, 2, 2025, p.187-188.

⁸ "This instant and continuous feedback in rehearsals is critical for their progress; enables [singers] to make modifications in real time, resulting in faster development and a deeper grasp of the content." (Simion, A, *op.cit.*, p.188)

- Define an expressive goal (for example: clarifying dramatic intention of one phrase).
- Visualize successful execution.

Phase 2 – Performance control

- Alternate between isolated technical work and contextual musical integration.
- Apply distributed attention: respiration, alignment, resonance, articulation.

Phase 3 – Reflection

- Identify the effective elements who led to the successful completion of the proposed tasks
- Identify two aspects requiring recalibration.
- Formulate next-session priority.

1.2. Integration of Body-Mind-Voice

Opera singing requires precise neuromuscular coordination, autonomic regulation, and emotional expressivity. The opera singer must develop multitasking skills: sound control and synchronization of the various physical and mental parameters that work simultaneously in singing (from breathing control and sound emission, to stage movement and complex interpretative mental strategies or effort dosing).

- Respiratory regulation influences relaxation and emotional stability.
- Self-exploration and a high degree of awareness⁹ in listening the subtle body signals or spotting mental blockages.
- Sleep discipline used, especially to achieve performance in memorization or to improve mental concentration during study, and also mandatory on the nights before important performances.
- Using somatic training methods for musicians, known for their benefits, such as reducing body tension and anxiety, like Alexander Technique (the method developed by F.M. Alexander, used worldwide for over

⁹ "Awareness and mindfulness is needed in individual practice, monitoring bodily sensations and recognizing markers that indicate possible vocal excesses or technical errors, which can damage the vocal instrument over time. These markers can be pain or tension felt in the throat; any discomfort in the larynx; vocal fatigue; hoarseness; tightness in the cervical area/ shoulders/ lips/ jaw/ or tongue; overventilation; abundant secretions that "parasitize" the sound; hissing voice; capretto (trembling voice)". (Radu Cristina, *Exploring Learning and Unlearning (II): Effective Study Methods for the Individual Practice of Professional Singers*, Studia Universitatis Babes-Bolyai Musica, 70(1), 2025, p..137)

100 years and taught today in major conservatories) or Dyspokinesia (a postural and movement therapy developed specifically for musicians, designed by G.O. van de Klashorst).

1.3. Phrasing, structure and interpretive intention

The opera singer assimilates a role from multiple perspectives: musical, text (libretto), acting. His study involves extensive documentation, but also:

- Advanced methods of analysis of musical and literary text, structure of the work;
- Hierarchy of musical information (primary vs. secondary) – decisions with direct impact on phrasing and interpretation;
- Explicit interpretative decisions (what, why, how);
- Subjective control of time (mental rubato, internal breathing);
- Long-term emotional coherence (arias, lieder, roles);
- Synchronization of information in the act of singing: text with rhythm and melody (in tempo) + stage movement and acting intentions (director's instructions).

1.4. Meta-attention and Cognitive Flexibility

Professional singers must alternate, in their practice, between micro-focus (intonation accuracy, diction precision) and macro-structure (dramatic arc, harmonic direction), building bridges between knowledge and practice. This attentional flexibility parallel's executive function shifting studied in cognitive psychology. Metacognitive strategies include the cultivation of attention and focus of the mind in the learning processes, to obtain high-performance results. Aspects to integrate into the mental training of singers:

- Identified the optimal moments for internal focus versus external focus: Gabriele Wulf in "*Attentional focus and motor learning: a review of 15 years*" conclude that external focus produces better performance than internal focus. Although her study is dedicated to movement and sport training, the article makes important contributions regarding external versus internal focus of attention, which can also be used in the practice of singing athletes (opera singers). When you focus on the body (internal focus) you consciously interfere with automatic processes; but when you focus on the result (external focus), the motor system seems to self-regulate more effectively. For beginner singers, internal focus (on the processes of vocal emission, correct

postures, mouth opening, tongue position, lips, etc.) is very useful, but for a more advanced singer, who has already formed correct singing reflexes, the attention is more on the result of singing, his focus is more external.

- Switching focus (zoom in / zoom out): from technical detail to expressive intention; constantly keeping in mind the attention to detail (decomposition and resolution of difficult musical passages) correlated with the overall picture of the phrase as a whole or the macro-structure of the work to which each phrase/section relates.
- The ability to identify and apply in the score various melodic-rhythmic patterns. According to Dunlosky et al, “the application of knowledge in different situations is indicative of its versatility, which is defined by its ability to be retrieved from the original learning context and utilized in a variety of settings”¹⁰.
- Maintaining attention under stress and fatigue (long rehearsals, tournaments).
- Recognizing internal distractions (self-criticism, anticipation of error).

Zoom Exercise (repeated alternation enhances neural adaptability and reduces rigidity):

- Sing focusing exclusively on articulation clarity.
- Repeat focusing solely on emotional narrative.
- Integrate both layers.

1.5. Multidimensional Musical Memory

Opera is the most complex artistic genre that brings together all the arts: music, literature, painting, dance, acting. Given the complexity of the genre, the opera singer is forced to exercise his memory in multiple ways. Singers must memorize large amounts of musical and textual material often in multiple languages and reproduce this information accurately during performance. They also must memorize stage movement, posture, gestures and relationships with other characters - everything related to acting. In his book, *Musical excellence* (2004)¹¹, Aaron Williamon identifies multiple memory systems in musical performance:

¹⁰ Dunlosky, John, Katherine A. Rawson, Elizabeth J. Marsh, Mitchell J. Nathan, and Daniel T. Willingham, *Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology*, Psychological Science in the Public Interest 14, no. 1 (2013)

¹¹ Williamon, Aaron, *Musical excellence. Strategies and Techniques to Enhance Performance*, Oxford: Oxford University Press, 2004.

- Structural memory (form and architecture)
- Harmonic-functional memory
- Semantic-textual memory (meaning, subtext, dramatic arc)
- Motor memory (conscious, not automatic pilot)

An extremely interesting aspect, confirmed by functional imaging studies¹² is that mental rehearsal activates motor planning regions comparable to physical practice. Mental training for singers uses these types of memory, as well as anti-blackout strategies, such as:

- Backward chaining memorization.
- Identify harmonic anchor points.
- Silent mental rehearsal before sleep.

To consolidate memory, a piece can be learned in different mental representations: through internal hearing (the musician hears entirety piece in his mind, without playing it); through structural mapping (instead of memorizing only sequences or musical phrases, singer creates an architectural map of the piece, analysis of the form); through motor imagery (kinesthetic simulation: mental representation of the complete sensations during the performance of the piece, breathing, movements of the musical phrase) and, finally, through interpretive simulation (the singer imagines the concert hall, the audience, the psychological pressure, the moment of entering the stage... then mentally “sings” the piece in concert conditions, creating a neurological familiarity with the interpretive situation). Thus, top professional musicians use 4-5 memory systems simultaneously: motor, auditory, visual (score), structural and emotional. A piece memorized in different cognitive systems has more chances of being accessed: if one system fails on stage, the others can take over.

1.6. Mental Imagery and Artistic Imagination

Advanced mental imagery is often underexploited in singers' practice. Mental imagery is related to the process of visualization and imagination training; it is one of the most effective mental training techniques. In music performance research, mental imaginary refers to the ability to create sensory experiences in the mind, without external stimuli. In the context of musical performance, we can study a lot with our imagination: we can involve hearing the music internally, visually using stage movements, imagining vocal sensations, mentally repeating musical phrases.

¹² Lotzer, Martin; Scheler, Gabriela; H-RM Tan; Braun, Christoph; Birbaumer, N, *The musician's brain: Functional imaging of amateurs and professionals during performance and imagery*, Journal of Cognitive Neuroscience, 15(3), 2003.

In addition to developing improvisational and creative skills¹³, mental imagery can increase motor precision and can also anticipate and reduce the intensity in moments when the singer's stress and anxiety can increase significantly (exposure on stage during concerts, various accidents or unforeseen situations that may occur during performances). It may be achieved by:

- Hearing clearly inside a representation of the ideal sound, before the vocal emission (inner hearing).
- Kinesthetic visualization (the bodily sensation of the phrase).
- Mental simulations of the concert or an Opera performance (complete script, including unpredictable).
- Mental rehearsal without voice (to protect the voice after intensive sessions of study).
- Detailed visualization of an opera character (exercises to visualize the character in the smallest details related to his physical appearance, movement, gestures and facial expressions, as well as psychological characteristics and also imagining optimal vocality).
- Using mental images¹⁴ is an invaluable aid in representing one's own voice and sound emission (speed and direction of sound, plasticity of the air column, resonance space).
- Imagination training: The analytical process described above (under the section "Phrasing, structure and interpretative intention") is only half the way to discover the world of music, or of an operatic role. I have detailed this elaborate process of documentation and analysis in my previous article¹⁵. The other part of the study, much more exciting and complex, is to recreate the whole, with your imagination, visualizing and making precious connections. Mental rehearsal can improve memory,

¹³ "Improvisation and creativity activities foster creative thinking and problem-solving abilities, which are transferable to various fields of study and life." (Simion, A, *op.cit*, p.187)

¹⁴ The "images" or mental representations that the singer works with in vocal emission are the "visual" (imaginary) support both for representation or dramatic actions and the meaning of the text (reflected in singing through the colors of the voice, in the expressiveness of the articulation of words, of breathing and dynamics of the phrase), as well as for the process of plastic emission of the sounds. Since the voice is an "invisible" instrument, the bodily sensations and the imagination of the singer projected into breathing and in the emission of the sound are among his only concrete means of work. Among the mental images in singing technique I would name: the visualization of the continuity of sound energy and the spectrum of harmonics of a voice, the malleability of the forms through which the air column can be modeled in the emission of different vowels (Radu, Cristina, *O viziune modernă asupra formării cântărețului de operă* (A modern perspective on opera singer training) Ed. Muzicală, București, 2017, p.262-263)

¹⁵ Radu, C., *Exploring Learning and Unlearning (II): Effective Study Methods for the Individual Practice of Professional Singers*, *op.cit*, p.135-137.

technical accuracy, and expressive interpretation. Imagination gives real depth to your study. You have to reconstruct the structure and meaning of a musical work with your imagination, test multiple possibilities, configure different modes of interpretation. In imagination training we generally use procedures such as visualization, mental imagery, transferability¹⁶, metaphorical teaching¹⁷, contextual integration¹⁸.

Exercise of full scenic performance simulation

- Visualize entrance, conductor interaction, acoustic environment.
- Imagine the costume, the stage movement and interaction with other characters.
- Imagine unexpected disruptions.
- Mentally rehearse recovery.

2. Mental Skills in Singing Performance

Mental training for participating as a soloist in an opera or concert performance focuses on aspects related to emotional management, performance psychology, mental and physical endurance, maintaining attention and recovering in an optimal time after possible critical situations, as well as specific rituals that prepare the singer for the day of the performance.

2.1. Emotional management and performance psychology

One of the most widely studied psychological phenomena in music performance is Music Performances Anxiety (MPA). MPA is defined as a specific form of anxiety associated with artistic performance, characterized by symptoms: cognitive (feelings of tension, intrusive negative thoughts, fear, worry, catastrophic thoughts, depressive or panic states, reduced concentration),

¹⁶ "Transfer is the process of adapting one's knowledge and abilities to new environments, which is a key goal of education". (Simion, Anca, *op.cit*, p.179)

¹⁷ "In the context of education, metaphorical teaching can be defined as the process of elucidating complex or abstract concepts through the utilization of relatable images, narratives, or analogies." (Simion, A, *op.cit*, p.179)

¹⁸ "The concept of *contextual integration* in education can be defined as the process of teaching content by establishing connections with real-world examples, students' experiences, or other subjects. To illustrate this point, in the context of science education, students could be encouraged to compose poems about nature in language arts or calculate plant growth rates in maths. The objective is to design experiential learning opportunities that facilitate the establishment of connections between subjects, thereby ensuring that the educational content is firmly rooted in real-life scenarios." (Simion, A, *op.cit*, p.180)

physiological (increased heart rate (tachycardia), muscle tension, dry mouth, breathing irregularities, tremor, sweating, stomach pain), or behavioral (avoidance, social phobia, nervousness, decreased motor control). For singers, these symptoms can directly affect vocal production, because singing requires precise coordination of respiratory, laryngeal and articulatory systems. Numerous musicians who have achieved international lyrical careers have spoken in interviews¹⁹ or autobiographical books about stage fright and its potentially destructive force. In managing stage fright, it is necessary for a singer to recognize and normalize stage fright symptoms, to differentiate between anxiety as a paralyzing emotion and the opportunity for “activation” by transforming anxiety into functional energy. The Yerkes-Dodson law²⁰ describes an inverted-U relationship between arousal and performance. Moderate activation enhances focus; excessive anxiety impairs coordination.

In her book, *The Psychology of Music Performance Anxiety*, Dianna T. Kenny²¹ synthesizes evidence supporting cognitive-behavioral interventions and exposure-based strategies for musicians. Successful performers have developed strategies for regulating emotional responses during performance. These strategies often involve cognitive techniques that help performance maintain focus and composure under pressure. Mental training techniques, such as relaxation exercise, cognitive restructuring, and visualization, have been

¹⁹ The Romanian tenor with the most performances at the Metropolitan Opera in New York, Vasile Moldoveanu, honestly stated in an interview: “Knowing that I am excessively emotional, and having left Romania with weakened nerves [during the communist regime], in the career that I have managed to build, self-control has played a very important role. Emotion is constructive only if it does not have destructive repercussions on the psyche, lowering you below your maximum level, your artistic achievement.” (Diaconescu, Ioana, *Vasile Moldoveanu un tenor român pe patru continente. Pasiune și credință*, Editura Muzicală, București 2011, p.44)

²⁰ The Yerkes–Dodson law is a principle in psychology that states that performance on a task depends on the level of psychological or physiological activation (excitement, stress, arousal). The relationship between the two variables has the shape of an inverted U-curve: too low activation leads to poor performance; moderate activation leads to optimal performance; and too high activation to decreasing performance (too strong stimuli cause stress reactions that slow down learning). The concept was formulated by American psychologists Robert M. Yerkes and John Dillingham Dodson in a study published in 1908 “*The relation of strength of stimulus to rapidity of habit formation*”, 1908), in which the two investigated how the intensity of stimuli influences learning in animals. Their final conclusion was that performance is maximal at moderate levels of activation.

²¹ Dianna Kenny's book “*The Psychology of Music Performance Anxiety*” (Oxford University Press, 2011) is divided into 10 chapters: 1. Phenomenology of music performance anxiety; 2. Conceptual framework; 3. The anxiety disorders; 4. Defining music performance anxiety; 5. Epidemiology of music performance anxiety; 6. Theoretical contributions to understanding music performance anxiety; 7. Treatment; 8. Severe music performance anxiety: phenomenology and theorizing; 9. Common themes in the lives of performing musicians; 10. Prevention and pedagogy.

shown to reduce performance anxiety and improve performance, confidence among musicians.

Performance psychology is an interdisciplinary field that studies the psychological factors that influence optimal performance in evaluation or competition situations. The field analyzes how cognitive, emotional and behavioral processes influence results in contexts such as: sports, music and performing arts, education, high-pressure professional activities (medicine, aviation). The main goal is to understand and optimize human performance in pressure situations. In Music Psychology, the field studies aspects such as: Music Performance Anxiety, mental preparation for concerts, memorization and execution under pressure.

In addition to cognitive demands, Opera singers must also manage intense, emotional experiences: Opera performance often involves dramatic storytelling, and the expression of powerful emotions – and at the same time singers must maintain technical control of breathing foundation and resonance. This dual requirement creates a unique psychological challenge: performers must express emotions authentically without allowing those emotions to disrupt vocal control.

A cognitive reframing exercise: instead of “I am anxious,” reframe as: “This activation prepares my body for optimal performance.”

2.2. Pre-Performance Rituals

Pre-Performance Rituals are habits that can lead to performance, through constant practice. Consistent rituals enhance perceived control and reduce uncertainty; they can reinforce neural predictability. I talked about this in more detail in my book²². They consist in small habits such:

- organizing the preparation time for a show (with the understanding of the need to alternate study with breaks related to the “assimilation period”²³);
- establishing the clear schedule of the performance day;
- physical rituals (related to rest, nutrition and training on the day of the competition/ concert, as well as the assumption of silence).

²² Radu, Cristina, *O viziune modernă asupra formării cântărețului de operă*, op.cit., p. 319-322.

²³ “The body, mind, muscles, need a break after a sustained effort, to process and assimilate information. Just as during the night while we sleep, the brain defragments all the information received during the day, selects, sorts and sends each one to its “little house” - similarly, such a process is necessary after our mind and body have studied the new repertoire, worked out down to the smallest details, for several weeks. A period of a few days of break is precisely optimal to let this repertoire be assimilated more deeply. It is also a moment of *refresh* after which all the details will fit better into the *puzzle*.” (Radu, op.cit, p.319)

Psychic preparation rituals (remembering the motivation that gives meaning to the artistic act, activating the resources of calm and lucidity, the moment of concentration²⁴ preceding entering the stage, visualization and breathing control).

Exercise: Five-Minute Protocol before entering the stage

- Regulated breathing.
- Visualization of first successful phrase.
- Brief affirmation (“Centered and flexible”).
- Physical anchor gesture.

2.3. Endurance and Attention in Long Performances

Mental endurance and stage flexibility are two key aspects for professionals. Opera requires sustained cognitive endurance. Mental fatigue compromises pitch accuracy and expressive nuance. To sustain endurance and focus a singer must:

- Calculate dosages of effort during a long performance (this depends on a good knowledge of the opera, but also on knowledge of one's own physical and mental capabilities)
- Do micro-resets between acts (hydration, diaphragmatic breathing, brief grounding) maintain performance stability. The goal is to maintain quality under cumulative stress and physical endurance throughout a long opera performance.

2.4. Critical Incident Recovery

Stage performance includes unpredictable variables. Critical situations can occur at any time during a live performance: from vocal technique errors to forgetting the text (words) or events that can distract your focus (another soloist forgets a key line; a decor element or a stage props is missing, etc.).

²⁴ “I believe that it is useful that before entering the stage (in a concert/show/contest/audition) each artist has a moment of concentration within themselves. A moment in which to deepen and slow down the breathing rhythm, to sing in their mind the entire piece they will begin with (imagining all the sensations of breathing support and the setting of the sound, but also the details of mimicry and stage acting, as if they were singing the piece in front of the audience) and especially to create an optimal inner state to enter the stage: with a positive, confident, secure, elegant feeling and especially with... joy! Joy restores the release, disperses the negative emotions of the artist and the adverse ones of the audience or jury. A bright face, with a dignified and casual attitude will be a good business-card when entering the stage for any artist. And it is good not to forget, even in the most stressful moments, *why* they do music, art, this job... because it brings us and those we share it with, joy.” (Radu, *op.cit.*, p. 321)

The goal of mental training is to recover as quickly as possible from the critical incident and to go forward by refocusing your attention, or by vocal recalibration (after various emission errors), or by retrieving landmarks from memory (after losing the text).

In real time, on stage, recovery after the incident is done by:

- Instant acknowledgment.
- Prolonged exhalation (if there is time).
- Refocusing attention through structural re-anchoring in score.
- Real-time, panic-free decisions for rapid recovery.
- Sometimes even through controlled improvisation within stylistic limits.

Procedures used as mental training to prevent critical situations in the performance:

- Visualization (previewing possible situations).
- Practicing with deliberate mistakes and recovering in the next musical measure.
- Mental openness to adapt to non-ideal conditions that may occur in performances or artistic tours (poor acoustics of the hall, conflicts with conductor/stage colleagues; lack of props or various stage accidents).
- Concern for the dosage of effort intensity during the performance.

2.5. Flow state

Another important concept in performance psychology is *the flow state*²⁵ which refers to a state of deep concentration and complete absorption in an activity.

Flow is characterized by intense focus, loss of self-consciousness, a sense of control, enjoyment of the activity. The flow state is associated with optimal, performance conditions, and high level of artistic expression.

For opera singers, entering flow can be described as a state that could allow them to fully embody characters while maintaining technical vocal stability. Entering the state of “flow” is trained through a short protocol, sometimes called the Focus-Breath-Intention loop²⁶. The goal is to quickly shift from excessive cognitive control to intuitive execution, which allows performance to become natural and expressive.

²⁵ Concept formulated by Hungarian psychologist Mihaly Csikszentmihalyi in the book “Flow: The Psychology of Optimal Experience” (1990)

²⁶ In practical procedures in elite conservatories such as the Royal College of Music, London.

Mental training can help performers increase the likelihood of experiencing flow by improving concentration, reducing anxiety, and promoting confidence.

3. Post-Performance Recalibration

In the training of an artist, the emphasis is generally placed on his mental training in order to achieve a high degree of professionalism in his career. However, it is also important to follow the processes after the end of a concert or a show. Aspects such as: getting out of character after the end of the show, when identification with a role in an opera performance is very intense; separating personal identity from the result; a balanced relationship with criticism and feedback; cultivating internal motivation and a mentality oriented towards continuous artistic growth and development.

3.1. Psychological de-roling

The opera singer spends a lot of time understanding a new role. This process is extremely detailed and meticulously documented by a singer, especially when it comes to transposing it into a character that comes from a completely different culture. Such as, for example, the challenge of embodying the role of the Japanese geisha Cio-Cio-San, in the opera “Madama Butterfly” by G. Puccini, for a soprano coming from a Western culture.

But it is equally difficult sometime to exit, at the end of a performance, from a high-intensity role that you have interpreted. Emotionally intense roles may prolong sympathetic activation. Failure to de-role may contribute to insomnia or emotional dysregulation.

Italian soprano Renata Scotto confesses in an interview, about the tragic ending of a performance of “Madama Butterfly”, after Cio-Cio-San commits suicide: “it is a great emotional ordeal. I found it very difficult actually getting up at the end to take the curtain call. I remember once at the Metropolitan Opera I felt completely unable to get up. Rudolf Bing, who loved that opera so much – he thought I was really dead because I just could not get up. So he came and helped me to get up. “Are you OK?” he asked me. “Yes, I’m OK now – but I wasn’t OK five seconds ago” – because you don’t leave the character when the curtain comes down! I would have preferred not to go out for applause and just go home, because you have something that stays inside for at least 30 minutes.”²⁷

²⁷ Tolansky, Jon, *Singers on Singing: Signature Role series – Renata Scotto discusses Madama Butterfly*, Interview with Italian soprano Renata Scotto, Hampsong Foundation, May 2018.

Exiting a role, especially one of great emotional intensity, is an act of psychic hygiene that the professional singer goes through, more or less consciously, after a performance, as he removes his makeup and takes off his stage costumes. However, there is no fixed limit that marks the exit from the role, with some singers experiencing insomnia and states of emotional arousal long after the curtain falls.

3.2. Identity & Balanced relationship with criticism and feedback

Separating self-worth from outcome prevents identity fusion with performance result. It is necessary for the opera singer to develop a balanced relationship with criticism and feedback. This aspect can be difficult to control, because the singer's instrument (voice) is not detached from the body and the personality of the performer. It coincides with his own body and his own physical and psychological abilities. Any criticism is received directly and personally by the singer, and only training of the artist's discernment can balance his perception, in order to receive feedback in a constructive way.

3.3. Growth Mindset and Professional Longevity

Learning is a fundamental psychological need of every human being. For an artist, it is necessary to maintain a "lifelong work in progress" mentality and, regardless of the success achieved on stage, to constantly return to training and study. In order to create a solid internal motivation in this regard, the singer must anchor himself in deep values, which give meaning and purpose to his actions. A singer's motivation to continue studying and developing is fueled by the passion for singing, the desire to overcome certain limits, the desire to assert himself, the desire to communicate a message, the desire to evolve, to share in communion with the audience the values in which he believes, the desire to educate²⁸.

Artistic longevity requires embracing continuous evolution rather than outcome fixation.

In an interview²⁹, the famous Italian conductor Nelo Santi stated: "I was fortunate to learn from my own mistakes in life and to understand that my natural talent and even the memory with which I was endowed can become obstacles to my artistic development. If we rely only on them, we soon become improvisers and charlatans. Native talent must always be seconded and

²⁸ Radu, op.cit, p. 231.

²⁹ Paulo Isotta, Nello Santi: Il mio Verdi lontano dall'Italia, Corriere della Sera, 18/10/2001

doubled by study. Thanks to this unity between talent and study, I can be sure of myself when I am on the concert podium and I can, in turn, inspire security to the orchestra and calm to the soloists.”

Unlearning Tasks

The LUR model³⁰, Learning (acquiring knowledge) - Unlearning (eliminating old paradigms or wrong methods) - Relearning (updating knowledge) is considered essential for lifelong learning. This model enables learning in a completely holistic way, exposing individuals to new techniques, activities, and skills³¹.

But in the modern environment (technology, organizations, education, art performances), the problem is not only the accumulation of information, but also the abandonment of outdated ones. People develop stereotypes, erroneous beliefs, rigid mental models over time. Unlearning is important for adapting to change, for correcting cognitive biases, for updating.

Unlearning does not mean just “forgetting”, but the conscious abandonment of old mental models, revising existing assumptions, restructuring existing knowledge and replacing outdated knowledge with new ones. Unlearning involves several cognitive processes:

- Reflective thinking (Critical analysis of existing beliefs).
- Cognitive restructuring (Modification of mental structures).
- Memory reconsolidation (When memories are reactivated, they can be modified).
- Interference learning (New information can replace or inhibit old information).

In singers’ practice, relearning is often generated by constructing new knowledge from the own experience. This step incorporating what has been acquired from the unlearning process³².

Scientific literature shows that mental training contributes to the learning-unlearning process through processes like: neuroplasticity³³ (the brain can rewrite neural connections); mental rehearsal³⁴ (mental practice modifies cognitive representations; mental rehearsal of the score helps with

³⁰ Menya-Olendo, R. A. & Mawang, L., *Learning, Relearning And Unlearning*. In E. O. Adu, B. I. Omodan, C. T. Tsotetsi, & B. Damoah (Eds.), *Pedagogical strategies for 21st-century classrooms* (pp. 106-113)

³¹ Menya-Olendo, R. A. & Mawang, L., *op.cit*, p.107.

³² Menya-Olendo, R. A. & Mawang, L., *op.cit*, p.109.

³³ Slagter, H. A., Davidson, R. J., & Lutz, A., *Mental training as a tool in the neuroscientific study of brain and cognitive plasticity*, *Frontiers in Human Neuroscience*, 5, Article 17, 2011.

³⁴ Driskell, J., Copper, C., & Moran, A., *Does mental practice enhance performance?* *Journal of Applied Psychology*, 79(4), 1994.

music memorization and artistic performance³⁵); extinction learning³⁶ (unlearning automatic responses); cognitive restructuring³⁷ (changing beliefs and mental schemas).

Research shows that unlearning is often more difficult than learning³⁸, because people are attached to their own beliefs and tend to accept only information that confirms existing beliefs. The human brain prefers automatism and low energy consumption (predictability); changing beliefs can create cognitive dissonance.

Few practical advices adapted to singers' mental training:

- Too much control can lead to tension and rigidity. Instead, is preferable a good concentration and constant contact with the body, by supporting the breath and correctly adapting the muscle engagement (in different vocal registers)
- Instead of the common tendency to minimize or maximize the technical difficulty of a passage, it is better to practice a realistic assessment, to outline the structure of a role, being aware of difficult passages and insist on resolving them.
- Artists often struggle with the tendency to give up when things get too technically difficult, but proficiency develops over time, overcoming the moments when you feel like you don't like it anymore and don't want to continue. Constant study with modern methods (see interleaving/flow) can lead to new solutions, which gives them confidence and unlocks their energy and passion for art again.
- Unlearn the habit of constantly resorting to the technical or interpretive solutions of others. Most of the time we are tempted to do research through comparative auditions, to look for references and technical or interpretive solutions in established singers, which is partly good for our documentation, but sometimes leads to a lack of creativity and authenticity. But each artist is different in terms of physical and psychological structure, vocal peculiarities. It is preferable to look for the most suitable solutions for our voice, rather than copying external models indiscriminately.

³⁵ Bernardi, N., Schories, A., Jabusch, H., Colombo, B., & Altenmüller, E., *Mental practice in music memorization: An ecological-empirical study*, Music Perception: an interdisciplinary journal 30 (3), 2013

³⁶ Beltrani, Amanda, *Getting Rid of a Behavior You Don't Like*, Palo Alto University, Business of Practice.

³⁷ Ackerman, E., Nortje, A., *Cognitive Restructuring: The Power of Reframing Thoughts*, Positive Psychology, 2025.

³⁸ Qazi, Naila, *Why Unlearning Is Harder Than Learning*, Change Management Practitioner Canada.

- Eliminate habits that weaken performance or divert concentration, such as sleep deprivation, lack of organization of time, lack of precise goals, or of clear targets for each objective, disorder in breath control or sound emission.
- Unlock your mind flexibility. There are no fixed and definitive solutions. Singers are exposed to a constantly changing artistic environment, different artistic visions (of conductors, directors or other singers) and also to their own daily body changes. They must accept the reality that, under the apparent daily normality, in fact, day by day, the body ages and gradually loses its energy, flexibility and lightness. Subjected to various stressors, the voice responds differently every day. Singers must be open-minded, alert, assume and adapt innovative solutions to maintain their career at certain times.
- In the search for psychological balance, it is necessary for artists to assume a growth mindset versus destructive perfectionism: to set healthy limits for perfectionism. Performance is not an end in itself, but a path of discipline and deepening for those who do something with passion. Using discoveries and in-depth research from Performance Science, which provides a broader view of mental training and optimized study methods, can lead to increased performance.

Conclusions

Opera singers faced unique cognitive, emotional, and physiological challenges that require more than technical vocal training. Similar to elite athletes, opera singers must develop also psychological skills that support consistent high-level performance. These skills include: concentration, emotional regulation, performance confidence, mental imagery, stress management, and cognitive flexibility.

Mental training helps singers not only improve performance quality but also cope with the psychological challenges associated with professional music careers. Basic practices have shown promising results in improving both performance quality and physiological well-being. And through this, mental training can have a major impact on vocal health and longevity.

In this article I presented the theoretical foundations of mental training in the context of opera singing, integrating concepts from psychology, neuroscience, music pedagogy, and performance science. I have structured the information in three chapters, following the progressive stages in which singers are involved in their practice (Study and preparation; Stage performance and evaluative contexts; Post-performance recalibration) and I have suggested some practical

exercises. As in each paper in this series, at the end of this article, I reviewed the principles underlying the “Learning – Unlearning – Relearning” (LUR) process and the specific aspects as reflected in Mental Training.

Integrating mental training into vocal pedagogy may become an essential component of professional singer training. At elite conservatories like the Juilliard School and the Royal College of Music³⁹, mental training for musicians has become a formal component of professional training. The integration of these methods into current pedagogical practice in Romania, but also into the individual study of musicians, could bring important benefits in artistic performance.

Performers make mistakes on stage, but how they react after it, how they recover and how they continue – makes the difference as professionals. The international careers of elite artists, as well as the pedagogical practice in the world’s great music conservatories, the techniques of preparing young people for international competitions, as well as the latest scientific research in Performance Science – all claim that mental study has significant benefits in optimizing stress response, recovering from errors, increasing focus and performance.

For those who embark on the path of singing, the learning process is an ongoing process that lasts a lifetime and brings both artistic skills and self-knowledge.

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³⁹ At the Royal College of Music there is even a Performance Science program (Master of Science in Performance Science + link: <https://www.rcm.ac.uk/courses/postgraduate/msc/>) that scientifically studies artistic performance. It proposes an interdisciplinary working model, combining: cognitive psychology, neuroscience, biomechanics, musical pedagogy. Common techniques used in the program: focus control, attention switching, flow induction, practice design, stress inoculation training. A key concept is “Peak Performance State” (flow): the moment when execution becomes automatic, without excessive cognitive control.

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