



<https://doi.org/10.26520/mcdsare.2018.2.299-304>

MCDSARE: 2018
International Multidisciplinary Scientific Conference on the
Dialogue between Sciences & Arts, Religion & Education

SCIENCE MEETING ART: VOCAL TECHNIQUE AND
SPONTANEITY IN THE CONTEMPORARY ACTING

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Abstract

In the contemporary theater, the actors need to sound as normally and spontaneous as they do in every day conversations. But in order to be heard by the audience in a large theater, they have to acquire voice and speech skills. The search for an equilibrium between technique and emotional freedom is still one of the most important challenges that acting schools are facing. Bridging the creative, imaginative inner self with the skillful outer communicative one requires the most diverse contributions in an interdisciplinary dialogue combining physical disciplines like Alexander Technique or Yoga with the new insights into the working of the mind, the body and the emotions provided by neuroscience. In the effort of shifting the controls from external, physical muscles to internal, emotional impulses I think that the scientific perspective offered by Antonio Damasio can give a great deal of help. The way in which this recent research can provide new approaches of the functioning of the human voice in the theater, a voice that is in direct contact with emotional impulses, is the main interrogation of this article.

Keywords: Science; Art; Vocal Technique; Spontaneity; Contemporary Acting;

1. INTRODUCTION

Research in the vast field of neuroscience has produced over the last twenty years unprecedented advance in the understanding of the functioning of the brain. Part of this research relates to the way emotions and feelings are triggered, to the role they play in decision-making and to the way areas in the brain that we cannot control consciously determine our behavior. The boundaries between psychology and neurology become increasingly permeable, as more and more human behavior finds its explanation in the genetic, physiological or pathological determinations that shape the human brain.

2. THE BODY-MIND CONNECTION: A DOUBLE SENSE HIGHWAY

Psychological realism revolutionized actor's art by emphasizing emotional truth, discovering and assuming the psychological motivation of scenic action, stimulating the spontaneity and emotional freedom of the actor (Stanislavski 2013, pp. 21-4). The emotions, feelings, decisions (rational or not) of the actor and / or the character are the fabric of the actor's art itself. All these concepts, intensely used today, are in the area of influence of recent neuroscience findings. These findings can bring scientific

rigor and consistency to some notions and working methods in the acting pedagogy that still leave much room for subjectivity.

Surprising conclusions can be drawn from the analysis of these discoveries in the perspective of reconsidering the working methods of the theater of representation, which are using the playful impulse of imitation of behaviors and the training of facial or corporal expressiveness to characterize various dramatic or comic typologies, whether we refer to commedia dell'arte (Fo 2009 p.38) or to the heretic Michael Chekhov (Chekhov 1991, pp. 35-41). On the other hand, the pedagogy of voice and speech, can find new methodological approaches by using the evidences provided by the neuroscientific research.

In the following, I will review the main findings and hypotheses provided by neuroscience which may, in my opinion, may have an important impact on the pedagogy of actor's art and the pedagogy of voice and speech.

Professor Antonio Damasio, whose main field is neurobiology, especially the neural systems which support emotion, memory, decision-making, language and consciousness, has proved that emotions play a critical role in high-level cognition (Damasio 2017 p.118). Studying the cases of patients with lesions of specific areas of the brain, Damasio has found scientific evidences of the neurological substrate of feelings.

"Imagine, for example, an individual who, as a result of the damage to an area in the brain, becomes incapable of feeling compassion or embarrassment when it comes to feeling compassion or embarrassment, but he may feel happy, sad or scared absolutely the same as before to establish neurological affection (...). Or imagine an individual who, after suffering the damage of another area of the brain, is unable to feel fear in situations where fear is the right reaction, but he can still feel compassion." (Damasio 2010, p.9)

Starting from the observation and mapping with imaging techniques of anatomy and brain activity, both for patients and for subjects without neurological conditions, Damasio provides a comprehensive understanding of the mind-body relationship. The researcher makes an important distinction between emotions and feelings, emotion being a complex set of neural and chemical responses that create a distinct pattern, responses produced by a normal brain when detecting an emotional stimulus, an object or event, present in reality or in memory. In Damasio's sense, emotions are automatic responses, resulting immediately in a temporary change in the state of the body and the brain structures that map the body. The human brain is genetically programmed to respond to ESAs with some repertoire of actions, but it can also learn to react to new stimuli.

"Emotions play on the body scene. Feelings play on the scene of the mind" affirm Damasio, synthesizing the essential difference between emotions and feelings from the physiological point of view. So feelings are perceptions of changes made to the body by emotions, a mirroring of the bodily state in the brain, and perceptions of thoughts related to these states. According to Damasio, feelings translate into the mind's language the ongoing vital state. So what distinguishes a feeling from any other thought is that their essence consists of thoughts that represent the body involved in a reactive process. If we do not feel a certain bodily condition with certain characteristics associated with pleasure or pain we cannot consider a certain thought as happy or sad. The bodily condition we feel while we have that mind is what gives it the feeling of feeling. More specifically, the cartographic representations of the innumerable aspects of bodily states in sensory regions designed to receive signals from the body are the immediate substrate of feelings.

If the succession EMOTIONAL STIMULUS (real object or recall / thought) - EMOTION (change of bodily states) - FEELING (the perception of the emotional changes) confirms, basically, the fundamental idea of psychological realism that thought is the one that determines the occurrence of emotion (or feelings- in the theater is not used to make the distinction proposed by Damasio), some experiments made by neurologists seem to confirm that the path from the body manifestation to the feelings is also possible.

An experiment on a patient suffering from Parkinson's disease, whose brain was stimulated in a particular area with an electrode, in order to alleviate the symptoms of the disease, revealed, quite accidentally, that the bodily manifestations of a strong emotion (in this case, crying in the roar, triggered by the electrical stimulation of the areas responsible for crying) can in themselves cause the thoughts of

that emotion to emerge, and so the way from the body to the mind is possible(Damasio 2003, p.30) Practically, although the patient had no sad thought in the mind before electrical stimulation, minutes after the crying was triggered by accidental stimulation of the area responsible for the activation of this bodily manifestation, sad, depressing thoughts appeared in his mind. Less than 90 seconds after the current has been interrupted, the patient's behavior returned to normal. The sadness and the crying disappeared as suddenly as they had come.

“The electrical current had not passed through the general motor control structures as it intended, but they had crossed one of the brainstem nuclei controlling certain types of actions. These actions, as a whole, produce the "sadness" emotion. Their repertoire includes movements of the facial muscles, mouth movements, pharynx, larynx and diaphragm necessary for crying, as well as various actions that result in the production of tears ... Thoughts related to emotion only occurred after the emotion was triggered.” The reason why such an event was possible, explains the American neurologist, is that associative learning has established connections between emotions and thoughts through a rich associative network and works in a double sense. Some thoughts evoke certain emotions, and vice versa.

These double-ties have been made even more apparent by a study led by Paul Eckman. Subjects were asked to move certain face muscles in a particular order, so that their expression would become (without subjects realizing) one of happiness, of fear or of sadness (Eckman 1992, pp 36-8). The subjects did not know what kind of expression was on their face. And although initially there was no thought in their minds to trigger the expressed emotion, shortly after they composed that facial expression, the subjects were feeling the feeling that corresponded to that emotion. Actually, with the triggering of parts of the pattern of emotion (under the control of the experimenter and not motivated by the thoughts of the subjects) the corresponding feeling wore triggered too.

3. THEATRICAL AUTHENTICITY AND THE SCIENCE OF FEELING

The experiments described above demonstrate, in my opinion, the validity of some theatrical methods unjustly evicted from the mainstream pedagogy of acting. If the facial expressions or bodily mechanisms can produce real feelings, as demonstrated by these research, the area of actor's creativity can be broadened by free, unbridled exploration of this path (from body to mind / form to content) abandoned by the mainstream pedagogy (of Stanislavskian inspiration) as obsolete. One can, for example, reconsider the Michael Chehov method, which propose the search for a psychological gesture, a body attitude, or a specific motricity and not the psychological reasons as starting point of the actor's work to discover the character.

A remarkable evidence of the validity of Chehov's approach is provided by Damasio's observation on his own behaviour (Damasio 2016, pp.123-5). The American neuroscientist examines a seemingly minor episode. At one point, while working in the lab, he got out of the office, took a few steps, and suddenly for no reason, a certain colleague, Dr. B, came to mind. Reacting mentally the movements that just had made them, Damasio realized that without wanting, he had imitated exactly the way his colleague went. He realized that mental images of the way Dr. B was moving had been made by the image of his own muscles and bones that adopted the exact patterns of movement of colleague B.

“In short, we were going dr. B; I had represented in my mind my animated skeleton (technically, I had generated a somatosensory image), and finally, I was remembering a corresponding visual equivalent for that particular musculoskeletal image, which turned out to be my colleague's.”(2016, p. 123)

Damasio concludes that our connection with others is established not only through visual images, language and logic, but also by something deeper in our body: the actions by which we can mimic the movements of others. We can make translations between four elements: (1) the effective movement, (2) the somatosensory representations of the movement, (3) the visual representations of the movement, and (4) the memory.

“The good actors, of course, use these tools to a great extent, whether conscious or not. The way in which some of the most important of them embodies certain personalities in their creations makes use of this ability to represent others, visual and auditory, and then to give them life in their own body. That

means getting into the character's skin, and when this process is completed with unexpected, invented details, we have a role played brilliantly "(2016, p.124)- Damasio's conclusion is in fact a definition of actor's art in the sense of Michael Chekov's method, being a consistent scientific argument in favor of the validity of his pedagogical approach.

Perhaps one of the most well known problem that every student actor has to overcome is commonly referred to as the "stage fright". This is actually a "fight or flight" response (also called the acute stress response), a complex process involving many systems operating together to help the individual avoid a source of danger. The instant the brain perceives a potential threat, the Sympathetic Nervous System (SNS) is activated, triggering a cascade of electrical, neurochemical and hormonal transmission of information throughout the body, preparing the individual for fighting or fleeing (Siegel 2006, pp. 382-6). The actor is supposed to have free access of his emotions when acting, but the "fight or flight" response is preventing this access because in a life-or-death situation (or one that is perceived, psychologically, with a similar gravity) emotions are potentially deadly indulgences, so the body makes sure to push them down, enabling it to focus on saving itself. The system is set up to react now and feel later, when the individual has time to process these strong emotions. Even more, the response is inhibiting the lacrimal gland (responsible for tear production) and salivation, impairing the actor's physical ability to cry and even to speak properly.

Once the SNS triggers "fight or flight" response, dilating the bronchial passages, arresting peristaltic activity in the bowel etc. the Parasympathetic Nervous System (PNS)-via the motor neurons of the vagus nerve- initiates the work of bringing calm and balance in to the system (calms the heart, it narrows the air passages to prevent over-breathing etc). The vagus nerve emerges from the brainstem and descends downward through the body, penetrating the diaphragm to connect with the Enteric Nervous System. It also controls a few skeletal muscles, such as the pharyngeal constrictors and the muscles of the larynx involved in the voice production. When the vagus nerve is over stimulated, as in prolonged and recurring stress response, it can cause the throat to tighten (restricting breath) and impairing the voice production (Gershon 1998, p.105). The neuroscience is providing us crucial information about the physiological mechanisms involved in the stage fright, helping us to understand much better the physical and emotional state of the student and to find more efficient and appropriate ways to help free the body of tensions and to prevent the emotional and artistic blocking.

Using the evidences provided by the study led by Paul Eckman (1992, pp 36-8) one can approach the mechanisms of laughter and crying with more freedom and confidence. Exercises by which the student actors train to trigger playfully the bodily mechanisms of laughter or crying and the transition from laughter to crying and vice versa can give spectacular results in solving difficult scenic situations and unlocking the emotional energy. When it comes to extreme emotional manifestations, the student often gets stuck, even if he/she has all the well-built psychological motivations (who they are, where they come from, why they do / say what they do / say?). Because crying / laughing out of the blue means to mobilize specific physiological mechanisms (in Damasio's sense, emotions strongly anchored in the body) sometimes artistic imagination is simply not enough to trigger them. The emotional stimulus provided by the imagination is, in some cases not powerful enough to trigger a cascade of complex physiological responses, such as laughter or crying.

From my didactic experience, crying in comic situations is more difficult for the student actors to engage than in tragic or dramatic situations. Probably because the comic situation determines at the conscious level a distancing effect on the character, distance which makes it difficult for the student to fully respond to the emotionally appropriate stimulus proposed by the conscious mind. In such cases, the training of the inverse, body-to-mind path can be a saviour.

The support that this type of training offers is based on the mobilization of areas in the brain that escape volitional control. It seems that responsible for the trigger modulation of laughing and crying mechanisms is the cerebellum. This regulatory actions of the cerebellum are the effect of learning-in the sense of creating links between some social contexts and some profiles and levels of emotional response (Schmahmann J. D.&Pandya D. 1997, pp31-60). So by specific training we can make new connections between social context and emotional response so that the cerebellum is triggering the complex physiological mechanisms involved.

There are many scientific evidences that much of what we learn to do is stored in the brain in the form of reflexive behaviours that, as they are practiced, require the increasingly involvement of the conscious mind. The most common examples are cycling, driving or even speaking. Basically, after sufficient repetition, we have the feeling that the body knows for itself to make these complex actions. This ability to store and learn new behaviours is based on the flexibility of the human brain and on its ability to “engrain patterns on the circuit” (Eagleman 2017, p.97). Another consequence of understanding the ability of the brain to create and access “zombie programs” (2017, p.98) which are vast neural connections that activate automatically is the necessity that any change adopted in speech, after practicing in exercises - in which the conscious part of the mind has a preponderant role-is used in everyday speech, so that the new habits replace in time the existing patterns of neural, vocal and muscular connections with new ones, also automatically responsive. Only after the new habit is consolidated in the everyday speech, it can be used on stage.

4. CONCLUSION

The process of changing one’s habits of speech and freeing the voice means working at a very profound level within the human organism. The way in which an individual use his voice, breath, posture and pronunciation is inextricably linked to his identity and is shaped by his life experiences. When we encourages the making of even small changes in areas as posture and breathing, releasing tension in the neck, jaw or the root of the tongue, the habitual use of the musculature of the face or the pharynx, we are having a direct impact on the student’s most intimate self.

When we work with a young woman who habitually uses a shallow, breathy voice and encourage her to discover and build a more resonant and powerful voice, with deeper harmonics, we are giving her not only access to a richer sound but providing her with an experience that can change her self image and the way she relates to others. So, in order to engage in an everyday use of this new, resonant voice she has to get used first to the feeling of presence and power it gives her.

The fear of being less acceptable to his family or peer group can be an important obstacle for the student in the learning and using accurately and naturally the standard pronunciation. Student actors from Republic Moldova, often told me that they feel rejected or belittled by the peer group or family for trying to speak “different” or “superior”. Every psychological obstacle has to be openly discussed with the student actor (actress) in order to be overcome by him (her) in the everyday speech.

The transition from specific exercises directly to the use of new habits in working at the actor's art workshops, without having a period of stabilizing the new patterns in everyday speech is totally unproductive. After a period of transition, the plasticity of the brain will make the new frequently used neural circuits become stronger and more stable, while the old reflexes will be wiped out of the system, being less and less used. The brain's ability to stabilize the neural circuits often used and to wipe out the unused ones is an adaptation to the need for speed and energy-saving brain functioning, crucial conditions for survival so it’s deeply engraved by the evolution in the human DNA (Eagleman 2018 p.26) .

The brain learns about the new way of being, moving and speaking and forges new neural pathways throughout the brain and central nervous system and their neuromuscular connections to support and facilitate the new body use, as well as dissolving old neural pathways that are now obsolete.

Consequently, if the new habits are not stabilised by the use in the everyday conversations, when the student actor will have to access his sensibility and deep motivations, his sincere self will automatically switch to the old habits of speaking that feels more “real” and truthful.

An increasingly detailed understanding of how the brain works can provide effective learning tools and methods, especially in the area of artistic expression, in which the body-mind relationship is essential.

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