INTERNATIONAL
TRUMPET RESEARCH
CENTER

International Trumpet Research Journal

Volume 2, Issue 1
December 2025

From rehabilitation to training: pedagogical applications of the personal process of embouchure rehabilitation in the initial teaching of the trumpet

Alberto Bermell Cunyat

albertoumt@gmail.com

Conservatori Superior de Música "Oscar Esplá" d'Alacant

INTERNATIONAL
TRUMPET RESEARCH
CENTER

From rehabilitation to training: pedagogical applications of the personal process of embouchure rehabilitation in the initial teaching of the trumpet

Alberto Bermell Cunyat
Conservatori Superior de Música "Oscar Esplá" d'Alacant

Abstract

This article analyzes the pedagogical applications derived from a personal process of rehabilitation of the embouchure, developed after a technical dysfunction that seriously affected the author's instrumental practice. The original research, of an autoethnographic nature, made it possible to accurately document the phases of problem recognition, deconstruction of automatisms, motor re-education and sound readaptation. In the present reworking, these phases were reinterpreted as initial teaching tools for the training of young trumpeters.

The work demonstrates that the principles used in recovery - attentive listening, body awareness, use of internal vocalization and working with the mouthpiece - not only serve to repair a damaged embouchure, but also to prevent dysfunctions and promote a healthy relationship between body and sound from the first years of learning. Thus, a pedagogy based on perception, self-regulation and the natural progression of the instrumental gesture is proposed, in line with Jordi Albert's approaches on expert motor practice and internal hearing projection.

Keywords: embouchure, trumpet, autoethnography, musical pedagogy, expert motor practice, self-regulated learning.

Abstract (Spanish)

Este artículo analiza las aplicaciones pedagógicas derivadas de un proceso personal de rehabilitación de la embocadura, desarrollado tras una disfunción técnica que afectó gravemente la práctica instrumental del autor. La investigación original, de carácter autoetnográfico, permitió documentar con precisión las fases de reconocimiento del problema, deconstrucción de automatismos, reeducación motora y readaptación sonora. En la presente reelaboración, dichas fases se reinterpretaron como herramientas didácticas iniciales para la formación de jóvenes trompetistas.

El trabajo demuestra que los principios utilizados en la recuperación —escucha atenta, conciencia corporal, uso de la vocalización interna y trabajo con la boquilla— no solo sirven para reparar una embocadura dañada, sino también para prevenir disfunciones y promover una relación saludable entre cuerpo y sonido desde los primeros años de aprendizaje. Así, se propone una pedagogía basada en la percepción, la autorregulación y la progresión natural del gesto instrumental, en consonancia con los planteamientos de Jordi Albert sobre la práctica motriz experta y la proyección de la audición interna.

Palabras clave: embocadura; trompeta; autoetnografía; pedagogía musical; práctica motriz experta; aprendizaje autorregulado.

Introduction

The practice of the instrument is an area in which the technique and the identity of each person connect in a very deep way. Within the wind-metal family, the embouchure is the most decisive point in this connection: a technical, body and expressive structure that encompasses the interaction between breathing, orofacial musculature, posture and auditory perception.

The original research (Bermell Cunyat, 2025) stems from a real technical crisis: a sudden loss of control over much of the trumpet record. This event generated a fundamental question that questioned where the limits of the technique were and if there was any way to reconstruct it. Through an autoethnographic process, the complete reconstruction of the embouchure was documented, well accompanied by a theoretical framework that includes contributions from physiology, the psychology of interpretation and instrumental pedagogy.

With the passage of weeks, the process ceased to be only a rehabilitation of instrumental technique and began to be a source of pedagogical knowledge. The different strategies used for recovery - such as gesture deconstruction, passive breathing or internal singing - revealed that there was a high quality formative potential. This article seeks to expose that rehabilitation can also be an element of prevention: Many of the mechanisms that help correct the technique can be useful in the first moments of a student to ensure that there is stable practice

This is why the main objective of the current work is to convert the rehabilitation experience into a proposal for the initial teaching of the trumpet, where a first-time student - still free of ineffective automatisms - can develop a healthy, functional, stable and conscious embouchure.

The trumpet embouchure technique is a set of complex factors in which we can find physiological, acoustic, motor and cognitive aspects (Albert, 2017). This is why if you want to study which is the best technique, you need an interdisciplinary work that combines both the biomechanical understanding of the gesture that is performed and the phenomenology of sound perception. In this sense, the theoretical framework on which this article is based is organized around four conceptual axes: the physiology of the embouchure, the notion of automatism and motor relearning, the model of expert motor practice, and the pedagogical dimension derived from conscious self-observation.

Functional physiology and dynamics of the embouchure

One of the many definitions that the concept of embouchure can have is that coordinated system of anatomical structures - fundamentally the orbicular, zygomatic, masseter muscles, the diaphragm, the larynx and the tongue - which combine and interact to generate an initial vibration that gives rise to sound. All this gear operates under a logic of permanent microadjustments, in which small variations in factors such as pressure, humidity or ambient temperature can significantly modify the sound quality (Ericson & Jääskeläinen, 2020).

From the biomechanical point of view, understanding the embouchure as a static element is a mistake, since it is a field of regulated tensions in which two totally opposite forces must be balanced: the muscular containment necessary to sustain vibration and the relaxation essential to allow resonance (Woldendorp et al., 2016).

. Effectiveness in achieving this balance depends on coordination between breathing, airflow, and lip vibration.

The instrumental execution is, in fact, a body in coordinated movement, where neurological, sensorimotor and skeletal muscle aspects of the performer converge (Avella Ramírez, 2016) However, when we move into practice, it is shown that the effectiveness of the process cannot be guaranteed simply by repeating the physical movements that articulate the sound. In most cases, technical errors can occur - excessive tension, sound collapse or loss of flexibility - that do not come from a specific muscle failure, but from a global mismatch of the gesture of both breathing and vibration.

That is why the physiological analysis must be complemented by a perceptual reading of the gesture:the way in which the interpreter feels and anticipates the sound. In the rehabilitation process described by Bermell Cunyat (2025), the re-education of the embouchure has not been focused on strengthening the facial musculature or the mouth, but on a global reconfiguration of the perception of the balance that must exist between the air, the position of the lips that generate vibration and resonance (Clemente et al., 2019)

. Conscious attention to the sensations of air flow and direction and how the lip responded to these changes allowed coordination to be restored in a natural way without any force or tension.

Automation, unlearning and motor relearning

The entire instrumental technique could be understood as a complex system of acquired automatisms. These automatisms are the basis for expert performance, but special care must be taken with erroneous or harmful patterns, as they can become limitations or impediments. In order to rehabilitate the technical aspect, it is necessary to first go through a de-automation: All motor actions that have been consolidated in an inefficient way over time must be deactivated, so that perceptual references can be built again, which this time are healthy.

In the case that this article focuses on, that of the embouchure, the automatisms that are inadequate tend to manifest themselves as accumulated tensions, respiratory maladjustments or muscle blocks in an unconscious way. When some dysfunction appears in the practice of the instrument, voluntary correction at a specific moment is insufficient, since the error is already inscribed in the individual's own motor scheme (Albert, 2017). That is why the only way that is effective is the reprogramming of the gesture taking as a reference the bodily sensations in practice, in this way we allow the nervous system is in charge of reorganizing the coordination patterns that are necessary taking as a reference the new experiences that they are feeling at the body level.

This process coincides with the principles of expert motor practice (EMP), developed by Albert (2017), who states that the interpreter must work on the ability to observe his own action and modify it based on directed attention. The EMP proposes a gesture pedagogy in which mechanical repetition is replaced by the conscious perception of movement, recognizing that sound quality appears with the fine adjustment between internal hearing, physical breathing mechanisms and the effort generated at the muscular level.

Motor relearning, although it may seem contradictory, does not involve adding greater control over the gesture, but seeks to reduce the frequency of factors that interfere with an inefficient practice in order to allow the body to spontaneously and autonomously reorganize internal balances. This idea finds a privileged field of application in instrumental practice. In the context of the trumpet, the objective is to replace the logic that focuses on effort with one that seeks more balance: you do not want to force the sound, you have to let it out of a harmonious relationship between the interior and intentional aspects and the physiological ones.

Expert motor practice as an epistemological model

The concept of expert motor practice, established by Jordi Albert in his doctoral thesis on instrumental learning and everything that encompasses a change of approach, generates a framework of understanding at all levels for any process of technical reconstruction. According to his model, good instrumental performance is built through the integration of three levels: the cognitive (the mental representation of the gesture), the prescriptive (the sensory awareness one has of one's own body) and the motor (The physical execution itself)

Instrumental mastery is achieved when these three levels work in a synchronized manner. Albert calls this situation "availability status". This state does not have to imply any kind of rigidity or passivity, it has to be a procedure that is generated without any kind of friction between thought and action. In pedagogical terms, expert motor practice is totally opposed to teaching based on external sources of information that modify posture and movement. Instead, it proposes learning that is based on self-regulation, in which it is the student who experiences and explores the sensations of his own body when touching, using it as a laboratory of knowledge. This aligns with the notion that the professional must be an agent subject who forges his action through a process of self-interaction and personal reflection, overcoming the technical rationality that reduces practice to the mere application of theories (Sánchez Jerez, 2015).

The rehabilitation of the embouchure analyzed by Bermell Cunyat (2025) can be understood as an empirical application of this model. This process made it possible to verify that restoring the technique does not depend on forced actions or a conscious correction at the time of playing, but on a development of the automatisms that generate attention gesture sensitive. The daily practice, structured in series of different mouthpiece, vocalization and breathing exercises, sought to reinstall confidence at the perceptual level at the time of instrumental practice, allowing the correct automatisms to be consolidated as the natural way of playing.

From this perspective, expert motor practice is configured not only as a technical method, but as a complete knowledge of the musical body. Knowledge is not structured through verbal commands, but in perceptual configurations. The embouchure ceases to be only a set of muscles and becomes understood as a space in which internal hearing, physical breathing mechanisms and the effort generated at the muscular level complement each other.

Attention, perception and conscious self-observation

A central element of the rehabilitation process was the systematic use of care as a tool for transformation. In the pedagogical tradition of wind-metal, attention is usually directed towards the sound result ("that sounds clean", "that the attack does not fail"), while in this model the direction is reversed: the attention is placed on the process and not on the result. Observing the sensation of vibration, the direction of the air or the degree of tension becomes a formative act in itself.

This type of conscious observation, close to the notion of the interpreter as an agent subject who elaborates his action plan through a personal process of reflection and self-interaction (Sánchez Jerez, n.d.), allows the instrumentalist to establish a relationship of dialogue with his own body. Instead of imposing motor commands, the interpreter listens and adjusts. This internal listening generates a more stable learning and less dependent on external correction.

The concept of conscious self-observation is pedagogically translated into concrete strategies applicable to initial teaching: use of mental images of sound, natural breathing exercises, practice with a mouthpiece detached from the instrument and verbalization of sensations before and after playing. These strategies, if applied from the beginning of learning, favor the installation of healthy habits and prevent the appearance of technical defects.

Perception-based pedagogy is not intended to replace traditional teaching, but to put the body back as a primary source of knowledge. The rehabilitation of the embouchure, being a comprehensive relearning experience, shows that the technical problems that may arise are not going to be solved only with information, a reeducation of consciousness at the body level is needed.

Pedagogical and preventive dimension

The theoretical analysis of the rehabilitation process allows to extract direct implications for the teaching of the trumpet in the initial stages. If the errors that later end up generating dysfunctions arise from the premature automation of incorrect gestures, the pedagogical objective must be to avoid their consolidation from the beginning. Instrumental education must be oriented

to the progressive construction of the embouchure, not as a set of rules, but as a guided exploration of the body balance that the student has to find comfortable and natural.

The pedagogical application of these principles is based on three foundations:

1. Body observation: teaching the student to identify sensations of comfort, tension, or flow without labeling them as good or bad.

2. Internal hearing: develop the ability to imagine the sound before producing it, establishing a connection between auditory intention and motor execution.

3. Emotional management: Establishing serenity and curiosity as learning conditions, reducing anxiety associated with error.

With these foundations, the teaching of the embouchure becomes a process of accompaniment at the perceptual level and not of external impositions. The figure of the teacher is redefined as an assistant that facilitates the experience of experiences, that generates contexts where the student can explore and that mediates between the student's body and the instrument itself.

Methodology

This study is part of a qualitative research with an autotenographic and phenomenological character, which aims to understand the technical and perceptual mechanisms involved in the rehabilitation of the embouchure and its subsequent application in the teaching or teaching field. The method used does not seek to have a quantitative record of results, but focuses on extracting what are the pedagogical principles that can be transferred from practical experience and reflective observation.

The research process was carried out by systematically self-observing the interpretative gesture, more specifically the embouchure, during the recovery period at the technical level. This observation was carried out through own and teachers' practice diaries, the analysis of recordings and the contrast with different specialist teachers. This information made it possible to identify which factors had been decisive in the appearance, persistence and resolution of muscle tensions.

Subsequently, the findings were systematized and translated into pedagogical recommendations, with special attention to two areas:

1. The initial construction of the embouchure, understood as a process of sensory exploration rather than as a postural fixation.

2. The prevention of injuries and dysfunctions, through body education, self-regulation and conscious attention to respiratory and vibrational balance.

The procedure for transferring information consisted of extracting the universal principles of an effective gesture from one's own experience - passive breathing, minimum lip pressure, directionality of the air, previous vocalization, internal listening - and formulating them as educational strategies that are applicable in initiation contexts.

This methodology is based on the conviction that rehabilitation processes contain implicit pedagogical knowledge: what can be corrected can also teach how to avoid error. Consequently, this work proposes a preventive pedagogy based on perception, attention and balance, rather than on mere postural or muscular correction.

Results

The analysis of the rehabilitation process made it possible to identify a series of functional and pedagogical principles that could be taught in the initial teaching of the trumpet. These results are not understood as a sequence of technical exercises, but as a series of criteria to be followed to organize learning that favor the development of a balanced embouchure and that prevent the appearance of tensions or other types of dysfunctions in the future.

The embouchure as a dynamic system

The first theoretical result derived from the study consists of the redefinition of the embouchure as a self-regulating dynamic system. Instead of considering it a fixed position or a certain muscle structure, it is understood as a set of relationships between airflow, vibration and resonance.

This way of understanding the embouchure implies that initial learning should not focus on the imitation of external models, since they may not adjust to the personal composition of the student, but should seek the perception of balance. The teacher acts as a mediator between the sound objective that the student has and the bodily experience, guiding the search for a point of stability that is flexible and allows students to adapt to different registers, dynamics and durations.

Attention as a technical construction tool

One of the most relevant findings is the role of conscious attention as a learning and prevention tool. The detailed observation of internal sensations -pressure, flow, resonance, vibration- has been more effective than the more widespread practice of a mechanical repetition when seeking to restructure the incorrect automatisms.

This principle can be translated into children's pedagogy through short exercises that encourage self-hearing and body curiosity, such as natural breathing games, mouthpieceless emission or blowing exercises with variable resistance. The objective is for the student to develop from the beginning a conscious and active perception of their own gesture, avoiding learning by tension or overexertion.

Vocalization as a bridge between internal sound and instrumental gesture

Another significant result is the clear relationship between the voice and the trumpet. To practice this concept it was sought to vocalize "inside the trumpet", for this the sung exercises must be performed with a position very similar to that of the practice if not the same and in this way the same mechanisms are activated or as close as possible to the time of making the instrument sound. The sound must come out of the bell of the instrument, it must not remain in a voice internal or external to the instrument. These exercises, together with the idea of the sound that the student wants to project, help improve the sound quality of the instrument.

From the pedagogical perspective, incorporating vocalization as a didactic resource allows linking the trumpet with the student's bodily expression and innate musicality, generating a sound understanding prior to the technical effort.

Prevention as an essential pedagogical dimension

The study showed that a large number of the problems that end up being solved in the rehabilitation processes in adult trumpeters originate in the first years of study, due to the early installation of automatisms that are inefficient. That is why the knowledge derived from rehabilitation also acquires a preventive value in many cases.

If principles of attention, vocalization, breathing and balance are implemented from elementary education, the risk of muscle injuries and chronic dysfunctions is significantly reduced. This makes it clear that preventive pedagogy is configured as a central objective of current instrumental education: it is not only to teach how to play, but also to preserve the quality, health and integrity of the sound result.

Summary of results

- In summary, the results of the study can be summarized in four fundamental statements:
- The embouchure is conceived as a dynamic equilibrium, not as a static form.
- Mindful attention is the most effective mechanism of technical learning and prevention.
- Vocalization establishes a natural continuity between sound intention and gesture.
- The pedagogy based on perception and exploration prevents the consolidation of errors and favors a sustainable technique.

These results support a comprehensive conception of instrumental learning, in which the technique is built on perception and not against it, and in which prevention is understood as an advanced form of bodily and musical education.

Conclusions

This study has made it possible to establish a direct relationship between the experience of technical rehabilitation and preventive instrumental pedagogy, demonstrating that body recovery processes not only restore functionality, but also provide knowledge applicable to the training of new interpreters.

First, it has been confirmed that the embouchure is a dynamic and self-regulating structure, whose effectiveness depends more on self-perception and self-regulation than on muscle strength. This idea leaves aside the more traditional approach to education at the technical level - focused on postural correction and control - and focuses on a learning model that is based on attention, perception and motor self-regulation.

Secondly, the principles that are extracted from the rehabilitation process -minimum pressure, vocalization, internal listening and muscle balance- are understood as pedagogical criteria that are essential for the construction of the embouchure at the initial levels. Its application from the first steps of instrumental practice allows to establish healthy habits that prevent the appearance of tensions or future functional injuries, thus contributing to an instrumental practice that is sustainable in the long term.

Thirdly, the importance of understanding instrumental education as a complete process in which the body, sound and consciousness create an inseparable unity is highlighted. Technique should not be understood as an end in itself, but as the continuation of one's body perception and musical thinking. Pedagogy should favor sensory exploration, self-listening and active reflection, all factors that generate the student to develop an understanding of both the instrument and the different mechanisms that he is implementing autonomously.

Likewise, the research also shows that there is a clear need for training in the bodily and emotional dimension by music teaching teachers. The instrument teacher can not only transmit technical knowledge, it is necessary to accompany the student in the process of self-knowledge both physically and psychologically and can be a reference person. In this sense, the knowledge they have derived from rehabilitation forms a very valuable resource for the training of teachers capable of identifying these early signs of imbalance and guiding their students on a path of healthy practices for their future.

Finally, the experience analyzed confirms that rehabilitating and teaching share the same objective and start from the same place: both seek to restore the balance between body and sound. The difference is in direction, not in nature. In rehabilitation, what has been lost is rebuilt; in teaching, it is built so that it is not lost.

This work, therefore, proposes a pedagogy of the embouchure based on prevention, awareness and the economy of the gesture, in which the technique arises as a consequence of attentive perception and not as an external imposition. Applying these principles can contribute to a renewal of the teaching of brass instruments, fostering a broader musical culture that values both sound excellence and the physical and emotional sustainability of the performer.

References

Albert Gargallo, J. (2017). Dificultades de aprendizaje de la práctica motriz experta en la trompeta [Tesis doctoral]. Universitat Politècnica de València. https://doi.org/10.4995/Thesis/10251/90538

Bermell Cunyat, A. (2025). La correcció de l'embocadura després d'una lesió: una proposta autoetnogràfica. [Trabajo fin de grado] Conservatori Superior de Música "Oscar Esplà"

Avella Ramírez, N. (2016). Componentes sensorio-motrices en el aprendizaje instrumental. Una mirada a los elementos básicos de la generación y el perfeccionamiento de los esquemas motores, así como sus efectos en el desempeño instrumental. In M. Sánchez Mejía (Comp.), *Música e interdisciplinariedad* (pp. 4 - 11). Universidad Autónoma de Bucaramanga.

Clemente, F. M., Nikolaidis, P. T., & Rosemann, T. (2019). Embouchure activity in trumpeters [Conference paper, Cardiff University]. ORCA - Online Research @ Cardiff. https://orca.cardiff.ac.uk/id/eprint/130619/

Ericson, M., & Jääskeläinen, S. K. (2020). Embouchure muscle activity in student and elite trumpeters. Medical Problems of Performing Artists, 35(1), 27–35. https://doi.org/10.21091/mppa.2020.1004

Sánchez Jerez, E. (2015). La práctica reflexiva, una pedagogía para formar profesionales. Universidad Santo Tomás, Bucaramanga.

Woldendorp, K. H., Boonstra, A. M., Dijkstra, P. U., & Reneman, M. F. (2016). Fundamentals of embouchure in brass players: Towards a definition and clinical guidelines. Journal of Oral Rehabilitation, 44(3), 227–238. https://doi.org/10.1111/joor.12478