
THE URGE OF BEING

Scuola universitaria professionale della Svizzera italiana

SUPSI

Master of Arts in Artistic Research
Academic Year 2017/2018

Title of the thesis

The Urge of Being

Supervisor
Dr. Gerko Egert

Candidate
Daniela Marcozzi
Bruno-Bauer str. 21
12051 Berlin, Deutschland
daniela.marcozzi@gmail.com

Contents

Ai miei genitori, alla mia famiglia tutta e a Gigi
con puro amore e gratitudine

To Peter Rose
master and friend

Preface

Why this research project? Personal motivations of the candidate

I am a performing artist working in the domain of contemporary theater. Besides my education and work as an artist, I hold a master degree in Environmental Biotechnology and worked as a researcher for two years at the Plant Research International of Wageningen in Holland and at the Humboldt University of Berlin. Although I had a strong interest in the methodologies of scientific research, in 2011 I left this work to dedicate myself professionally to the performing arts.

The curiosity for life science, fascination with experimentation, forming hypotheses, reflection and the search for new things persisted in my way of working, and are some of the strongest elements in my artistic practice. I have been particularly searching for scientific theories and principles that may combine to the emotions, feelings empathy and energy I experience during training.

I was intrigued by studying that the tangible matter of the human being: flesh, muscles, bones and liquids, contain and actually *is* also the intangible aspect of the personality and the expressive poetics. I developed a strong interest in picturing how the spheres of emotivity and spirituality merge into the physical and physiological ones and realised that biology, neurology, physiology and evolution can play a central role in deepening the quality and intensity of the artistic practice.

The journey into this comparative study started with an “encounter” with Candace Pert’s book *Molecules of Emotion*. Based on these studies, I began designing and experimenting exercises and a specific approach that constitute the 2-day workshop called *The Urge of Being*, which was launched for the first time in January 2017 and still running on a regular basis.

Berlin, 31.12.2018

1. Introduction

Grounded on the recent dialogue between Science and Art, this research project aims to investigate the relation between physical theater and recent biological and neuroscientific theories of emotions, feelings and embodiment, such as Biochemistry of Emotions by Candace Pert and the theories of Antonio Damasio. The most influential theatrical approach of *The Urge of Being* is the research of Jerzy Grotowski in the form of the "Plastiques" and "body-voice training". The relation between theatrical practice and life science was developed with the aim to explore the possible effects and advantages that performers can gain both by knowing such theories and by engaging in training inspired by them. This research project is divided in four main phases:

1. Explanation of the design of the workshop
2. Experimentation of the workshop with two target groups
3. Data collection after the workshops (questionnaires, group discussion, interviews)
4. Analysis of the data

The Urge of Being is a 2-day workshop offered to performers, dancers, actors, physical actors, singers, which aims to access the biological core of energy and emotions, channel and express it. It works with movement, voice, text and songs both under the theatrical and scientific points of view. Oral interviews and group discussion with the workshop's participants, written questionnaire, photo and video material constitute the data of this research.

The interdisciplinary approach of *The Urge of Being* aims to let the trainee experience that the artistic expression can be accessed through the dialogue between the tangible and intangible aspects of the human being: biology and art.

To investigate how the training *The Urge of Being* can trigger the creation of a performance, the piece "UMANAMENTE Studio#1: Connection" was presented three times by Marcozzi Contemporary Theater in June 2018, during the Performing Arts Festival Berlin. A group of nine performer very familiar with the training conducted a one-month creative process based on the principles and exercise of the workshop and presented the performance to the audience. Due to the limited space the description of the performance and the results (interviews to spectators and to participants) can't be analysed here,; this material will be considered for future developments of the project.

This thesis is articulated as follow: in the first part of Chapter two, “State of the art”, an overview about the existent studies on the interaction between science and performing arts is offered with the aim to collocate this research project in the right field. In the second part of the same chapter, scientific and theatrical approaches and theories of emotions are explained as the theoretical ground for the workshop. From these reflections in Chapter three the research question and the main hypotheses are articulated. Chapter four illustrates the Methodology of the research project and in Chapter five the workshop *The Urge of Being* is described in details: principles, energetic flow and program. Due to a limited space, only a few exercises are described (additional exercises are described in the Appendix II). In Chapter six, nine groups of results are presented and in detail analyzed; chapter eight follows with a final discussion of the results. A brief description of future developments of the project is presented in Chapter nine.

This written thesis is accompanied by a one-hour documentary film visible at this private link:

https://www.youtube.com/watchv=EgDRl5So8AE&feature=share&fbclid=IwAR14FoO4otVS-qdboY3-fVf9TUXsH389bqhFqN4cO9YbireAJQjtG11qK5A

2. State of the art

2.1. Science and performing arts

‘‘Science and art are interpretative activities - they are both about meaning and they both use models and metaphors to make the invisible visible, to provide some sort of explanation.” (Frazzetto, 2004, 234)

The research project is based on the dialogue between physical theater training and recent scientific discoveries in the field of emotions, feelings, embodiment, and empathy by the immunologist Candace Pert and the psychologist and neurologist Antonio Damasio.

Focusing on the most recent interaction between science and theater Andy Jordan in the first chapter of the book *Consciousness, Theatre, Literature and the Arts*, describes how science has captured the attention of numerous actors, actresses, and directors, and how a new theatre genre emerged: the “Science-in-theater” (pp 1-5) that includes:

> 1) Plays in which science or scientists do not just fulfil a metaphoric function, but in which scientists and science are central, and the scientific facts with the play are correct.
>
> 2) Science plays/performances—expression used by Kirsten Shepherd-Barr and Eva-Sabine Zehelein to indicate plays that "enact complex scientific ideas, such as Heisenberg's uncertainty principle, merging form and content to yield new metaphorical understandings of science.” (See Meyer-Dinkgraefe, 2006).

In these two genres, theater is a divulgation tool to reach the audience and stimulate scientific awareness, curiosity, and critical thinking.

Another possible interaction between science and theater, which is fundable within the field of science education, explains scientific content to students through theatrical actions, animations, performances, and workshops. As carried out in the case study “Students Modelling Molecule Movement Through Science Theater” (Stroupe, 2014), students learned about thermal energy and molecular movement through theatrical activities.

Another notable dialogue between science and performing arts is the use of high-tech devices in performance. One example is the performance “Mai Hi Ten Yu” (Tokyo, 2017) where a type of artificial intelligence by Yamaha translated the movements of the dancer Kaiji Moriyama into musical notes on an automatic piano. “Yamaha believes this performance represents steady progress in the pursuit of new forms of artistic expression and will continue to develop this technology to further expand the possibilities for human

expression. (No author, 2018)

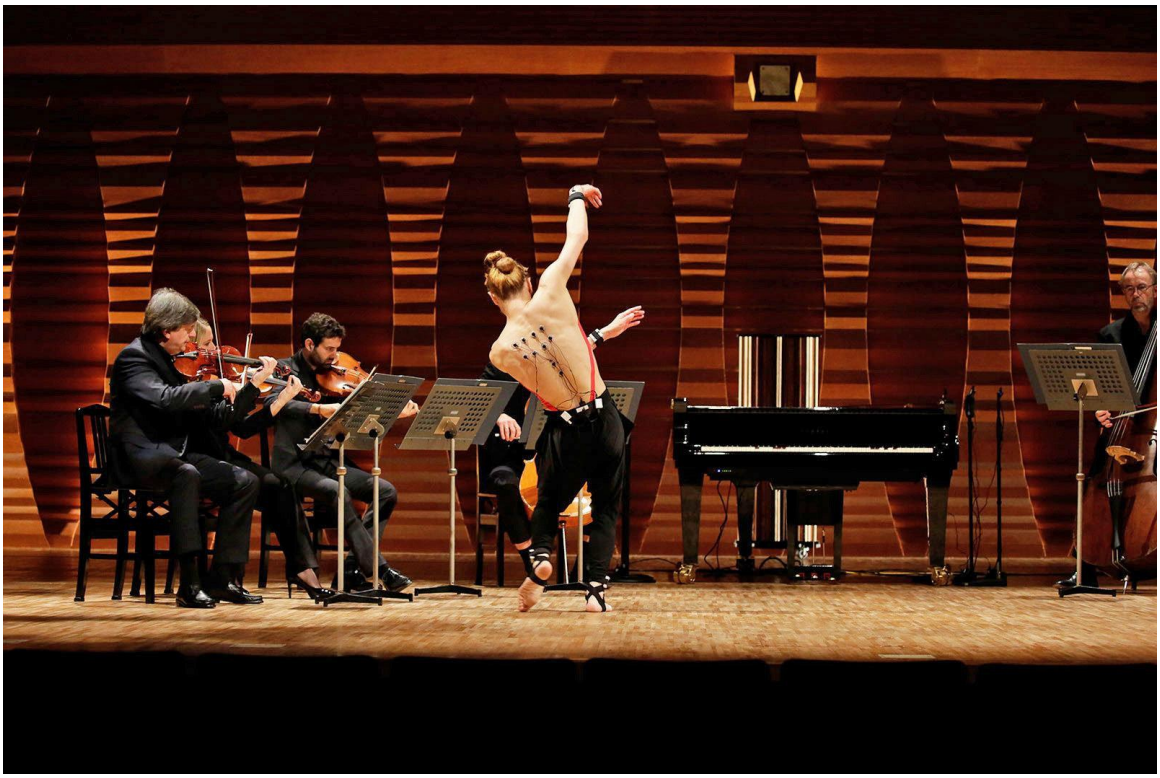

Fig 1: performance “Mai Hi Ten Yu”, (Tokyo, 2017)

The described interactions between science and performing arts illustrate possible ways through which artists can integrate scientific content and devices into a performance, and illustrate the possibility of communicating and explaining scientific theories using artistic languages.

The project *The Urge of Being* differs from the described interactions between science and performing art because the science is not shown in the final performance, nor is it explained using scenic language. In fact science, or more specifically life science, is one of the inspirational elements that triggers the training of the performer. It is an integrated tool of the practice of the performer. The goal of this approach is to investigate the effects that the training has on participants.

While looking for study cases, methods, theater, and dance companies, and research that integrated life science into the performer's training, the interaction between somatics and dance was found, and is briefly discussed:

> “Since the 1970s, a growing number of dancers have sought additional training in mind-body techniques loosely called

> “somatic studies,” or simply, 'somatics.' (Green, 2002). Once considered esoteric and far removed from daily technique class, somatics is now a household word in a dancer’s training. University dance programs worldwide now offer substantive somatic studies and degree programs, and community studios offer extensive study and certification in various practices” (Batson, 2009, 1).

‘‘Somatics” is a term coined by the philosopher and teacher Thomas Hanna in 1986:

> ‘‘Somatics is the field which studies the soma: namely, the body as perceived from within by first-person perception. When a human being is observed from the outside - i.e., from a third-person viewpoint - the phenomenon of a human body is perceived. But, when this same human being is observed from the first-person viewpoint of his own proprioceptive senses, a categorically different phenomenon is perceived: the human soma” (Hanna, 1986, 198).

In general, a training that includes somatics works with proprioception[1], with body-mind unity, visualization of motor imaginary, embryology, etc. Somatics also influences dance-teaching methods, as Julie A. Brodie and Elin E. Lobel describe in their book *Dance and Somatics: Mind-Body Principles of Teaching and Performance.* A teaching method of dance based on somatic proprioception can create a non-judgemental environment, where the conception of right-wrong is substituted by the invitation to search and work for a personal practice and poetics.

The described interactions between dance and somatics focus on the way the moving and sensing body of the dancer relates to the perception of the somatic sensory system.

> ‘‘Somatic approaches emphasize sensory awareness (paying attention to sensing) over motor action (“doing”). In the somatic learning context, *how* one moves is more important than *what* the movement is.” (Batson, 2009, 2)

Somatics emphasizes the *way* the dancer moves, rather than the movement itself, and

1 Proprioception (or kinesthesia) is the sense though which we perceive the position and movement of our body, including our sense of equilibrium and balance, senses that depend on the notion of force (Jones, 2000).

rather than its motivation. The main goal of the interaction between somatics and dance is sensorial, not expressive.

In *The Urge of Being*, science doesn't only help the performer with sensing and sensorial dynamics, but it also triggers the expressive work of the performer. *The Urge of Being* can open a scenario where life science is a training tool that catalyses the expressivity of the performing artist.

2.2. Biology in contemporary performing arts

Though research focused on the interaction between expressive training and science in the field of performing arts was not found, in the description of the work and training of two renowned contemporary theater directors, Eugenio Barba and Jan Fabre, we can find the expression “biological level of expression” (see Barba, *La canoa di carta*, 1993) and “physiological performing” (see Van den Dries, 2004).

The expression “physiological performing” was given to the work of Jan Fabre by the researchers of the Department of Visual Poetics, University of Antwerp, Belgium, and consists in a “performative language that takes the body and its physical sensory apparatus as the main instrument” (Cassiers, 2015, 273). In Fabre's method “the singularity of the performer is connected to his/her physicality […] and in relation to the field of performing arts and the still dominant paradigm of psychological realism, Fabre's training method can provide performers the tool to create a new awareness in their interaction with their body.” (Cassiers, 2015, 289)

The research group on Visual Poetics focused on the work on Fabre and carried out several studies to measure biological parameters of Fabre's performers. For instance the “Research on optimization of the expressive power of actors / dancers on the basis of the method of Biological Acting. (2013-2014)”[2] measured the performer's

> “stress through "Heart rate variability" (HRV), a measure of the amount of reserve that the physiology of the sympathetic/parasympathetic system displays in stress load. Also the expressive powers of the actor/dancer is measured using a neurological measurement of a test audience.”[3]

2 https://www.uantwerpen.be/en/staff/luc-vandendries/research/
3 *Ibidem*

The work of Fabre is defined physiological in the sense that “the acting body does not begin from an *emotional* and thus psychologically constituted impulse; rather, it stems from a *physical impulse*” (Van den Dries, 2004). Indeed he asks his performers to work exclusively from the needs of their physical body, pushing the physicality beyond certain limits. To access this way of performing, the performers often face strong physical sensations, such as physical pain, fatigue, and exhaustion (Cassiers, 2015, 277).

Both the approaches of *The Urge of Being* and the research carried out with Fabre's performers feature life science in the creative process; a slight difference can reside in the fact that in Fabre's work, biology and physiology are tools that describe and measure the creative process of the performers, while in *The Urge of Being* they are *in primis* tools that trigger the expressivity of the performer from its biological source. The possible measure of biological parameters in performers and audience is a further possibility of the project.

Continuing the investigation about the relation between contemporary performing arts and science, Eugenio Barba focused his research on the exploration of the actor’s *bios* or the biological level of expression of the actor, what Barba defines the “pre-expressivity” (see Barba, *La canoa di carta*, 1993).[4]

With the intention to identify recurrent principles that define the actor's *bios* in different cultures, Barba founded, in 1979, the Theatre Anthropology, a discipline that studies the scenic pre-expressive behaviours of actors across cultures. He describes in his book *La canoa di carta* the trans-cultural principles that are the biological base of different styles and performative traditions. The actor’s *bios* is the result of pre-expressive physical tensions and has the role of sustaining the actor while they reach the extraordinary amount of energy that makes his scenic presence sharp. Indeed for Barba the actor communicates her meaning through a solid base of intentions and impulses.

For Barba the expression “biological level of expression” is not directly linked to a biological reading, content, or measurement, but indicates the most fundamental level of expressivity of the actor, the *bios.*

Also *The Urge of Being* explores the performer's biological level of expression, but instead of defining it by looking for recurrent principles in different performative cultures (Theater Anthropology), it uses life science in the training of the performer as a tool to trigger his expressivity.

Eugenio Barba collaborated and studied with Jerzy Grotowski for a long period of time. As

4 Translated from the original Italian version by D. Marcozzi

Barba is interested in defining the actor's bios, Grotowski was interested in working with the inner impulses of the performer. Grotowski doesn't directly name his work “biological” or “physiological”, but the notion of working with body impulses is strongly rooted in his practice. Indeed Thomas Richards, one of his well-established students and collaborators, defined his work with these words: “For Grotowski organicity indicates something like the potentiality of a current of impulses, a quasi-biological current that comes from the 'inside' and goes towards the accomplishment of a precise action.” (Richards, 1995, 93)

Indeed, as Grotowski clearly states,

> “We attempt to eliminate his organism's resistance to this psychic process. The result is freedom from the time-lapse between inner impulse and outer reaction in such a way that the impulse is already an outer reaction. Impulse and action are concurrent: the body vanishes, burns, and the spectator sees only a series of visible impulses. Ours then is a via negativa - not a collection of skills but an eradication of blocks.” (Grotowski, 1968, 16-17)

When Grotowski applies this concept also to the emotional system, the performers reveal the emotions from the inside-out, just like a physical impulse. “Normally, when an actor thinks of intentions, he thinks it is a question of pumping an emotional state in himself.” (Richards, 1995, 93)

Contrasting the idea of representing emotions from the outside, Grotowski trains his performers to recall the memory of a past emotion fro the inside. This doesn’t mean that the performer needs to recall the same type of emotion requested on stage.

> “In *The Constant Prince*, the physical action is of someone being tortured, but what did Cieślak work on with Grotowski? His feelings of love, sweet delight and ecstasy; completely contrasting emotions. The idea of apotheosis [meaning: a perfect example of its type] and derision comes up a lot in Grotowski’s work: you set something up and then you bring it down. Nothing is sacred. These holy cows can be suddenly destroyed in a moment; he constructed an oppositional dialectic: for Cieślak in *The Constant Prince* it is

between torture and ecstasy.” (Allain, 2017a)

What is of interest with his process in the frame of this research project is that Cieslak recalls a certain intensity and amount of energy that he transforms according to the performance needs. His approach is not representational because Cieslak creates an opposition of forces to reach his source of energy, from which the emotion will spring: the emotion, in this perspective, is generated by an energetic source, rather than being represented by imitating an emotional state from the outside.

On the topic of emotions, Grotowski continues saying that “emotional state is very important, but it does not depend on the will. I don’t want to be sad: I am sad. […] So, everyone who looks to condition actions through emotional states makes a confusion.” (Richards, 1995, 93)

If emotional states don't depend on the will of the performer, how can the performer work consciously with emotions?

There is a difference between actively doing an action and putting oneself in the condition to avoid the resistances that block that action: the actor performs passively an active sequence. In this condition of passively doing an active sequence, the work of the performer results in a negotiation between his controlled and less controlled spheres - so to speak conscious and less conscious. The workshop *The Urge of Being* is interested in exploring the dialogue between these two dimensions and an investigation into the biological mechanisms that can sustain this dialogue is illustrated to better describe it.

We'll try to deal with the question “if emotional states don't depend on the will of the performer, how can the performer work consciously with emotions?” by considering the experiments of Benjamin Libet, (1926-2007), American pioneering scientist in the field of human consciousness.

2.3. The experiments of Libet on the nature of the action’s intention

In the early 1980s, Benjamin Libet conducted experiments in neurobiology that provoked interest and discord within and outside of the scientific community. His experiments showed that when an individual makes a movement or a physical action, the activity in his brain starts 0.5 milliseconds earlier than the person is conscious about the movement (see Libet, 1983). He measured an electrical pre-activity in the brain that anticipates the consciousness to move. Even if Libet didn’t claim the absence of the free-will, his

experiments raised a controversial discourse about the nature of free will and its correlation with the instinctual sphere of the individual.

> ‘‘There has been a long controversy as to whether subjectively ‘free’ decisions are determined by brain activity ahead of time. We found that the outcome of a decision can be encoded in brain activity of prefrontal and parietal cortex up to 10s before it enters awareness. This delay presumably reflects the operation of a network of high-level control areas that begin to prepare an upcoming decision long before it enters awareness” (Soon, 2008, 543).

Re-quoting Grotowski's words regarding the impulses: “We attempt to eliminate his organism's resistance to this psychic process. The result is freedom from the time-lapse between inner impulse and outer reaction in such a way that the impulse is already an outer reaction. Impulse and action are concurrent: the body vanishes, burns, and the spectator sees only a series of visible impulses.” (Grotowski, 1968, 16-17) Can we read the Libet's experiment with the eye of the performing artist and question wether the Grotowski's impulses of the body consist in the pre-activity registered by Libet?

Based on these reflections on impulses, can we ask if the performer can express them, and if by doing so, whether the performer also expresses the dimension of the unconsciousness?

Even if we can’t prove scientifically that Growoski's impulses are related to Libet's discoveries about the pre-activity, in the workshop *The Urge of Being* the performer attempts to work also with her pre-conscious level of communication - pre-expressivity for Barba, impulses for Grotowski, brain pre-activity for Libet. We can say that the artistic work can lead the performer to work with a sort of “anticipated free-will” that allows her to generate a flow of communication made of impulses, a current of impulses, as Grotowski stated.

The expression “anticipated free-will” is coined by the candidate and indicates the time interval and physical dimension in which the performer expresses the inner impulses that in ordinary circumstances she is not aware of. This process creates a direct expressive link between inner intentions and physical manifestation.

Going back to the topic of emotions, Grotowski believes that emotions are out of the control of the performer’s will - where “will” stands for everyday-life. This can lead to a

relation between impulses and emotions, since both are partially out of the control of the person. To investigate whether this can be a plausible correlation, the biological nature of emotions will be discussed in the following paragraphs using the theories by Antonio Damasio and Candace Pert.

2.4. The biological nature of emotions

In Western culture, during the period of Romanticism, between 1800 and 1850, emotions were thought to happen in the body while rational thinking was associated with brain activity. During the major part of 1900s scientists relegated the emotions to the ancestral and instinctual neural circuits of the brain (see Damasio, 1999).

In this research project, the first scientist of interest in the most recent history of theories of emotions, is William James. His innovative theory described in the article “What is an Emotion?” in 1884, affirms that emotions occur uniquely in the body: he was “the first to develop a somatic feedback theory. [...] Somatic feedback theories suggest that once the bodily response has been generated (that is, a change in heart rate, blood pressure, facial expression, and so forth), the mind registers these bodily activities, and this mental state (the one caused by the bodily changes) is the emotion.” (Johnson,2018) Indeed, according to James’ theory, instead of feeling an emotion and subsequently have a physiological response, the physiological response occurs primarily. As visible in Fig. 2, instead of seeing a bear, being afraid of it and then running away, the man sees the bear, runs away, and fears the bear. This theory is crucial in the frame of the workshop *The Urge of Being* because it highlights the fact that emotions are necessary for survival.

Even though James' theory is a milestone in the history of theories of emotions, one of his students, Walter Cannon, confuted part of his theory. He induced artificially the physiological conditions of a certain emotion to verify if the emotion would then emerge. The results show that the reverse experiment was invalid: the induced physiological state does not necessarily recall the emotion. Cannon hypothesized that a portion of the hypothalamus, in the brain, is also involved in the emotional processing. (see Cannon, 1932)

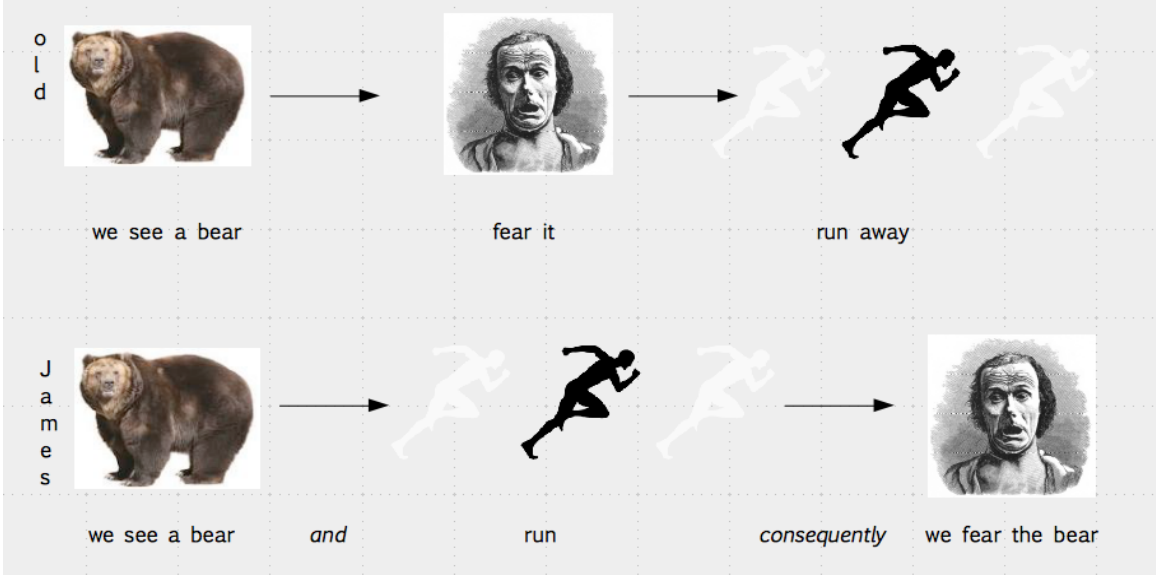

Fig 2: Theory of emotion by William James

From 1985 onwards, PhD Candace Pert and her team developed the work on neuropeptides and their receptors that attempt at unifying the system body-mind and give to the emotions the important role of regulation of the homoeostasis of the whole body-mind (see Pert, 1985). Her theory of the biochemistry of emotions that will be described in detail in the following paragraphs, affirms that certain molecules (neuropeptides and their receptors) create an informative and non-hierarchical network throughout the whole organism, and "are the key to understand how mind and body are interconnected and how emotions can be manifested throughout the body." (Pert, 1988, 8-16)

Indeed the contemporary scientific discourse about emotions showed renewed interest and perspectives for the interrelation between body, mind, and emotions, and new studies and proposed new models for the integration between body and mind. One of the most influential contemporary neuroscientists in the field of emotions, feelings, and theories of consciousness and embodiment is Antonio Damasio, a Portuguese-American neuroscientist. He affirms that the main role of emotions is to regulate the pursuit of happiness, avoiding unpleasant situations. The emotions regulate the survival of the individual: they are complex chemical and neuronal reactions meant to regulate the organism in order to guide it towards beneficial situations. Damasio asserts that emotions contribute to the regulation of the homeostasis, which is the biological function that includes coordinated physiological reactions that maintain the major part of the stationary values of the body, and that characterize the living organism.

"Organisms, composed of material which is characterized by

> the utmost inconstancy and unsteadiness, have somehow learned the methods of maintaining constancy and keeping steady in the presence of conditions which might reasonably be expected to prove profoundly disturbing." (Cannon, 1932, 21)

2.5. Biochemistry of Emotions by Candace Pert

From 1980, the neuroscientist and immunologist Candace Pert and her team discovered over two hundred different neuropeptides. These molecules can be secreted by organs of the body and access the neural circuits of the brain and vice-versa, and travel throughout the whole body and vice-versa (see Pert, 1997). Indeed, "neuropeptides and their receptors join the brain, glands, and immune system in a network of communication between brain and body" (Pert, 1985, 820). The innovation of Pert's theory is the evidence that the nervous system is not the only one processing messages (emotional, sensorial, etc.) through electric impulses, from the brain to the body; there is a parallel network based on molecules that allows the establishment of a non-hierarchical communication between body and brain. Pert sustains that this informational network, constituted by the neuropeptides and their receptors, carry emotional messages. Among her proofs are the high concentration of receptors for neuropeptides which have been found in the limbic system, the brain area related to the emotional process, as well as other areas related to emotional system along the nervous system:

> "A number of brain loci, many within emotion-mediating brain areas, are enriched with many types of neuropeptide receptors." (Pert, 1985, 820) "It has become increasingly clear that the limbic system, the classical seat of emotions in the brain, is also the focal point of receptors for neuropeptide, some of which were first identify as hormones." (Pert, 1988, 8-16)

More recently the research on neuropeptide has conducted many studies and revealed that a large number of neuropeptides are involved in the maintenance of the homeostasis. For instance, Neuropeptide W in the regulation of feeding and drinking behavior, and is related to the stress response (Takenoya, 2010), Neuropeptide Y in the energy homeostasis (Herzog, 2003), as well as Neuropeptide GPCRs, Neuropeptide B and many

other Neuropeptides involved in energy, pain, and emotions homeostasis (Seong, 2014).

The general system neuropeptide-receptor acts on the target cell in this way: the receptor is a transmembrane protein that connects the external with the internal environment of the cell. On the external extremity it binds the specific neuropeptide and the chemical bond provokes a chain reaction into the cell that initiates a physiological process that will actuate the specific response. This response, according to Damasio and Pert, consists in an emotional response, that needs energy to be actuated.

2.6. Emotion needs energy

Adenosine triphosphate (ATP), Fig.3, is a complex organic chemical that provides energy to drive many processes in living cells, e.g. muscle contraction, nerve impulse propagation, chemical synthesis. Found in all forms of life, ATP is often referred to as the "molecular unit of currency" of intracellular energy transfer. When consumed in metabolic processes, it converts either to adenosine diphosphate (ADP) or to adenosine monophosphate (AMP).

$$ATP + H2O \rightarrow ADP + P_i \quad \Delta G° = -30.5 \text{ kJ/mol } (-7.3 \text{ kcal/mol})$$

$$ATP + H2O \rightarrow AMP + Pp_i \quad \Delta G° = -45.6 \text{ kJ/mol } (-10.9 \text{ kcal/mol})$$

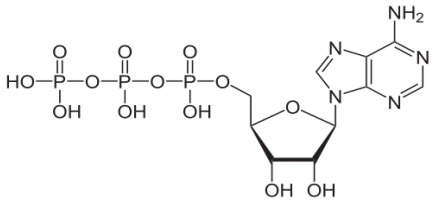

Fig 3: ATP, adenosine triphosphate

In the formula, G is the “Gibbs free energy”, a thermodynamic potential that can be used to calculate the maximum of reversible work that may be performed by a thermodynamic system at a constant temperature and pressure.

In this project, the link between emotions, Gibbs free energy, and physical theater is that energy is the source of the emotions and as the organism organizes an energetic potential to carry on its functions and its needs to express itself, the performing artist can create an energetic potentiality that generates and supports the expression of emotions.

The final and visible shape that the emotions will take is based on the initial mobilizing of the energetic potentiality. The process that the performer actuates to reach and transform

this energy state, may constitute his poetics of expression, his specific style and artistic touch.

2.7. Emotions: working from the outside-in or from the inside-out?

A recent research about the bodily map of the emotions was carried out to identify the areas of the body involved in the feeling of basic and nonbasic emotions. Participants "were asked to colour the bodily regions whose activity they felt increasing or decreasing while viewing each [emotional] stimulus" (Nummenmaa, 2014, 646). The researchers

> "conclude that emotional feelings are associated with discrete, yet partially overlapping maps of bodily sensations, which could be at the core of the emotional experience. These results thus support models assuming that somatosensation and embodiment play critical roles in emotional processing" (Nummenmaa, 2014, 650).

A map of the bodily topography of emotions was realized (Fig. 4) and we can see the body ares where the emotions are felt by the participants.

The researchers clearly stated that their results are based on the macro (final) manifestation of emotions: "Even though changes in specific physiological systems would be difficult to access consciously, net sensations arising from multiple physiological systems during different emotions are topographically distinct" (Nummenmaa, 2014, 649). What are these "specific physiological systems" that the participants can't access consciously?

If we match these unconscious physiological systems with the impulses described by Grotowski, with the "anticipated will" of the Libet's experiments and with the notions that emotions take part in the regulation of the homeostasis, we can argue that the macro manifestation of emotions (consciously accessible to the participants of that research), derives from the complex orchestration of micro impulses that regulate the homeostasis (that were inaccessible to participants). As Grotowski and Damasio stated, most of the time people are not aware of the manifestation of emotions, because their awareness is not necessary for the survival of the organism: we don't need to be always aware of what the homeostasis is doing in order to survive.

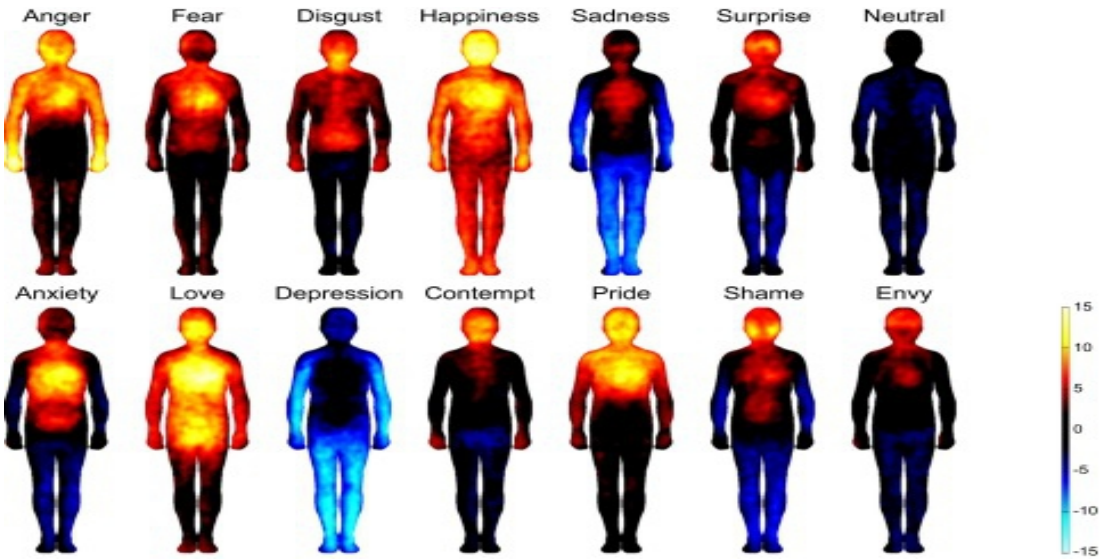

Fig 4: Bodily topography of basic (Upper) and nonbasic (Lower) emotions associated with words. The body maps show regions whose activation increased (warm colors) or decreased (cool colors) when feeling each emotion (Nummenmaa, 2014, 647).

According to Damasio, indeed, emotions are not simple repetitions of physiological patterns, but are an orchestrated and complex network of information modulated by the real-time conditions of the organism at any one moment (Damasio, 1999).

So, even if common patterns of basic emotions can be observed among people, emotions are motivated by inner impulses for survival and their external manifestation is only the tip of the iceberg in the regulation of the organism.

> "When we consider the extreme instability of our bodily structure, its readiness of disturbance by the slightest application of external forces and the rapid onset of its decomposition as soon as favouring circumstances are withdrawn, its persistence through many decades seems almost miraculous. The wonder increases when we realize that the system is open, engaging in free exchange with the outer world, and that the structure itself is not permanent but is being continuously broken down by the wear and tear of action, and as continuously built up again by processes of repair." (Cannon, 1932)

On the basis of these observations, an outside-in imitation or induction of specific patterns of physical patterns of emotions doesn't include the impulses and the initial energy of the

emotions. This is the reason why the workshop *The Urge of Being* is not aimed at letting the participant manifest emotions by re-staging and representing physical patterns of emotions, but it is aimed at inducing different urgency patterns to reach the energetic source of emotions. In this way the performer is not an interpreter of emotional states but a channel of emotional impulses.

But can the performer get as close as possible to and work with these emotional impulses? Perhaps yes. This question will be discussed in the following "Research question" paragraph, but now we can see how the impulses can be regulated in a complex network of information that can generate the visible emotions. Indeed Damasio distinguishes four types of emotions (Damasio, 2003, 44-45).

1. Emotions in the broad sense are: homeostasis, pain and pleasure responses, and drives and motivation;
2. Background emotions are fatigue, energy, excitement, wellness, sickness, tension, relaxation, surging, dragging, stability, balance, imbalance, harmony, discord;
3. Primary emotions are fear, anger, disgust, surprise, sadness, and happiness;
4. Social emotions are: sympathy, embarrassment, shame, guilt, pride, jealousy, envy, gratitude, admiration, indignation, and contempt.

In Fig. 5 we can see that the final behaviour of a person and his social emotions are based *in primis* on his homeostasis and on the other emotions in the broad sense, which are based, in turn, on the environment. The complex regulation of emotions in the broad sense and background emotions (the impulses that a person is generally unaware of) generate the macro manifestation of the emotion.

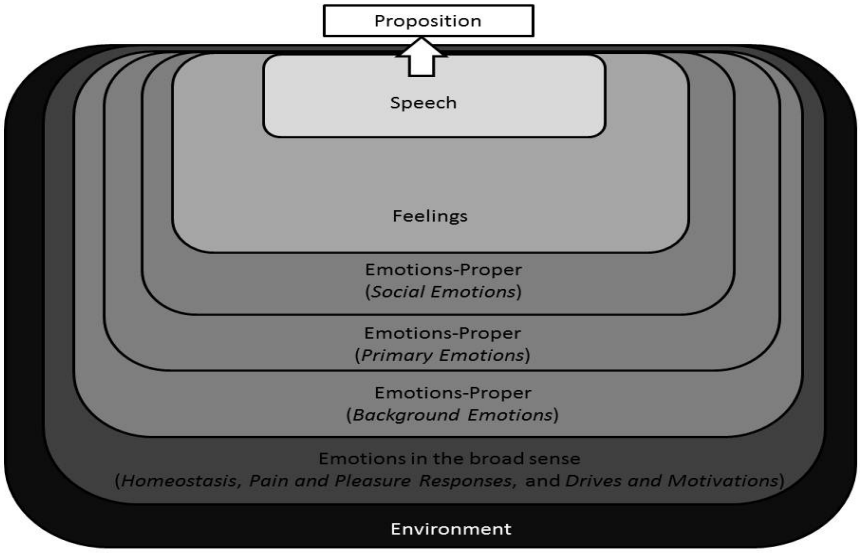

Fig 5: Nesting Principle, Damasio (2003)

The workshop *The Urge of Being* focuses on the background emotions and on the emotions in the broad sense.

3. Research question

On the basis of the scientific theories on emotions described in Chapter 2, a training method concretized in a 2-day workshop with the title *The Urge if Being* was designed and offered to two control groups with the aim to gather the reactions of the participants regarding their experience during the workshop.

The mentioned theories of emotions have been selected to inspire, inform and support the specific approach to the theatrical work on emotions that it is conducted during the workshop. This approach is strictly physical because the workshop leads the performer to access his expressivity and emotional sphere from his physicality and through the work with his inner impulses, with the intent to work with his biological source of expression and channel it into an artistic communication.

The main object of investigation of this research project are the effects of the workshop on the participants and the the first hypothesis is that the method offered in the workshop *The Urge of Being* let the participants experience their expression as alive, urgent and authentic.

Often the adjective “authentic” is attributed to something original and not fake; “authentic” can in fact refer to the *origin* of something. For instance, speaking about a certain music genre, like the blues, when the artist imitates it, he runes the risk not to incorporate the *original* necessity of that specific artistic expression, in this case the social condition of slavery that triggered the blues, indeed.

In this project we’ll try to analyse how the performer experiences authenticity when authenticity is in relation to the biological need to express oneself: the second hypothesis is that authenticity is experienced as a condition in which the urgency to communicate one’s needs to survive is the origin of the expression of the performer.

The second hypothesis is that also the emotions, part of the expression of the performer, will be experienced as authentic. The workshop works with emotions but they are not main access point to the work: none of the exercises is directly related to induce emotions or even mention them. The workshop, in fact, creates the condition to build an energetic process (of several natures) trough which the performer can work with the emotional

system from the inside-out. This way of working with the emotions supports the biological role of emotions: in biology emotions needed to be expressed, (*ex-press* = press-out) and disclosed from the inside-out in order to accomplish their role of survival. This is why in the workshop the performer works with different urgency patterns to reach the source of emotions rather than representing emotions by adopting fixed physical pattern from the outside-in. In this way the performer experience himself not as an interpreter of emotional state but as a channel of emotional impulses.

A third hypothesis regards the fact that authenticity is an aspect of the performer's work that can be trained. Cause this hypothesis requires a long term analysis of the experiences of the participants, it won't be considered in this project.

4. Methodology

The object of investigation of this research project are the effects that the workshop *The Urge of Being* provokes on participants. Through a qualitative research that "gives emphasis to the meanings, experiences and views of the participants" (Pope, 1995), this research investigates the effects of the workshop by analysing in depth the experience of the participants. Moreover the researcher of this research project is also the trainer of the workshop. For these reasons the qualitative approach IPA (Interpretative Phenomenological Analysis) has been chosen:

> "The aim of interpretative phenomenological analysis (IPA) is to explore in detail how participants are making sense of their personal and social world, and the main currency for an IPA study is the meanings particular experiences, events, sate hold for participants. The approach is phenomenological, in that it involves detailed examination of the participant's life-world. […] At the same time, IPA also emphasizes that the research exercise is a dynamic process with an active role for the researcher in that process" (Smith, 2007).

Two 2-day workshops have been carried out with two different groups:

- The workshop #1 was carried out to investigate the effects that the training "*The Urge of Being*" may have on different categories of artists: performers, visual artists, musicians.

- The workshop#2 was carried out with the entire class of the first year Bachelor in physical theatre of Accademia Teatro Dimitri. The class was composed by 16 students plus two assistant performers familiar with the training, with the role to support the work.

The collected data consist in four types of feedback collected from the participants after the workshops #1 and 2:

- oral group discussion, immediately after the workshop (recorded);
- written questionnaire (in appendix), to fill up within 15 days after the workshop;
- semi-structured interviews to a few participants after the workshop (recorded);
- video and photo documentation. The workshops were documented by the film director and photographer Pierluigi Muscolino to offer a comprehensive view of the work that includes its non-verbal dimension. Pierluigi attended the training *The Urge of Being* for several months in order to facilitate the recognition of the participant's process and joined the first two hours of the workshops at Accademia Dmitri, to integrate himself in the group.

The choice to ask for these types of feedback is meant to accommodate the personal expressive attitudes of each participant, offering a range of possibilities to express their feedback at best. The group discussion is aimed at sharing the most immediate impression of the training, to discuss the experience with the whole group and generates a discussion around semi-structured questions. The questionnaire with structured question is aimed to overcome the limits of the group discussion, where tiredness, shyness, emotional involvement, confusion and overwhelming feeling may restrict the feedback. The interviews were carried out to the participants who showed interest and capability to verbally express their impressions and were conducted by the assistant performers and Pierluigi Muscolino to allow emotional distance between the interviewed participant and the trainer.

These feedback constitute the results of the thesis and are analysed using the Qualitative Thematic and coding analysis that consist in grouping the results into "themes" and sub-grouping each theme into “code”. Themes are “patterns across data sets that are important to the description of a phenomenon and are associated to a specific research question”

(Daly, 1997*)* while coding is the process of attribute labels to portion of written and oral feedback, in order to group and compare similar or related pieces of information. The code (a word or a short phrase) assigns more or less symbolically a summative, salient, essence-capturing, and/or evocative attribute for a portion of data (Saldana, 2009).

5. Nature of the workshop *The Urge of Being*

5.1. Design of the workshop

The Urge of Being is a 2-day workshop that investigates the physical and biological nature of emotions and how the emotional sphere is accessed through the biological composition of the body in the field of the performing arts. The project works with the unity "body-mind" and "psycho-soma." The expression "body-mind" questions the post-cartesian western paradigm of the hierarchical role of the brain over the rest of the body and proposes a non-hierarchical perspective about the unity between body and mind. In fact, we can wonder why the expression body-mind and psycho-somatic are both two-word expressions indicating a unity. While these expressions clearly propose the unification of body and mind in a whole being, it also suggests that there must be a connection that establishes the unity. This research project proposes that the very nature of the connection *constitutes* the unity: it is the way in which this connection is established that creates the unity. In this thesis, the term "organism" replaces the term "body-mind", because it is the organism that embodies the characteristics of interaction among different parts to create a unity:

> ‘‘An organism is a single individual, or being. While it may have many separate parts, the organism cannot survive without the parts, as the parts cannot survive without the organism." (Li, 2014)

In the artistic context of the workshop, the term "parts" indicates the tangible and intangible aspects of the performer.

The progression of the 2-day workshop is designed on the basis of a specific energetic flow that is articulated in three steps: 1) to create a high potential of energy and urgency that allows the trainee 2) to work within the boundaries of her organism and from the inside-out and, subsequently 3) to work from the inside-out and outside-in and thereby generate the *give and take* process.

After a one-hour theoretical introduction, the work in studio starts with the creation of a

high energetic potentiality: the participants are asked to build up their inner process through exercises of inner visualization, imagination, breath, movement, rhythm as well as through the maintenance of deep concentration in the work and group dynamics. Long pauses are avoided throughout (no more than two-three minutes). The high speed of the work-stream is meant to challenge and stimulate the stamina, resilience and strength of the participants, to increase their readiness and action/reaction system and trigger them to work in the artistic sur*vival mode*.[5] Based on the notion that emotions need to be expressed (pressed-out) in order to accomplish their role in survival, in the second phase, through exercises of partnering and group work, the trainees are given physical tools to express inner impulses. During the third phase of the workshop the *give and take* process is established, a process in which the self-regulation of the organism is perpetually stimulated and the participants are guided through a long-improvisation section using voice, text, songs and moment.

5.2. Principles of the workshop

Upon the three-step flow of energy described in the previous paragraph, three principles interact one with another and create the background of the work by; they are:

1. Breath;
2. *Artistic Survival Mode* and Urgency;
3. Expressive nature of the work and the establishment of the *give and take process*.

In these three following paragraphs “Breath”, “*Artistic Survival Mode* and Urgency”, “Expressive nature of the work and the establishment of the *give and take process”*, we will explore the relation between certain scientific premises and the related training outcomes that were designed. The training outcome can be a specific exercise or a general approach.

5.2.1. Breath

5.2.1.1. The influence of the cycle of the Oxygen on the workshop

Our lives, detached from the placenta, starts with a breath and finishes with a breath. Breathing is a vital function of the organism and consists of two main moments, inhalation and exhalation, and allows the body to obtain oxygen, new nourishment for the cells, and

5 See paragraph 5.2.2.

release the waste of cellular metabolism. Breath, as well as nutrition, clearly puts the organism in physical relation with the external world and its living organism, allowing the living creatures to exchange chemical elements.

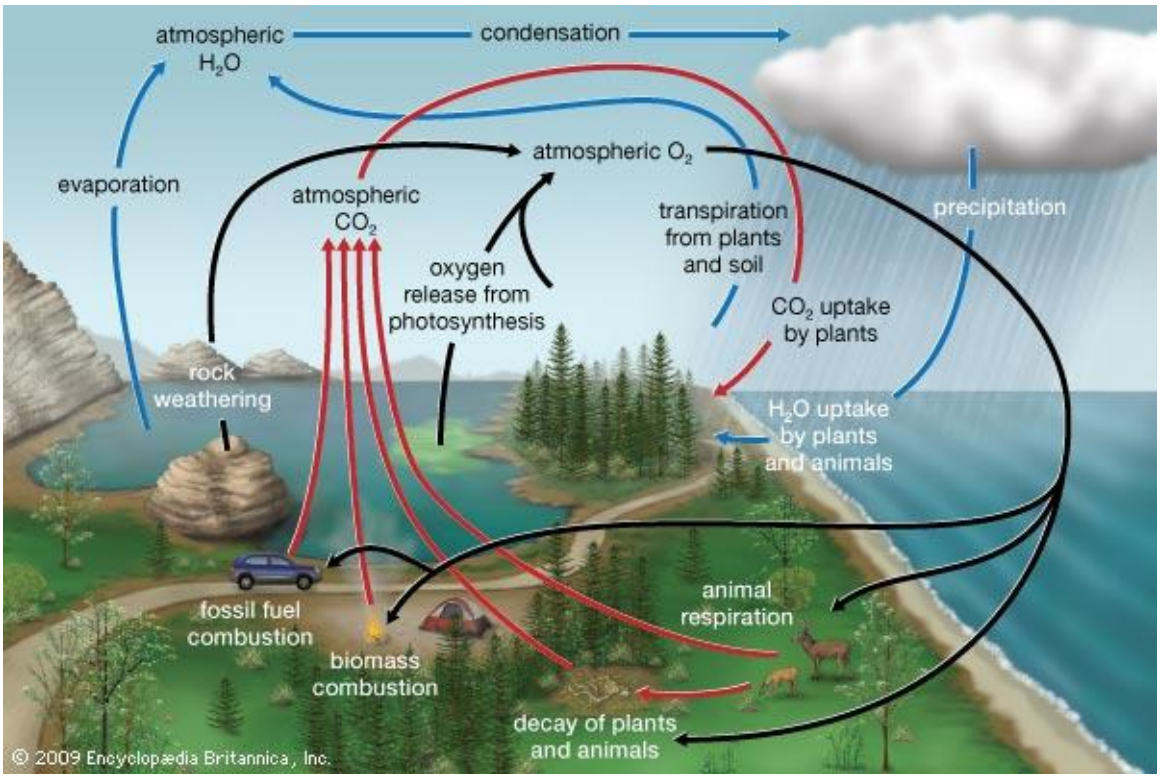

Fig. 6: Cycle of Oxygen

Looking at the cycle of oxygen we can see that the natural resources (in this case Oxygen) of planet Earth are shared among the creatures. Plants and animals use oxygen to respire and return it to the air and water as carbon dioxide. CO_2 is then taken up by algae and terrestrial green plants and converted into carbohydrates during the process of photosynthesis, oxygen being a by-product.

In the context of the workshop, the understanding of the cycle of the oxygen may allow the comprehension that each living creature is related with one another: the molecules that the trainees inhale were probably part of a leaf of a tree or part of a fish's eye years or days ago. As well as what they exhale re-forms organic or non-organic matter on planet Earth. This reflection may stimulate the awareness in the trainees that the human being is unique as much as he is like others. By feeling and visualizing the dynamics of the breath, its passages, its role, its history, the trainees can recognize themselves by working with the others, and vice-versa.

5.2.1.2. The high concentration of neuropeptides and receptors in the respiratory system

Breathing also plays a crucial role in emotions and in the homeostatic balance of the organism. As Candace Pert affirms in her book Molecules of emotions, “The changes in rhythm and intensity of breathing produce changes in terms of quantity and type of peptides that are released in the marrow, and vice-versa”. Research has demonstrated that neuropeptides present in the organism are present in the respiratory system too. For instance, the neuropeptide S and NPSR1 regulate the respiratory function through a central nervous system-mediated pathway (Zhu, 2010), the neuropeptide CGRP provokes the contraction of the smooth respiratory muscles (Barneì, 1991) and the neuropeptide Substance P has been convincingly defined as a true modifier of breathing control (Bonham, 1995).

The fact that breath and emotions are (at least partially) regulated by the same types of molecules, the neuropeptides and receptors, in the context of the workshop, indicates that by gaining familiarity with breathing, the performers work with the emotional system can be facilitated as well.

5.2.1.3. Breath as link between the voluntary and involuntary spheres

In the workshop, breath is also an interesting and fundamental feature as it draws a clear bridge between the voluntary and involuntary spheres: a bridge between the unconscious push to survive and the conscious possibility to modify the breath. Mabel Todd, author of the book *The Thinking body*, writes about the abdominal diaphragm: “Like the equator [it] is the dividing line of the two great halves of being: the conscious and the unconscious, the voluntary and involuntary, the skeletal and visceral.” (Todd, 1937, 217)

Indeed, breathing requires the complex interactions of the central and peripheral nervous systems with the respiratory system: it requires cortical (volitional) and subcortical (automatic) output (Urfy, 2014, 241). In the context of this theatrical research, this notion is very useful because by acquiring competences and awareness in working with the breath, the performer can access the thin dialogue between the conscious and unconscious regulation of homeostasis. The regulation of homeostasis includes the action of emotional energies and their expression, therefore the breath is one of the gate to access one’s own expressivity.

The trainees are both guided through sets of exercises aimed at increasing the awareness of the breath and invited to breathe as much as they can and extend their breath capability. This is meant to create new rooms in the organism and activate the high energetic level of work.

5.2.1.4. Breath as source of energy

Looking at the reason why living creatures need to breathe, we see that the cellular metabolic system is based on the presence of oxygen: cellular respiration is a set of metabolic reactions requiring oxygen and processes that convert biochemical energy from nutrients into ATP, CO_2 and H_2O. Oxygen is required for producing ATP, that will be then hydrolysed in ADP with the release of free energy: oxygen is essential for producing an energetic potential that the performer will work with in the course of the workshop.

With the intent to draw a connection between breath, energetic potentiality and emotional states, the hypothesis of this work is that depending on the type and place of emotional expression in the organism, certain cells will be more active than others. Indeed, emotions comprise a physiological response that needs to be actuated in specific tissues or organs, therefore the cells of that area need to produce enough energy to actuate the emotional response. Therefore emotional responses require a determinant depth and rhythm of breath: the workshop guides the trainee to be able to address intensity, rhythm and intention of the breath in different and specific parts of the organism with the aim to mobilize energy for the required performative action.

5.2.2. *Artistic Survival Mode* and Urgency

In 2018, the studio of a Theater Academy is obviously not a jungle where trainees need to run away from predators to save their lives. There is artificial light, a roof over their heads, heating and no predators looking for food; the life of a theater trainee is not in danger as it may be for a man alone in the savannah.

Nevertheless, the workshop *The Urge of Being* tends to put the performer's organism in the condition where its homoeostasis is continuously challenged to quickly self-regulate and react to the immediate moment. The training attempts to generate a mental, physical and emotional off-balanced state in which the trainees are required to make decisions and actions very quickly, based on physical impulses.

In a real situation of danger these impulses are the impulses to survive and develop into running away, killing, eating, etc. In the workshop these impulses don't develop into these type of actions but the source of energy is the same: an urgency. In the workshop the impulses come rapid-fire from an inner intention but they are not yet visible as emotions or complex movements, but they have the potential to develop into a more readable expression. The *artistic survival mode* is therefore the condition in which the performer consciously generates her own urgency [6] and works with inner impulses and energy in a conscious way. This process requires a high degree of personal and artistic self-reliance, as well as an inclination for reading the one's and others' processes and take responsibilities for the type of energy and meanings to share in the work.

5.2.2.1. How the biological understanding of communication inspires the *Artistic survival mode* in the workshop

The biological adaptive definition of communication by Maynard Smith & Harper is: "communication is the completion of corresponding signals and responses" (Scott-Phillips, 2008) where signal is "any act or structure which alters the behaviour of other organisms, which evolved because of that effect, and which is effective because the receiver's response has also evolved" (*Ibidem*). We can say that communication is adaptive because it creates evolutionary advantages, namely adaptability increases the possibility to survive: "adaptation is a characteristic that makes a plant or animal more suited to its environment, thus improving its chance for survival." (National Park, 2018)

In this project, artistic communication is related directly or symbolically to the need to express oneself in order to survive. The artist who works in the artistic survival mode may approach the biological role of communication and work consciously in a process rooted in the urgency of expression that can make the artistic expression authentic.

How can the performer generate her own urgency?

5.2.2.2. How the biological understanding of urgency relates to the performer's need of expression

From a biological point of view, urgency can be understood as the basic motivation that pushes living creatures to verbally and non-verbally express themselves. The more intense

6 The urgency can be imaginary, real, political, biological, biographical, social, etc. The nature of the urgency is an aspect to consider in future developments of the project: chapter 8.

the urgency, the more effective the communication and the higher the possibility to survive. To better picture this equivalence one can think of a newborn baby crying for hunger or cold; his vocalized call for food reaches the mother or the people who immediately provides food. The child instinctively modulates his vocal expression depending on the degree of the urgency of his hunger (Linklater, 1976, 20).

In the workshop urgency is triggered and maintained in different ways:

- Fatigue and high concentration.

  The high speed of the work, the absence of long pauses (maximum three-four minutes) and extended duration sessions of work (ca. seven-eight hours/day) together create the first support for the insurgence of fatigue, followed by the urgency to constantly rearrange the organism in response to it.

  One of the concepts that have led to the development of the approach and the exercises of the workshop, is that in a situation in which fatigue, tension, relaxation, anticipation, drive – the background emotions defined by Damasio (see Damasio, 1999) - are solicited, the organism self-regulates and adapts to these conditions by investing a type of energy connected to these emotions.

- Instruction and suggestion given by the trainer.

  One of them is “you have to fuck yourself”. This expression may sound aggressive at first, but far from being offensive, it is an invitation to explore the unknown by breaking the physical, emotional, spiritual, relational cliché and limits, by consciously generating a condition of unpredictability for oneself and for the group. “Fuck yourself” becomes a sort of mantra to refresh the work, to generate syncopations, to break the physical rhythm that corresponds to breaking predictable thought patterns. Paraphrasing the expression one can say: “fool oneself into going beyond oneself to find a new self”. Another suggestion given by the trainer is to “find the groove” in the work: find the pleasure and strong motivation in the work.

- High energy level and dilatation of energy.

  The trainees are asked to mobilise a huge amount of energy and to experience the extreme possibility of expression in order to face their own limits, overcome them and gain energy from their limits. Once they have accessed this dynamic of energy, the trainees are requested to dilate the energy and transform it into an artistic process, rather than liberate it as it is. This dilatation and transformation creates the

difference between a liberation (sometimes therapeutic) process and an artistic one: in the latter, inner impulses go through a conscious transformation and are shared through an artistic language which is comprised of movement, actions, text and voice work.

- Group and partnering work.

  Urgency is also triggered by work in and with the group and in partnering and by the *give and take process*, all elements that require a high level of alertness and reactiveness to external impulses.

5.2.3. Expressive nature of the work and the *give and take process*

During the workshop the trainees are required to generate a specific tension and intention that push the work from the inside-out. Depending on the exercise this tension is an underneath force or it is the main content of the exercise. The establishment of this force leads the trainee to work in the *give and take process*, which is a process of communication. In the Cambridge Dictionary the expression “give and take” is “the willingness to accept suggestions from another person and give up some of your own” and “an exchange of ideas or statements.” According to the Collins Dictionary it is the “mutual concessions, shared benefits, and cooperation” and “a smoothly flowing exchange of ideas and talk.”

These definitions suggest that the exchange of contents puts the protagonists of the communication in a condition of interpenetration as a sort of osmosis. In the context of the workshop, the *give and take process* triggers the trainees to influence others with inner impulses and be influenced by theirs. This process permits the trainee to adopt unpredictable and new reactions through the regulation of his homoeostasis.

A risk of the workshop is that by mobilizing an high level energy to activate the *give and take* process, if the trainee stagnates inside himself without letting the energy circulate, his organism can react in unpredictable ways: this is why for this workshop, trainees have to be resilient, strong, sensitive and clear headed, also because the process of the single performer has an amplified impact on the whole group.

The *give and take* process is a concept also encountered in the training of Grotowski: in particular with the plastique sequence the performers are asked to send and receive impulses with the whole organism. This dialogue makes the organism highly reactive and

ready to receive and adapt to the impulses of the others.[7]

5.2.3.1. The cyclical nature of energy in physics and the *give and take* process in the workshop

In biology natural resources are organized in cycles: the chemical elements are exchanged among living creatures and habitats. In thermodynamics the Principle of the conservation of energy and the Principle of the conservation of mass, state respectively that “the total energy of an isolated system is constant; energy can be transformed from one form to another, but can be neither created nor destroyed” and that “nothing is lost, nothing is created, everything is transformed.”

In the contest of the workshop these principles indicate that what is created by the performer belongs to the whole (natural or not) system. There is not limit to conceive what “the system” is: it can be the group, the theater or site of the performance, the training studio, the city, the nation, etc. These notions are given to the participants to facilitate the *give and take* process.

5.3. Program of the workshop

First day (8 h)

- Theoretical introduction

Establishment of the principles of the workshop

- Warming up
- Accordion exercise, breath consciousness, improvisation section, approaching the *negative space*: pen exercise

Working between the boundaries of the body and from the inside-out

- Muscles module: writing about muscles; contraction exercise[8]; stop and go general; pushing arms in couple; muscular space; plastique

Second day (8 h)

- Warming up

Working within the dialogue inside-out and outside-in

7 See paragraph 5.3.2. for *Plastiques*
8 See Appendix II

- Voice I: face and tongue losing up; exercises of breath consciousness (partnering and solo); diaphragm: opening up the rib cage in partnering; laces; diagonal for voice support in the pelvis[9]; on all fours- breathing with resistances
- Text: improvisation section
- Drawing of the energy and embodiment of the drawing of all the participants using text, singing and movement.

In the following paragraphs an overview of the exercises of the workshop will be given. Due to the restricted space I will describe only the underlined exercises. The exercises need to be pictured by the reader as rooted in the principles of the workshop and in its energetic flow design. Each exercise is a springboard for an improvisation phase, therefore duration and intensity of each exercise depend on the developments of the improvisation phase.

5.3.1. Theoretical introduction

Before beginning the practical work in the studio, a one-hour theoretical introduction of scientific principles and theories that have inspired the creation of certain exercises and approach of the workshop is offered to the participants with the aim to investigate whether the knowledge of these theories may have effects on the experience of the participants. This theoretical introduction is a integral part of the workshop as it effects the experience of the practice.

This introduction gives an historical and thematic overview about how theories of emotions developed since the end of the 19th century and about the biological notion of the energy required to establish an emotional state. It aims to offer the trainee a theoretical ground to interpret, read, stimulate, question any emotional state that may occur during the workshop.

The scientific introduction is not meant to *explain* the artistic process nor deprive it of its intangible touch of mystery, rather it invites the trainee to read and perceive the scientific information in whatever way they like, using the imagination, trusting their feeling and their poetic images. These notions are tools to explore the dimension between tangible and intangible spheres.

The theoretical introduction lasts ca. 60 min; afterwards the group moves to the studio.

9 See Appendix II

5.3.2. Muscular module: within the boundaries of the organism and from the inside-out

> "The concept that the musculature of the body both reflects and influences emotions has been around for a long time. Various Eastern cultures, such as the Egyptian, Tibetan, and the Chinese have developed very elaborate exercises and disciplines to help bring about harmonious attitudes and feelings via working with the alignment of the physical body." (Tataryn, 1983, 2)

The muscular tissue is very important in this research project because, as stated above in the state of the art, emotions need to be expressed and manifested through physiological responses. In the workshop the muscular tissues is trained deeply because of its role in the expression and propagation of the inner impulses: in the workshop the muscular tissue is considered the "communication tissue" that actuates and manifests the physiological responses.

With specific exercises, patterns of muscular elongation and contraction are stimulated in order to let the trainee experience and express emotions and measure their intensity.

<u>Pen exercise</u>

The muscular module is initiated with the trainer's instruction to take a pen from their bag. Afterwards the trainer asks participants which actions they used in retrieving the pen in order to bring out the awareness that impulses and action come simultaneously and that one can break down an action to name the individual impulses that were necessary to complete it. Some of the verbs that will be probably named are: opening, touching, looking, sensing (the form and material of the pen), digging, asking other people, bringing, going, thinking, picturing the contents of the bag.

As well as being impulses to complete the action of retrieving the pen, these verbs are associated with the actions that the performer can do inside his own organism (symbolically and physically) in order to work with his inner impulses - by considering the organism as the bag and the inner impulses as the pen.

This concept is supported by showing to the participants a series of sculptures by

Michelangelo (ca. 1520), Fig.7. Peter Rose[10] often associated the work of the performer with the sculptor: both aim at eliminating impediments within the organism and of matter to let the inner impulses, emerge.

Afterwards trainees are asked to write down what they think about muscles in terms of structure, function, visions, imagination, poetic images, etc. This first encounter with the muscular tissue is an occasion to create a common pool of shared images and notion.

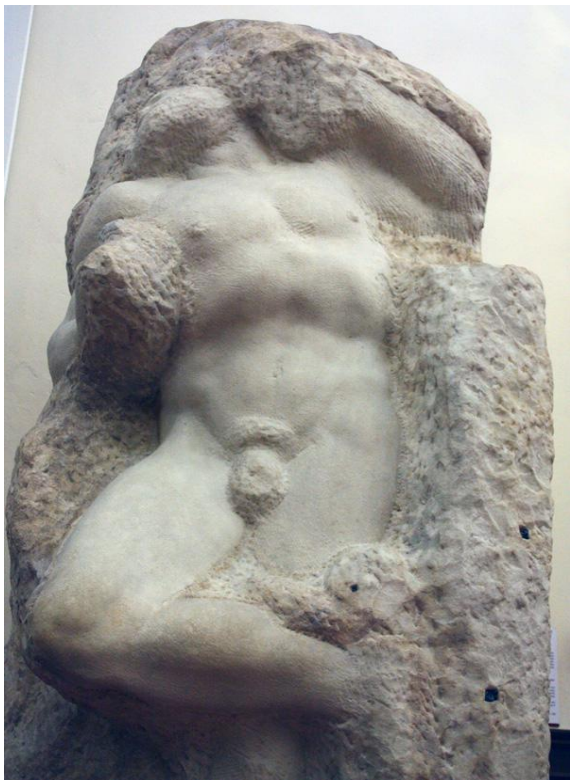

Fig. 7 : Awakening slaves, Michelangelo, (*ca.* 1520-23)

Stop and go exercise

The next exercise of the muscular module is the “stop and go”: the trainees take a position according to how they feel at the moment; the trainer plays a rhythm on a drum and the trainees move on the beat with the task of looking for uncommon and asymmetrical movements; the exercise proceeds with changes of the rhythm. The goal of the stop and go exercise is to combine muscular awareness (activated with the contraction exercise) [11] with the expressivity of muscular tissue. Indeed, the changes of rhythm induce changes in

10 Peter Rose worked with Ludwik Flaszen, Jerzy Grotowski and Ryszard Cieslak in the paratheatrical activities of the Polish Laboratory Theatre in the United States in 1977 and in Wroclaw, Poland in the "Tree of People."

11 See Appendix II

the dynamics of contracting and elongation. This pulsatory dynamic between gaining and losing form can recall memories, physical sensations, emotions, feelings, imagination, etc. The goal of this very dynamic and tiring work is to let the impulses work prior to the conscious intentions of the trainee. To shift from the exercises to the expressive phase, music will at times be overlapped with the drum beat with the intention to trigger the trainees to works creatively with their emotions. In the second phase of the exercise they are asked to think about a person they love and the stop and go exercises starts again with drum and music. It is interesting for the trainees to fell that the embodiment of external input (in this case the imagined person) provokes changes such as in breathing, in the quality of the gaze, in the muscular pattern, etc. The trainees may feel how this physicality reflects the potentiality of the emotional system and memories and visions connected to that person.

Plastiques

One of the most important moments of the muscular module is the *Plastiques* that the trainer Daniela Marcozzi learned when working with Peter Rose. The *Plastiques* is a series of movements that originate from the joints of the body aimed to loosen the joints, open them up and activate a vocabulary of impulses.

> "Plastiques are distinctively Grotowski's idea. Beginning with isolation, isolating the wrist or the hand or the elbow, you start to rotate and flex it and explore its possible movements. [...] Then you open that up to a partner, a key aspect of Grotowski's work. Plastiques are always done in relation to a partner: the partner could be the wall, it could be the floor, it could be an object. [...] Cieślak talks about it is as though the nerves are on the outside of the body, as though you haven't got any skin." (Allain, 2017b)

The plastique sequence is a combination of impulses coming from different parts of the body and articulated by the joints as visible in Fig.8. These impulses need to be "sent" sharply to the exterior and refer directly to someone or something. The trainees need to work at the maximum extensive range of the joints "to step beyond comfort, even towards the moment of pain." (Cieslak, Cieslak on the *Plastiques*)

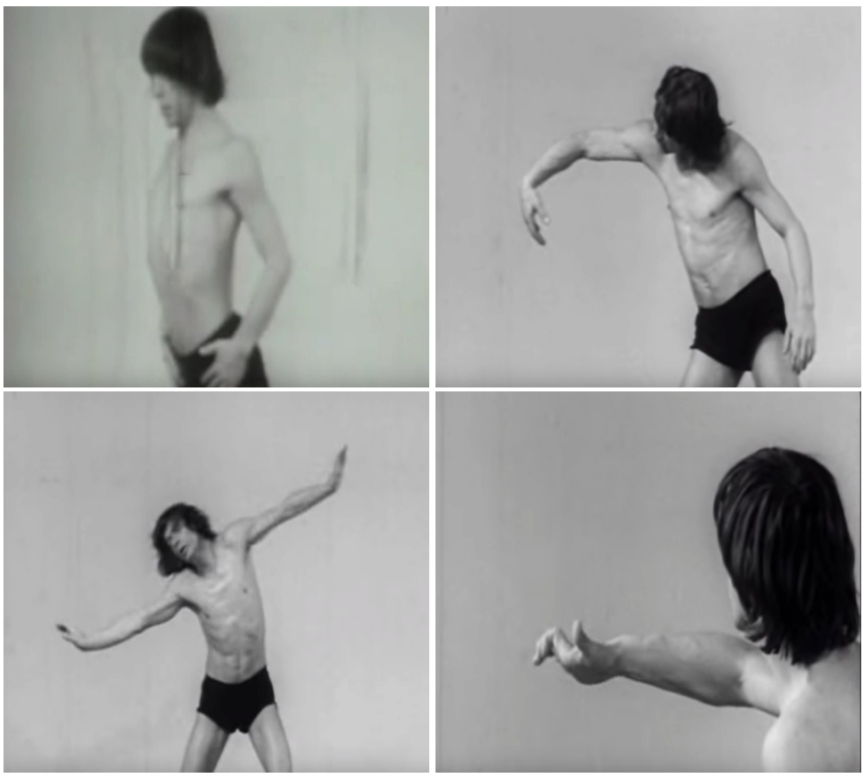

Fig. 8: Ryszard Cieslak training at Grotowski's Teatr Laboratorium in Wroclaw (1972). Still from Peter Rose's video archive.

From the point of view of proprioception, the muscular module has been designed in such a way to stimulate the three main classes of proprioceptors: those present in muscles, skin and joints: "Proprioceptive organs signal to the CNS (Central nervous system) information about the relative positions of the body parts. The receptors involved lie in the muscles [...] the joints and the skin" (Rothwell, 1994).

The muscular module also prepares the trainee for working with the voice, especially for its capacity to open up new rooms in the body where impulses may be generated.

5.3.3. Voice module: from inside-out and outside-in

In the first half of this phase the emphasis is to train the voice in depth and to find resonators throughout the body. This vocal training is aimed at unifying movement and vocal emission in a unique expression. The trainees also learn about the notion of the voice support and the way to create such support in different parts of the body.

> "The nature of vibration is that they multiply as they meet appropriately resistant textures. [...] The re-sounding surface within the body, [...] are virtually uncountable considering

that bones, cartilage, membrane and muscle can all serve as amplifiers and conductor.” (Linklater, 2006, 16)

In the second half of the day, all members participate in a long guided session of improvisation with voice, text and singing.

Diaphragm and rib cage exploration

The trainer shows images of the diaphragm, explains its function in respiration, and initiates a partner exercise. One trainee stands and closes her eyes while her partner pushes specific points on her rib cage. The receiver inhales sharply and deeply towards that pressure point and tries to expand the capability of the rib cage by consciously contracting and elongating the respiratory muscles in that point. As shown in Fig.9, there are three layers of respiratory muscles; this exercise aims at creating space between them.

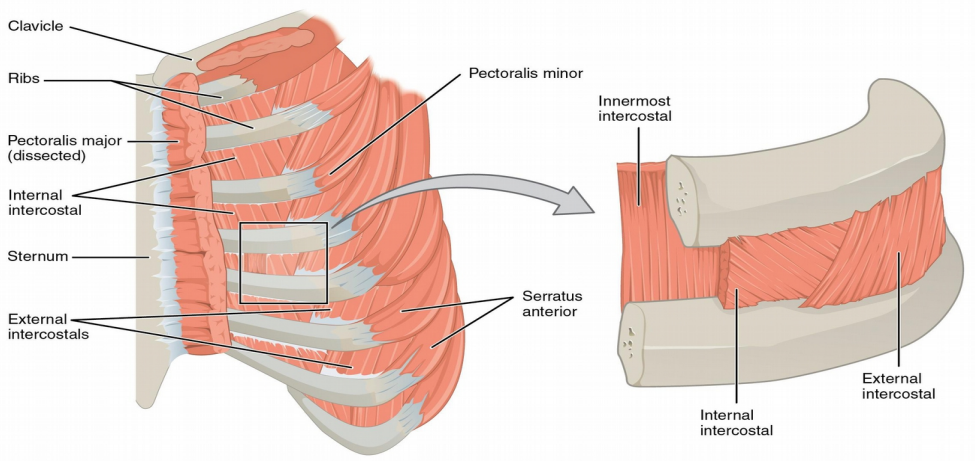

Fig.9: Rib cage's muscles

This exercise provides the trainee with the understanding that it is physically possible to explore what there is beyond an apparent endpoint. This physical process is accompanied by the inner visualization of the mechanism, so that this physical sensation can also provoke the urgency to expand, explore and express one’s hidden territories.

According to the notions that the respiratory muscles contain receptors for neuropeptides that create the emotional informational network in the organism, stimulating the respiratory system can be an access to work with the emotional system.

On all four breath on the rib cage with pushes

With the aim to create a vocal muscular support for the voice in all surfaces of the rib cage and along the spine, one trainee pushes the other in different parts of the trunk to stimulate muscular response and vocalization in the other trainee. This work of creating voice support and exploring body resonators is accompanied by inner visualization and imagination offered by the trainer. These vocalization exercises are springboards for the work with dramaturgical material: the trainees apply the text and song to the vocalization. From this moment on, text and songs are worked with in an experimental way using all of the exercises presented in the workshop in a long and uninterrupted work-stream of individual and group improvisation.

Text

Participants learned before the workshop a short text of their choice and the pools of texts doesn't have any dramaturgical aim. indeed a long improvisation section is guided to keep the work with the text in the body: the trainer quite spontaneously calls for a text when she sees that participants are physically engaged with the movements. The trainer and the entire group trigger physical impulses using all of the methods that they learned and used during the workshop, whether or not they are delivering the text at moment.

6. Results

In the following paragraphs the participants' feedback are analyzed using the "Thematic and Coding method" with the aim to investigate the phenomenology of their experience.[12] The results respond to the main question: how does the workshop *The Urge of Being* effects the experience the participants' emotions and feelings? The results are divided into six themes and the themes are divided into codes. The six themes are: High physical intensity and speed of the work, Freedom, Imagination, Group, Emotions, Dramaturgical material. The results are structured to respond to the questions: how is the experinece of emotion and feeling articulated in each of these realm and accordingly to each theme?

Theme	**Code**
High physical intensity and speed of the work	"Self-controlled loss of control" I feel tired but… The role of the brain in the artistic survival playground
Freedom	Experimental nature of the work: a view of authenticity How to handle freedom
Imagination	Imagine!
Group	Emotional and energetic support
Emotions	Emotions and muscles Emotion and body-voice: the role of vibration
Dramaturgical material	Text: a tool to channel the impulses

Table 1: Results grouped in themes and codes

Before analysing each theme, the next paragraph offers an introduction to the results.

6.1. Introduction to the results

In this paragraph I will speak about the general experience of the participants, the

12 The qualitative thematic and coding analysis consists in grouping the results into "themes" and sub-grouping each theme into "code".

differences the two groups and the differences between the categories of artists in the first group.

6.1.1. General overview on the experience of the participants: Tangible and intangible - feel the magic! Tangible and intangible - feel the magic!

Fig. 10: workshop #2, partnering improvisation moment

“Feel the magic! Trust that here is magic. And then, really, when you look for it, it appears in a magic way, because it is magic! And this is incredible and concrete!”

This is only one of the numerous quotes in which participants speak about the union between the magic of expression (in this case the term “magic” doesn't refer to the discipline of magic but to the mystery embodied in artistic expression) and the physical body, between the tangible and intangible dimensions, a concrete magic, indeed.

All participants have shown and declared clear appreciation, enjoyment and involvement in the work and have described it with the words: communion, essence, opening mind and body, instinct, freedom, fluidity, wild, astonishment, release, explosive, bounding, trust, power, togetherness, source, spacious, essence.

The workshop was also described as an expressive *fil rouge* that connects the performing arts disciplines of dance, rhythm, singing, text work, movement, with the aim to create a

comprehensive artistic language where tangible and intangible spheres of the artist's expression are in dialogue.

6.1.2. Differences between artistic categories in the workshop#1

The participants of the first workshop were four performers, one dancer, two musicians and one visual artist. The collected questionnaires are seven over eight (a musician's questionnaire is missing).

For technical reasons, in the group there were not enough artists of each categories, so the following analyzes of the results won't focus on the differences between artistic categories as planned in the methodology (Chapter 4).

Regarding the written questionnaires only the visual artist's one showed a significative difference from the others and it regards the way the artist used her imagination during the workshop. This results will be analyzed in paragraph 6.4.

The same artist wrote that the work was useful to access her inner-creative world through a long and intensive physical and mental process. She underlined that the work allowed her to learn how to decrease the hierarchy of the brain over the rest of the body, by finding more creative ways to use the brain in the creative process. A re-connecting to physicality and the ability react to inner impulses without being “mechanical” was expressed as a positive advantage of the training for performing and non-performing artists.

The trainer noticed that the workshop was experienced as catalyst of the artistic process also in non-performing artists and it can allow an increased feeling of familiarity with the body

From the oral feedback any significant differences between the categories of artists emerged: the theme discussed in the group discussion were similar among the whole group. For these reasons the difference between artistic categories will not play a central role in the further discussion of the results.

The absence of significative differences in the oral feedback could have a dual reason: as it can be due to the limitation of the methodology because not enough number of artists of different categories were present, it can be a consequence of the intrinsic nature of the workshop which is indeed based on the notions of the biological nature of expression and emphasizes the biological organism over the artistic. Indeed even if the trainees are required to work in the artistic sphere of expression, the training accesses this sphere

indirectly, from the biological one.

6.1.3. Differences between the two groups (workshop#1 and #2)

The components of the group of the workshop#1 were artists who never worked together prior to the workshop, and the second was a consolidated group composed by the students of first year of the Accademia Dmitri Bachelor plus two assistant performers and one student of the third year Bachelor.

Since the beginning of the workshop #2, the trainees showed an immediate and passionate cohesion and harmony among each other, and the trainer noticed that their artistic work was strongly affected by the closeness of the group.

In fact, while in the workshop#1 the participants had a more technical approach to the work and they experienced it by immersing themselves into the technicality of the practice, the trainees of the second group reinforced the technicality of the practice with the emotional support of the group and with the trust in each other.

The fact that the group of the workshop #2 was already a formed group may have a dual effect: it may reinforce the practice and, on the other hand, it may create a situation in which participants experience the artistic work from the point of view of their existing relations. In this last case the artistic expression can be influenced by the excess or lack of trust in the group.

In the first group the connections between the trainees were established with the artistic practice itself and on the real moment.

Other than this consideration, the following analysis of the results won't focus on the differences between the two groups but on the themes that have been found in common to both groups.

To partially conclude the introduction to the results, the first feedback of the participants showed that they have experienced the workshop as a *fil rouge* between scenic disciplines such as dance, movement, voice work, text and singing and can stimulate the creative dialogue between the tangible and intangible aspects of the artist. The workshop can trigger creative processes in performing and non-performing artists probably because focuses on the biological core of expression. The artistic and personal relations that exist among the participants of the group may influence the experience of the practice by

participants because the workshop is rooted in the dialogue with the others.

6.1.4 How the "Scientific introduction" affected the experience of the workshop

Part of the scientific theories that have inspired the design of the training were presented to the participants at the beginning of the workshop with the intent to investigate the effects that this knowledge may have on their experience.

The combination of theory and practice in the same workshop had an effect on the participant's perception of the whole experience: "theory and practice were in dialogue and stimulated different parts of my personality and way of thinking."

Participants showed appreciation in being stimulated by different kinds of inputs: cognitive and physical, and they instinctively looked for a dialogue between the two.

Fig.11: workshop #1, improvisation phase

Indeed, as Damasio describes in his nesting principles, the emotional system is in perpetual dialogue with the decision-making one, in order to optimize the survival success of the organism. (see Damasio, 2003)

Participants have noticed how the teachers in schools and in academies don't clearly deal with emotion: "Nobody in the scientific field tells you what emotions are; who knows! I was

surprised by the fact that scientifically one can speak about emotions!"

This feedback clearly shows that the separation between the scientific and humanist disciplines has contributed at creating a fragmentation of the individual identity, where taboo and ignorance regarding one of the most important spheres of the human beings - emotions - have separated the mind from the rest of the body, the tangible from the intangible.

> "I am asking myself how it would be if these theories [of emotions and feelings] would be more spread and known […] and refer to the integrated entity "body-mind": what consequences could that have in our society? And if it would be taught in school? How would human relationships be – from private to work/official – with a higher awareness about emotions and body sensations?" (written feedback).

Damasio sees the platforms of art, science and technology as strongly connected with all three aimed at reaching the same goal: a better regulation of the self in the group. (Damasio, 2006) Art, in his vision, is a source of the soul to "reinstall the life balance lost in the trivialities of human activities". (*Ibidem*)

The interdisciplinary approach enriches both science and art because the way in which they are complementary can emerge and more fully define, in this project, the phenomena related to expression, emotions, feeling and embodiment.

6.1.4.1 The power of knowing

The scientific introduction ofered at the beginning of the workshop created the common key to interpret the individual and group processes as a written feedback describes: "Being all in the same cognitive process let me be more aware of what I was doing." Indeed, while *ca.* half of the participants wrote that the scientific information didn't change the work in the studio, all participants conveyed that the information helped and guided the process of reading and picturing the whole experience, and allowed the creation of a common awareness of the artistic process. "The power and intensity of the practice maybe would have been the same, but the scientific introduction helped in understanding what may happen in the organism."

The notion of biological energy given during the scientific introduction facilitated this

common reading. Each culture, country, profession describes energy with different terms with as many shades of meanings as human beings inhabit the planet!

In the scientific introduction, energy was described in biological terms as ATP (adenosine triphosphate), currency of the organism.

> “I think that energy is a word that we mythify a bit, and it is interesting to know what is actually happening inside of the body. As artists we deal a lot with emotions, energies...but we don’t know that the scientific world is also working on them and I think it is important to open this dialogue.” (written feedack)

“I think I will see my energy level differently now as I know that there is much more than I'm aware of.” It seems that knowing what energy is in biological terms supports the overcoming of blockages and tiredness and increases the awareness of one's own energy level as one trainee wrote:

> “I had to think back to the scientific introduction because I was really feeling that something was moving in terms of energy inside of me: I felt a void of energy in the first day: the introduction directed my attention towards the flows of energy, and gave me an understanding that energy is not missing, but it needs to be accessed.” (written feedack)

This feedback is crucial in exploring the power of scientific knowledge for a performing artist: science can be a source of inspiration and real knowledge that can stimulate and challenge the performer's work as described in this feedback: “the role of energy (ATP) in art is going beyond one's limits to find new resources of energy.”

Scientific notions of energy can be a useful tool for the performer working with her emotions because emotions are a physiological manifestation of the organism's urgencies, and need a certain amount of energy to be actuated.

Fig.12: Workshop #1, improvisation phase

Another role of the scientific introduction in shaping the experience of the participants is that it can trigger a process of detachment from oneself: “I felt my attention and awareness directed towards the flow of energy in myself and in the group and I had somehow a constructive distance from that because of the introduction.”

What is this constructive distance?

Unpredictable and intense emotional states may emerge from the workshop, such as deep joy, anger, rage, exhaustion, excitement, pleasure, hate, love, fatigue, ease, unease. In this context, a constructive distance (a detachment) from these states can be useful to maintain a degree of control over the uncontrollable, and enable the participant to channel these states into artistic expression. This detachment can be a tool to avoid the process becoming a form of therapy or devolving into a chaotic, unreadable scenario.

In the *give and take* process[13], which is one of the principles of the workshop, a detachment phase is necessary to go beyond oneself so as to be available to receive outer impulses, create space for them to resonate in the body and to avoid being stuck in one phase of the process. The understanding of the biological nature of energy and emotions allows the trainee to gain courage without fear of the unknown and intense energetic states. In this way, the process of constructive self-detachment can translate into

13 See paragraph 5.2.3.

a more profound exploration of oneself.

“By having some information regarding an inner vision of the organism, you are not afraid of what is happening” and “[the scientific] understanding helped me to be more open for the experience”.

> “After the workshop, [due to the scientific introduction] I am observing my body more, trying to see how my feeling/emotions change my body and/or are influenced by them. I see the instinctive aspect of my feelings/emotions now.” (written feedback)

This feedback shows that the scientific introduction can allow the participants to experience also long-term effects in the perception of the organism, and it indicates that participants are interested in knowing more about the scientific approach to emotions and feelings and exploring the dialogue between biology and the performing arts.

To conclude the effects that scientific introduction had on the experiences of the participants, the results showed that it raised curiosity and interest about the interdisciplinary discourse of emotions, offered to the participants a common key to read the processes of the workshop and prevented them from being afraid of the unknown reactions. It gave also real information about regaining of energy, allowed the trainees to go beyond their limits and increased the self-consciousness about one's emotions in the body. The scientific introduction provoked also the energetic-detachment process that facilitated the *give and take* process.

In the following paragraphs the main effects of the workshop on the experience of the participants will be analysed following the structure represented in Table 1.

6.2. High physical intensity and speed of the work

6.2.1. Self-controlled loss of control

The high physical intensity and speed of the work was described by the participants as “the heart of the whole workshop” and what “makes the experience true”. A wide range of beneficial effects were identified. The following analysis refers to the concept of losing control:

> “When I let myself go I didn’t think about controlling something and I didn’t hurt myself, even though I was working in contact with others. All was fluid: even if I bumped into someone, he would take the impulse and transform it. An important lesson that I learned is that in order not to hurt oneself, one shouldn’t always maintain control over oneself, but liberate oneself from control.” (written feedback)

This feedback indicates that giving oneself over to the physical intensity helped the trainee gain fluidity in the work. We can see that fluidity is one of the results of working in the *artistic survival mode* and occurs when the expression of the performer is not fragmented but organic and embedded in the biological need of expression. When the performer is in this state, expression is in dialogue with external input and the performer moves/speaks/sings according to the *give and take* process.

In the feedback another important element which further explores the *artistic survival mode* is the question of control. Indeed, in order to work with the emotional system in the continuous process of homeostatic regulation, what does the performer need to do with control? What degree of control is needed and which one is an obstacle?

Looking at the training method of Jean Fabre, Edith Cassiers writes: “[the exercises created by Jean Fabre] helped develop different techniques of self-controlled loss of control.” (Cassiers, 2015, 279)

What for Fabre is “self-controlled loss of control” in *The Urge of Being* is the consciously giving oneself up to inner impulses and letting them affect the organism at all levels: physical, emotional, mental and spiritual. This process is what in this research project stands for authenticity. The trainees affirmed that they were able to “reach physical states of being, which were otherwise inaccessible” and “access the body's instincts”. As one participant states “high rhythm breaks my walls and I overcame personal limits and structures.”

Fig.13: Workshop #2, group improvisation moment about the *give and take* process

These feedback show that urgency of being and expressing induced by high intensity and speed, pushed the trainees to work in contact with inner impulses and overcome physical and mental limits.

Once the trainee is able to access this dynamic, she can “let the reflexes of the body work and follow what is coming” and “let the whole body work.”

The trainer observed authenticity during the group improvisations: in these occasions the energy flow results from the ability to instantaneously tune one's own intentions to inputs from the environment and, at the same time, stimulate the environment with unpredictable choices.

This artistic capability reflects what the biological self-regulation is made for: moment by moment the individual decides consciously and unconsciously where to go, with whom, why, for how long, how much energy to invest and for which type of advantage, etc.

The participants also noted that the high intensity and speed could become a tool to “increase the awareness needed to observe and feel.”

The notion of self-controlled loss of control can be described in this way: the high speed works as a sort of sharpener of sensitivity and reactiveness, letting the trainees be apparently out of control but actually letting them gain a new way of controlling themselves

based on circuits of survival.

When these circuits are put into action, all senses of the organism are more acute because a faster self-regulation is required. Continuous engagement of this circuits is supported by “trust in the muscular capability and strength.” Participants were surprised that even though the work was very fast, unpredictable and subject to rapid changes in dynamic, they were in a state of high readiness and responsiveness, ready to react and act without hurting themselves or the others.

6.2.2. I feel tired but…

“I like that the work is intense, even if sometimes I hate it. But I could go beyond my limits.” “Tiredness is a source of energy to be accessed.”

The intensity and high rhythm of the workshop was largely appreciated though a times difficult to embrace. How can tiredness be a source of energy?

It might be more appropriate to substitute the colloquial term “tiredness” with “fatigue”. Fatigue is considered by Damasio to be one of the background emotions which include energy, enthusiasm, wellness, malaise, excitement, tension and relaxation.

The role of background emotions is to build the idea of the self: the self-consciousness. According to Damasio, the self-consciousness is closely related to the background feelings as excitement, fatigue/energy, wellness/sickness, tension/relaxation, surging/dragging, balance/imbalance and harmony/discord. From the studies of Damasio, fatigue has an effect on regulating the homeostasis of the organism, a process in which emotions play an important role. Therefore when the performer faces fatigue she is accessing a background circuit of energy that may generate emotional states. In the late nineteenth century A. Mosso writes about fatigue:

> “At first sight [fatigue] might appear an imperfection of our body, is on the contrary one of its most marvellous perfections. The fatigue increasing more rapidly than the amount of work done saves us from the injury which lesser sensibility would involve for the organism” (Mosso, 1904)

“It has taken more than a century to confirm Mosso’s idea that both the brain and the muscles alter their function during exercise and that fatigue is predominantly an emotion, part of a complex regulation, the goal of which is to protect the body from harm”. (Noakes

2012)

The feedback from participants confirm this role of fatigue: “even if tired, I felt very attentive and sensitive” and “we carried out the partner and group work without coming to a verbal agreement. We spoke without speaking.”

Fig.14: Workshop #2, group improvisation moment about the *give and take* process

This is due to the fact that when the performer works in contact with background emotions, he reads the physical and emotional behaviour of the others in the immediate moment and reacts to them. As the trainer observed, fatigue allows strong emotional states to emerge and to be shared, such as unconditioned joy, anger, belonging, process of self-discovery, drive, empathy, anticipation. These emotions and mental-physical states derived from gaining new awareness and giving up a range of resistances including self-judgment, taboo, conventional behaviours: “Being very tired brings you to a state in which you just do, without opposition: generally I am very shy, but I was too tired to be shy.” This does not mean the social and cultural spheres are excluded from the work, buy that they are not the principal content: the work is indeed focused on accessing the background emotions and through them other types of emotions are free to emerge.

Urgency, triggered by high physical intensity, speed and fatigue, was considered by one trainee as a tool to “feel that what I am doing is a matter of life or death.” If this radical

written feedback may sound overstated, nevertheless describes the core of the *artistic survival mode*, a situation in which the trainee, even if not in a real situation of life danger, still perceives the urgency of being. This feedback can be seen in relation to Grotowski's concept of art: “Why do we sacrifice so much energy to our art? […] Art is a ripening, an evolution, an uplifting which enables us to emerge from darkness into a blaze of light.” (Grotowski, 1968, 211-218)

Fig.15: Workshop #2, group improvisation moment about the *give and take* process

By working in the *artistic survival mode* the trainees acquire skills to activate their own energy according to their performative needs. Indeed, during the workshop the participants experienced several energetic flips as noted in their feedback: “tiredness passes when I activate myself” and “tiredness comes when I slow down the rhythm.” Energy calls energy!

This is possibly due to a dynamic like this: the performer faces fatigue and, pushed to overcome it by the group and by the trainer, finds a new source of energy “beyond” that fatigue, because her organism re-tunes itself and finds a new arrangement capable to make more energy available to accomplish expression and communication.This re-arrangement is a process that, as argued before, involves emotions.

Other feedback also revealed how fatigue occurred when the trainee attempted to replicate a precise movement (e.g. the plastique sequence). This is possibly due to the

fact that by trying to imitate a certain type of expression, there is no way to quickly integrated it in the homeostasis, and access new layers of energy. It may be that when fatigue is not supported by an internal urgency the organism can't sustain it as easily as it does when the expression is triggered from the inside.

By saying this, it is important to underline how the workshop is not free of structure, but maintains a structured balance between learning precise movements and self-expression, with the aim to let the participant experience different modes of fatigue both of which have the potential to stimulate the urgency to overcome it.

6.2.3. The role of the brain in artistic survival playground

> "I always judge everything, and in general I think how to perform a certain movement in advance, so that I do it well. Now, instead, I didn't think directly about how to perform a certain movement, and I was able to perform certain precise dance steps that I've been rehearsing ever since!" (written feedback)

The trainer observed that, in general, participants are often frustrated regarding some activities of the brain that may block them from free expression. One of the strongest impediments is self-judgement, and the fear and unease about being judged by the others or the teacher. One of the goals of *The Urge of Being* is to diminish or eliminate this impediment without discrediting the activities of the brain. In fact, as a trainee write: "It's not that I think less, I think the same. But I think in a different way. I think almost more than I usually do. I am very attentive."

Fig.16: Workshop #2, dialogue with Plastiques

It is interesting to question whether the performer in this process is working with ”the anticipated will” - that interval between being aware of an action and the actual physiological signal for that action, which occurs 0.5 s earlier.[14] This unconscious interval may be accessible to the performer through a training that works at level of homoeostatic regulation.

In such a case, the brain becomes an integrated part of the performer and has its own role in working with impulses. In this way the brain loses its ordinary and hierarchical action over the rest of the body and becomes part of the emotional network that regulate the homoeostasis and that take part in the artistic expression. In his nesting principle[15], Damasio explains how the mind is integrated in all levels of emotions, in such a way that a final behaviour of the individual, necessarily includes emotions and feelings. This is the possible reason why participant described thinking more and in a different way than usual. Considering the brain as an integrated component part of the artistic expression helps the trainee to “break some of the mind’s barriers” and “to have no time to think about the right thing to do” and “to stop the mind from being the only control of myself”. From these results we can see that the performer who works in the *artistic survival mode* is aware of

14 For Libet's experiment see paragraph 2.3.
15 See paragraph. 2.7.

how the brain is working and for which purpose, achieving a body-mind expression.

To conclude this theme, results showed that the high physical intensity and speed of the work was experiences as the heart of the workshop and helped the participants to experience an increase in fluidity of expression and to work with inner impulses. It increased the necessary awareness to act in the *artistic survival mode* and allowed the trainees to work in a “self-controlled loss of control” way. Results showed that the high physical intensity and speed of the work induced fatigue, and fatigue, in turn, let the trainees consciously find new sources of energy and integrated the activities of the brain in the artistic expression.

6.3. Freedom

6.3.1. Experimental nature of the work: a view of authenticity

The workshop is experimental in two ways:

1. it is a research project in which the participants and the trainer are the protagonists of an experiment;
2. the workshop’s methodology is not aimed at producing the right type of expression but at exploring the biological core of expression in the performing arts.

All participants expressed their interest and appreciation towards both points. The experimental nature of the workshop allowed them to work without the pressure of perfectionism and without reaching or replicating “the right thing to do”.

Freedom was also induced by the trainer by asking the participants to bring their experiences to the workshop: participants’ memories, desires, visions, poetic images, urgencies as artists, students, daughter, sons, could become part of the work. Participants largely appreciated the comprehensive nature of the work, in which they found freedom and organicity.

Participants emphasized that the freedom to express oneself was enhanced by the fact that the workshop did not deal directly with art and artists, but primarily with the human being, as expression is something held in common by all human beings, and not just artists. In this context a participant said “even the tiredness was overcome because of the appreciation that I felt towards the others, because we are human beings, before being fellow artists.”

Fig.17: Workshop #1, group improvisation

This approach can lead to a non-representational way of working that can facilitate a feeling of authenticity - where authenticity can be described as a non-representational modality that allows the performer to act in the real moment rather than creating a representation of a reality.

6.3.2. How to handle freedom

The flow of the 2-day workshop has been designed to alternate moments of freedom to moments of technical instructions. The performer works in the dialogue between tension and release in order to challenge and measure his inner impulses in relation to the action he's doing. Indeed, a participant's feedback clearly describes this dynamic: "bringing to the extreme limits the movement allows me to be free in deciding to which extent, until which intensity and intention I want to push the movement." This feedback refers to the work with *Plastiques* and we can see that the participant is aware of her state of freedom and she is able to detach herself form her own freedom and modulate it to the performative needs. We can name this process freedom-detachment.

Fig.18: Workshop #2, training the maximum possibility of the joints during *Pastiques*

Structure and entropy are in dialogue also in the macro design of the workshop: the participants noticed that the foundational structure of exercises was followed by the direct request to break their rigidity to gain the freedom necessary to work with unknown material.

In this dynamic the energetic tension created during the exercises reaches an energetic peak during the improvisation phases, resolves and generates a new energetic cycle.

As two participants wrote in the questionnaires “the guidance of the training creates a strong support in order to be free” and “freedom became a support.”

Freedom has been also described as a tangible corporal state, created by a perfect balance of opposed forces:

> “The process to open new rooms in the body let me understand what the physical state of freedom is: neither tensed nor relaxed. It was a question for me, but with this workshop I gained insights that refer to this corporal state of freedom.”

In this case freedom is the space and moment in which muscles are neither tensed nor relaxed.

Fig.19: Workshop #1, training the opening of the chest

To conclude the theme “Freddom”, the results showed that the participants experienced freedom in the expressive work for two main reasons: the workshop was a research project and the nature of the work is based, *in primis*, on the biological meaning of expression. Freedom let the trainee work in a non-representational and non-judgmental way and increased the authenticity perceived by the participants. Freedom was described also as the muscular sensation between tensed and relaxed, and allowed the freedom-detachment, a process essential for the *give and take* process.

6.4. Imagine![16]

From the feedback and from the trainer's observation, imagination was experiences as a very personal and differentiate element of the workshop.

> “I need to visualize emotions, vibration and feelings, and I do it trough colors form images that pop up in my mind; sometime I drive them, sometimes I let them drive; sometimes I connect them to the external world, sometimes I take them directly from

16 Due to the limited space, the theme “Imagination” is only briefly analyzed. The rest of the analyzes can be conducted in future developments.

the external world”.

By imagining, the performer can find new dramaturgical material as well as new energy as this written feedback describes: “Imagination helps to keep on going.”

The reason why imagination helps the trainee in finding new motivations and space for creativity may be that it creates new urgencies: “Imagination helps me to find the necessity of the moment, the urge of what I need to put outside”. By facing imaginary situations, the regulation of the homeostasis is stimulated and responses to it. Indeed, referring to the “as-if” mechanism described by Damasio, cognitive representations of the emotions can be activated in the brain without being directly elicited by a sensory stimulus: the brain can anticipate expected bodily changes, which allows the individual to respond faster to external stimuli without waiting for an event to actually occur. (see Damasio, 1999)

Indeed, by creating new urgencies, the imagination stimulates the unified work of body and mind, as described from a trainee: “[imagination] gives to my mind something to work with, and it was easier to create consensus between my body and my mind.”, “see what you see!” The mind was active and I was almost tired in my mind for how much I used it”

Imagination can be also very concrete: “Imagination was very concrete. To see real things: I felt/perceived/imagined the others, I saw them in their intentions and processes.”

Fig.19: Workshop #2, muscular space exercises

In contrast with what described so far, a participant affirmed that her work was almost imagination-less:

> “I think that actually this was one of the first time in my life in which I wasn't using my imagination or fantasy. When you said “the air that you are breathing was in the body of someone else” I actually felt it, it was, and I didn’t need to imagine. I used inner visualization but I was really focused on what I was feeling as a body, and not as a mind. Probably this is because of my habits of living very much in my mind, so I focused a lot on the body to reach a kind of balance” (visual artist's feedback).

This specific feedback was written by the visual artist of the workshop#1.

As the artist wrote, her habit is to work with mind and imagination, therefore in this workshop the artist found an occasion to experiment a creative process incepted by physicality rather then mental activities.[17]

The trainer as observed that imagination exists also as a group imagination: the dialogue between a collective and individual imagination is probably due to the composition of the group and from the environment the workshop is led.

To conclude the theme “Imagination”, participants experienced that imagination can generate new urgency and can unify mind and body. Imagination can have different shades, being corporeal, individual, realted to the group or can be completely absent in the way the participant experiences the workshop.

6.5. Group: an emotional and energetic support

“The *give and take* process was the ‘thing’ of the workshop.” “The group was a support, and what happened was very communicative and expressive.”

One of the main principles of the workshop is its expressive nature and the establishment of the *give and take* process. The *give and take* process is a cyclical dynamic of working from inside-out and from outside-in. As described by numerous trainees, the group was perceived as something that “takes energy, transforms it and gives it back”, a ground where energy is a ping-pong ball, “an entity that creates new stimuli to react to”, an

17 See paragraph 6.1.2. for results about the different categories of artists of the workshop#1.

element from which one can “gain fantasy and inspiration.”

“By watching the others working, there was a silent communication” and the trainees perceived the “others as sources of inspiration, with whom to communicate with physical and emotional messages.”

In these feedback the trainees link the communicative process with the group to the emotional sphere. It can be argued that the group was an element with which the participants established the *give and take* process, and by doing this they activated the emotional sphere. The group is the reference for the communication and with emotional, auditory, imaginary and physical inputs, the group shapes the conditions in which the participants act, moment by moment.

This is why the trainees described the group as something in which they felt real connections: “communicating mirrors, complicity, real connections”. These real connections can refer to the fact that trainees didn’t *represent* the communication, but they were acting in and reacting to the group according to their real inner impulses.

The group “helped me feel alive” and “it reminds me that we are not alone and always affected by the environment”. This last feedback emphasises the importance of the environment as described in Damasio's nesting principle[18], that claims that the environment has the strongest influence in the way individuals act in the world.

In the case of the workshop, the environment was the group, and it is a “conscious” environment that can actively take part to the artistic process, as participants wrote in the following feedback “the group is conscious about the process of the single individual, and as an intelligent entity moves the flow of the workshop” and has the capacity “to test the limits of the whole group to see what the group is capable of.” The group actively and consciously leads and challenges the processes towards certain directions, according to the moment and flow of energy.

Indeed, “the group forms the support that is able to free the person”: each component of the group can mirror the process of the other and address the work in a sensitive way, “helping and understanding each other in the process of expression.”

This is possibly due to the fact that:

> “Humans live in, rely on, and contribute to groups. Evolution may have biologically prepared them to quickly identify

18 See paragraph 2.7.

> others as belonging to the in-group (vs. not), to decode emotional states, and to empathize with in-group members" (De Dreu, 2016).

As described by the same author, emotions, trust, empathy and cooperation from in-group members are encoded faster and more accurately than those from out-group member and "these components of human group psychology rest on and are modulated by the hypothalamic neuropeptide oxytocin." (*Idibem*)

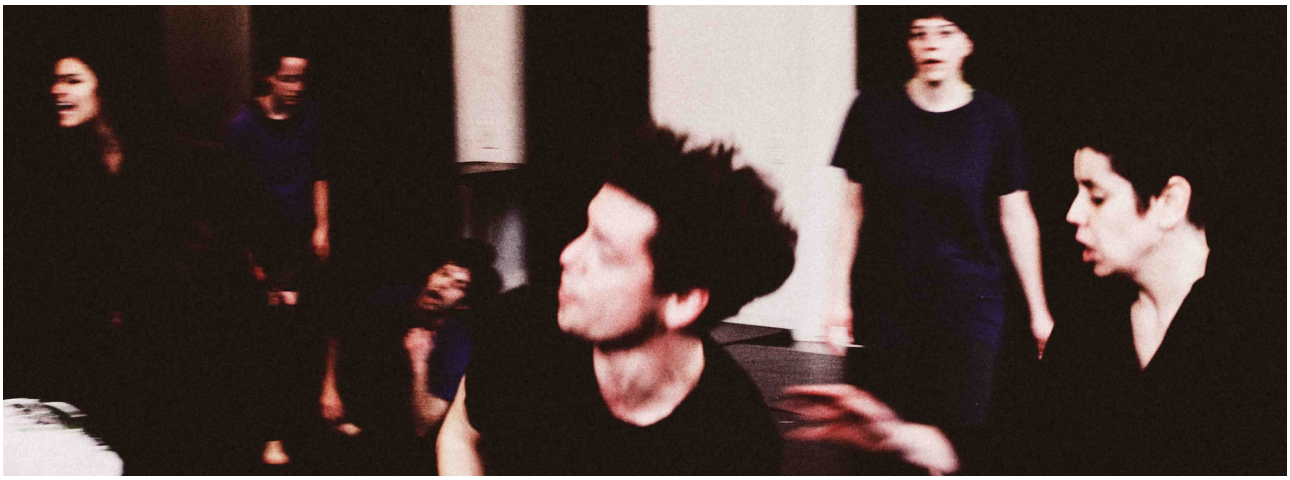

Fig.20: Workshop #1, group *give and take* process

A correlation with Pert's theory of Molecules of Emotions and the possible roles of oxytocin in mediating the emotional relations in the group can be argued. Indeed oxytocin (OT) plays numerous roles in regulation of homeostasis and emotions. For instance, "Oxytocin drives a "tend and defend" response promoting in-group trust and cooperation." (De Dreu, 2016), it is involved in the "maintenance of cardiovascular homeostasis and attenuation of the diseases" (Chini, 2014), "OT and OTRs have been associated with positive social behaviors and may function as a biological metaphor for social attachment or love." (Carter, 2017), "OT regulates as well the decision making between approach and avoidance behaviours" (Maroun, 2016), "the rat heart is a site of oxytocin synthesis and release. Oxytocin was detected in all four chambers of the heart. […] Heart OT is structurally identical, and therefore derived from, the same gene as the OT that is primarily found in the hypothalamus. Thus, the heart synthesizes and processes a biologically active form of OT" and the heart "contains abundant OT's receptor in atrial myocytes supporting the hypothesis that OT [...] can regulate the force of cardiac contraction." (Jankowski, 1998).

Oxytocin is a neuropeptide that can move throughout the whole organism and accomplish differentiated tasks, among which we can distinguish, affiliation, maintenance of homeostasis, emergence of emotional states and attachment. OT receptors are found also in myocytes, a muscular tissue in the heart.

> "Open the heart! You can see from the outside when one opens the heart, and things reach the audience, the partner; they take more space, they have a stronger resonance in ourselves" (written feedback)

Fig. 21: Workshop #2, opening the chest exercises

The biological reading of what can happen during the *give and take* process can be illustrated by the activity of the vast network of the neuropeptide OT and might play a role in mediating the emotional relation with the others and one's own emotions and physical reactions. OT in this analysis is used as a model for a possible biological reading of the artistic process described above. It's important to note that OT is just one of the factors which can influence behaviour and group dynamic.

Another role of the group discussed by the participants is the ability to generate unpredictability and induce urgency: "the group is very aware of the energetic flow of the person who is exploring. New inputs and new evolution are created by the group.", "the

group blocks the automatism and clichè.” One way the group can achieve these dynamics is through playfulness.

In biology “fun is functional: play is evolution's way of making sure animals acquire and perfect valuable skills in circumstances of relative safety. Yet precisely what animals find fun has seldom been examined for what it can potentially reveal about how they represent and think about the world.” (Byrne, 2015). Contextualizing this notion in the workshop, we see how playfulness is a possible process of embodiment of the external world, a way through which the individual experiences possible ways to relate to its environment in a free way. Playfulness is triggered by the trainer when the energy flow needs a release moment, or when a new type of energy is required. Playfulness is also required to let the work be light and open, even if it deals with inner impulses and profound sensation and emotions.

Playfulness is always in the air and reminds the participants not to take their work “too seriously” as the work needs to be detached from itself in order to breathe.

The group was also described as an amplifier of emotional and energetic states and a medium to recoup energy: “if the group pushes further, I’m also pushed”, “in the moments when we went alone, we were more tired” and “energy grows in the group, thanks to the group, and with the group.”

As stated above, the group is an evolutionarily successful organization where emotions and intentions are quickly understood and shared, and this may provoke the amplification effect described by the trainees as well as a sense of belonging that lets the trainee feels supported and recognized as an individual in a community.

As the feedback illustrate, the group has a massive effect in supporting and guiding the energetic and emotional processes because it constitutes the environment of the workshop with which each participant establishes a process of communication.

Therefore the composition of the group, the trainee’s experiences, intentions, desires and limits, have a strong impact on the quality of the artistic process that the performers actuate.

To conclude the theme “Group”, the results showed that one of the effects of the training experienced by participants, is the establishment of real connections and of the *give and take* process with the referent of the communication, which in this case were the

components of the group. Results showed that this process led to a non-representational way of working. The group emotionally, energetically and consciously supported each single performer to experience in the work a sensation of alivenes, urgency and unpredictability, and to create a diffuse sense of attachment and love.

Fig. 22: Workshop #2, final embrace

6.6. Emotions

Even if the trainer doesn't give direct indications to work with emotions and even if none of the exercises directly mention any emotional state, the work provokes the emergence of strong emotions, mostly when working with muscles, breath and voice, as participants wrote: "The combination between quality of movement, breath and voice, create specific emotions", "Breath movement and voice come from the body and have a direct impact on emotions, as an amplifier."

6.6.1. Emotions and muscles

"I had emotional states at first through movements and then through voice. The breath followed the emotional states that emerged with movement and vibration.", "The movement allowed me to experience deep emotional states and close to what I feel is mine.", "I experienced a lot of emotions during the muscular contraction[19]", "During the contraction exercise, I felt a body full of life, expanded and present in the world."

19 See Appendix II

Participants affirmed that movement and exercises focused on muscular contraction induced emotional states. As argued before, the muscular tissue contributed to the expression (pressing–out) of emotions because, in the context of the workshop, was considered and tained as the body tissues in charge of actuate actions. The term “emotion” etymologically derives from Old French *emouvoir* "stir up", from Latin *emovere* "move out, remove, agitate”"[20] and includes the notion of movement. The muscular tissue in this context is seen as the communication system that allows inner impulses to manifest. This notion supports what trainees described in their feedback about the relation between the muscular tissue and the emergence of emotional responses. It is interesting to investigate possible distinctions between types (and purposes) of movement. Indeed, we can question if any type of movement and muscular activity have the power to provoke or recall emotions.

What is the difference between gymnastic movement and expressive movement, for instance?

The physical work might look the same, but there is an underneath tension that makes the muscular work of the performer expressive. The artist is aware of her muscular work and she puts herself in a state in which communication becomes urgent; in this way the muscular tissue is a communicative system that is able to express the inner impulses and the unconscious sphere of the performer, things that gymnastics doesn't call forth.

Fig. 23: Workshop #1, muscular space exercise

20 https://www.etymonline.com/word/emotion

By delving more into the details in the relation between muscular tissue and emotions, can we find a mechanism that put them in relation?

By stimulating the contraction and elongation of muscles in combination with conscious breathing, muscles re-acquire their physiological functioning.

Indeed, a certain muscular mechanism was identified and named “ Sensory Motor Amnesia” by Thomas Hanna, the founder of somatics:

“Sensory Motor Amnesia is the condition of chronically-tight muscles that have learned to stay contracted due to repeated and reflexive response to stress such as accidents, injuries, surgeries, repetitive tasks, and ongoing emotional stress.“ (Hanna, 2019)

Hanna unerlines how by improving the connection between the brain and the muscles people learn to regain sensation and motor control of muscles and movement.

Most probably, through the exercises of the muscular module and respiration, the trainees re-gain muscular control and awareness of the areas of the body that are generally not accessible (‘the new rooms’ mentioned above) and the emotional system associated to these areas can be re-established.

Fig. 24: Workshop #2, muscular space exercise

> “The advantage in discovering new rooms in the body [is that it] provokes emotion: the practice of breath, of the movement provoked an opening of new spaces in the body and has generated or recalled emotions.” (written feedback)

Another notable relation between emotions and muscular tissue is the experience of emotional detachment. As one trainee described:

> “The emotional state that came up most frequently was ‘it's not me’. I had the feeling that I could detach from myself and look at myself in a pure way. I had the feeling being the mistress of my body. When I was in an emotional state I also felt very focused and concentrated. This happened when we did the exercise of the muscular contraction and when we used the voice and song together with the movement.” (written feedback)

What is this process of “emotional detachment”?

Even if the detachment is not labelled as a particular category of emotion, why does the participant label it as an emotion?

In the questionnaire of the same participant, we can read that one of the strongest resonance she felt in the days after the workshop is that her “personality was more ‘adherent’ to my body that I usually feel”. The questionnaire shows that the process of emotional detachment contributed to create an increased feeling of adhesion of the personality to the body: the detachment facilitated the re-connection of the unity of the person. This dynamic between emotional attachment and detachment can be explained by the fact that emotions were triggered by the give and take process, namely they developed in the dialogue between outside and inside. So emotions come to life when integrated into communication, in the negotiation between inner impulses and their expression.

Fig. 25: Workshop #1, final group improvisation section with text

This opposition between attachment and detachment is also encountered in evolution: nature acts in the balance between conservation and mutation; with one hand nature maintains the successful characters in the population, and with the other, it induces variations (mutations) with the intent to generate more adaptable phenotypes, with higher possibility to survive (Lande, 1995).

6.6.2. Emotions and body-voice: the role of vibration

Participants have affirmed that one of the most interesting aspect of the work with the voice was was the relation between body-voice:

“The way the voice was linked to the body in the workshop was beautiful. I never understood it so well!”, “The voice makes room in the body, entering spaces, influencing the body in timing and movement. Without the work with voice, rooms wouldn't have been experienced or filled up and expressed”, “By discovering new resonators in the organism I felt the echo of my voice throughout the arm. Never happened before!”, “Emotions emerged during the opening of the chest in combination with voice, with new rooms found in the legs.“

The trainees let numerous parts of the body vibrate, also parts that generally are not in charge of vocalization, like lower back, legs, arms. Feedback show that when the voice

creeps into the physical body, it gives expression to that parts: “the most emotional part was during vocalization. I was touched and surprised in feeling and hearing my voice vibrating.”

Voice is indeed one of the most important expressive tool of human being and, if we consider that emotions are processed throughout the organism as part of its homoeostasis, it is conceivable that when the voice resonates in certain parts of the body, it can recall or induce emotional states related to that part.

Fig. 25: Workshop #2, diagonal for voice resonation in the pelvis

“I had strong emotions during the exercise for the resonation of the voice from the pelvis”, “Vocalizing brought me fear, fear of death. This was a feeling that I have in personal life and in dreams, about not having enough courage. The muscular contraction recalls this emotional state of ‘not daring’.” In this feedback we see that the feeling of “not daring” experienced during a simple muscle contraction, it was also experienced during vocalization, suggesting that there is a connection between voice and muscles.

To explore what this connection can be, we can say that the emotional content of the voice might be influenced by its support - in this case muscles - just as the sound of a guitar depends on its type of wood, shape and size.

In the state of the art we have seen that in the respiratory muscles there are receptors for

numerous neuropeptides, and we have seen that neuropeptides and their receptors are involved in the regulation of homeostasis and includes the emotional system. Considering that the voice is generated by respiration, we can imagine that when the voice resonates through muscular tissue it can provoke certain reactions of the respiratory muscles that can produce emotional responses.

Going more in detail, we can investigate the role of the voice's vibration in the regulation of homeostasis.

When we consider that homeostasis is a complex network constituted by signals coming from the system's neuropeptide-receptors and the nervous system, and zoom in to look at the way information travels in the organism, we can identify the system's ligand-receptor.

Generally speaking, the ligand binds the receptors on the membrane of the target cells or in the next neuron and transmits a specific signal in many different ways. There is a relation between the bond ligand-receptor and vibration: the mechanoreceptors (responsible for the kinesthesia) and other proprioceptors are also responsive to vibration:

"Each of the five senses contains a unique receptor cell in which integral membrane proteins, such as G protein-coupled receptors or ion channels, convert external stimuli into electrical signals that are relayed to our brain. […] .Our ability to feel, touch and hear sounds comes from the activation of ion channels that respond to mechanical forces such as vibration, indentation, gravity, and sound waves" (Ranada, 2015).

We see that the bond receptor-ligand responds to vibration and that "Proprioceptive mechanosensors provide constant homeostatic regulation of skeletal muscle tension to prevent potentially injurious over-activation" (Windhorst, 2007).

This evidence shows that vibration alters the bond ligand-receptor, which in turn alters proprioception, all of which acts on the organism's homeostasis including the emotional system. In short, the voice's vibration influences the homoeostasis of the organism and therefore can contribute to the emergence of emotional states.

We can question what the "emergence of an emotional state" means: it may indicate a liberation, a generation, an amplification, an inhibition of certain emotions in favour of others. It is beyond the scope of this thesis to investigate this question in more detail. Scientific research about the relation between proprioception, homeostasis and emotions is also still in its earliest stages. We can only say that the voice's vibration has an effect on the bond ligand-receptor that affects the regulation of the homeostasis and therefore the

emotional system. This observation supports the feedback of the participants about the fact that voice vibration provoked an emotional state.

To conclude this section on the theme of “Emotions”, the results showed the participants experienced a clear relation between emotions and the work on muscles, voice, movement and breath.

The pair emotions-muscles showed that muscular contraction and elongation let the performer access the physiological role of the muscular tissue to express emotions and provoked the emotions-detachment process. Muscular tissue is seen as an actuator of emotions and as a communicative system. The results on the pair emotions-voice showed that the voice resonation in the body provoked the release and/or generation of emotions.

Fig. 26: Workshop #2, diagonal for voice resonation in the pelvis

6.7. Dramaturgical material. Text: a tool to channel the impulses

“I felt the text inside me, with vibration. The meaning was not the first and unique aspect, because the text needed to be found also in the body”, “I was concentrated more on the impulses rather than on the text. Although I don't like working with text, it freed and helped me.”

In these feedback, text is seen as a tool that channels energy, a pretext to handle the physical impulses of the performer and channel his urgency of expression.
“I have chosen a text that I love and in the workshop I felt that the first impulse came from the body and I felt how this impulse acts with the text.”

We see that the meaning of the text is subject to the physical impulses and this way of working leads the performer to find different meanings in the text and work in a non-descriptive and-representational way, as described by these participant's feedback: “this work allowed me to say always something new with a text that I’ve been performing for the past three years. I never felt something like this”, “Even if the text and song were very different in terms of meaning, intensity and quality of emotions: one very light and sweet while the other very hard, jealous and aggressive, I felt the same energy coming out from my chest.”

Fig. 26: Workshop #1, partnering improvisation with text

In this case the trainee worked from an inner source of energy, a kind of “seed” of energy, that is yet unconditioned and undifferentiated, an impulse, indeed. The secondary emotions that accompany the text, will develop from the energy of these impulses.

To conclude, the main effect of working with text is that trainees focused on physical

impulses rather than on the text itself. In the work, meaning does not become the first or primary access to the text.so the trainee doesn't represent the emotional content of the text but lets her emotion “travel” on the energy of physical impulses. By activating this process, the text gains different meanings and readings and is not self-descriptive.

Fig. 27: Workshop #1, group improvisation with text

Fig. 28: Workshop #2, group improvisation with tex

7. Discussion and Conclusion

The first hypothesis of this research project which is described in Chapter 3, is that the workshop may increase the performer's feeling of authenticity by working within the biological need of expression.

From the analysis of the results, one of the most evident effects of the workshop on the experience of the participants, is that it triggers an artistic expression based on an emotional way of working and articulation, that is non-representational but it is experienced as authentic both by participants and trainer.

Authenticity unfolds itself through several aspects and dynamics such as the establishment of real energetic and emotional connections within the group, the sensation of freedom and urgency of expression, the fact that the workshop is a research project, the physical access to the text and the fact that the workshop accesses the artistic expression indirectly, through the biological core of expression.

Analyzing the results, a dynamic that touches all these aspects of authenticity was found, and it is the "work in opposition", a condition in which the performer establishes a dialogue between two extremities, two opposite dimensions or forces.

How does the work in opposition influence the feeling of authenticity of the participant?

The work in opposition allowed different dynamics: the opposition between "(energetic, emotional, freedom) attachment and detachment" allowed the *give and take* process; the opposition "voice support and resonance cavity" consented the development and expression of emotional states; the opposition "structured exercises and improvisation phases" allowed the sense of freedom, urgency and authenticity of expression; the "muscular contraction and elongation" allowed the emergence of emotions and described a physical sensation of freedom; the opposition between "inside and outside the organism" allowed the real connections in the group, so the establishment of a non-representational communication. The opposition "body and mind" allowed the trainee to explore the condition of self-controlled loss of control, a situation in which the activities of brain are organically integrated in the artistic expression.

Each opposition becomes an organized unity, an organism in which the parts are in dialogue and create artistic meanings.

As we can see, authenticity articulates itself from the very interaction between the parts. Authenticity is not a experienced as a fixed feature of the artist or of the artistic expression,

but it is an alive and variable interaction among the parts, in the real moment.

Hence, if the first conclusion of this thesis is that the workshop provoked a feeling of authenticity in the participates, the second conclusion is that it does it through stimulating the interaction between certain components in the “work in opposition”.

The dynamic of the “work in opposition” observed during the workshop, supports the fact that the workshop's design itself originates from the opposition and interaction between two disciplines, science and art.

The direct effects of scientific introduction offered at the beginning of the workshop are that it prevented the trainees from being afraid of unknown reactions, it gave real information about energy and how to recover energy, allowed the trainees to go beyond their limits and increased the self-consciousness about one's emotions in relation to the body.

By working in opposition, the trainee is in the condition to continuously re-arrange his homeostasis, so he accesses his expression through his homeostasis, and this is why he has the feeling of authenticity, because his expression is really happening at that moment.

In the specific interaction between individual and the group, between the muscular elongation and contraction, between the *give and take*, out and in, freedom and structure, the trainee experienced a personal, free and authentic way to express herself, because her expression is based on the alive, necessary and real interaction between certain components.

In this context, as in biology the dialogue between inside and outside of the organism is the basis for adaptation which is necessary for survival, the artist who works in the *artistic survival mode*, stimulates her self-regulation and obtains an expression triggered by her urgency.

In this way of expressing oneself, also the emotional states are experienced as functionally integrated in the communication between the parts: in fact emotions are not the goal of communication, but they are tools of communication and the trainee doesn’t represent them, but uses them to communicate her urgency.

So the third conclusion of this thesis is that participants experienced that emotions originate themselves from the interaction between the intangible impulse to survival and its tangible actuation: between the urgency and its actuation.

As a general conclusion of this thesis, I can say that the dialogue between physical theater and life science opens the possibility for performing artists to reach a source of energy

made of inner impulses, and channel it into specific performative needs. In this way the artist can experience his work as urgent, free and authentic, as a work in which the tangible and intangible needs of expression unfold themeselves into artistic impulses organically integrated in a communication process.

8. Future developments

The possible future developments of this project refer to two main fields of action: the deepening and elongation of the training and its real and *site-specific* application in a real situation of environmental urgency, sch as the sea pollution.

The deepening and elongation of the training consists in enriching the training with new exercises and knowledge and with the organization of a group creative process to create a performance based on the main principles of the workshop. The following step will be to create a *site-specific* training and performance “in contact” with a real urgency of our times, for instance the pollution of the sea. This approach aims to explore the relation between the urgency trained in a theatrical setting and a real urgency able to endanger our lives.

Social and cultural application of the training refers to the possibility to study the effects that this training based on biological core of expression can provoke on artists of different cultures. As Eugenio Barba developed the Theater Anthropology to study the pre-expressivity of the actor across the cultures, the Theater Biology can research the principles and biological theories to explore the performer’s expressivity.

Acknowledgments

All my deepest gratitude to Ruth Hungerbühler and Hubert Eiholzer for their pioneer work as initiators and heads of this Master, and to my supervisor Dr. Gerko Egert who facilitated this project to come to life.

I thank the organization of Accademia Teatro Dimitri to have permitted me to carry out two workshops with the students of the Bachelor in physical theater. Without these two groups of students, this thesis wouldn't have been possible. I warmheartedly thank them all for their generous, deep and committed work.

I would like to thank Christina van Mickwitz for believing in my work and for providing copies of Peter Rose's archive books.

I thank Peter Rose, my most influential theater master, who left an indelible trace of beauty in my soul.

Special thanks to the performer assistants Ilaria Di Maio, Silvia Prolunghi, Betta Chapuis, Gigi De Cicco, Elena Galliano and Serena Cusi, who took part in the workshops, and also to the performers who have joined, with curiosity and passion, the UMANAMENTE project.

Their artistic and personal support, trust, joy, love and passion made this training a fruitful network and community of committed hard-working people and a cradle of visionary ideas, experiments and dreams.

I would like to thank Cecile Rossant for her tireless help in proofreading the thesis and for the precious reflections about the work.

Thanks to the film director and photographer Pierluigi Muscolino for translating in video the poetics of the work.

Thanks to Gigi, my parents and all my family for being the most rooted and groovy support ever.

Bibliography

Allain, P., Interview, (2017a), E*ssential Drama, Thinking together about theatre*, http://essentialdrama.com/tag/ryszard-cieslak/

Allain, P., Interview, (2017b), *Grotowski Composes Associations: Plastique and Corporeal Exercises.* http://essentialdrama.com/2017/11/14/grotowski-composes-associations-plastique-and-corporeal-exercises/

Barba. E., (1993). *La canoa di carta. Trattato di Antropologia Teatrale,* Bologna, Italia: Il Mulino Saggi.

Barneì, P., Baraniuk, J., Belvisi, M., (1991). Neuropeptides in the Respiratory Tract: Part II, *American Review of Respiratory Disease,* 144(6).

Batson G., (2009). Somatic Studies and Dance, *International Association for Dance Medicine and Science*,https://cdn.ymaws.com/www.iadms.org/resource/resmgr/resource_papers/somatic_studies.pdf

Bonham, AC (1995). Neurotransmitters in the CNS control of breathing, *Respiration Physiology,* 101(3): 219–30.

Bosch. O.J., Young, LJ., (2018). Oxytocin and Social Relationships: From Attachment to Bond Disruption, *Current Topic in Behavioral Neuroscience*, 35:97-117

Byrne, RW., (2015). The what as well as the why of animal fun, *Current Biology*, 25(1):R2-4

Cannon, W.B., (1932). *The Wisdom of the Body,* New York: WW Norton & Co

Carvajal, C., Dumont, Y, Quirion, R., (2006). Neuropeptide y: role in emotion and alcohol dependence, *CNS Neurological Disorder - Drug Targets*, 5(2):181-95

Cassiers E., Rutgeerts J., Van den Dries L., De Somviele C., Gielen J., Hallemans A., Van Moorsel Annouk, Roussel N., (2015). Physiological performing exercises by Jan Fabre: An additional training method for contemporary performers. *Theatre, Dance and Performance Training.*

Chini, B., Leonzino M., Braida D., Sala M., (2014). Learning About Oxytocin: Pharmacologic and Behavioral Issues, Biological Psychiatry, 76(5), 360–366

Cieslak, R. “Cieslak on the Plastiques pt. 1”, *The Body Speaks*. https://www.youtube.com/watch?v=1VCyGPm1VJM

Daly, J., Kellehear, A., & Gliksman, M. (1997). *The Public Health Researcher: A Methodological Approach. Melbourne.* Oxford University Press

Damasio, A., (2003). *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain,* Oregon, U.S.A.: Harves

Damasio, A., (2006). *Art and the New Biology of the Mind.* Columbia Forum on Art and the New Biology of Mind, March 24, 2006. https://www.youtube.com/watch?v=B1hx0qwsFvE

Damasio, A.,(1999). *The Feeling of What Happens: Body and Emotion in the Making of Consciousness,* California, U.S.A.: Harcourt Incorporated

Damasio, A.R., (1994). *Descartes' Error: Emotion, Reason, and the Human Brain*, Putnam

Publishing, United State, New York City

Daniel, Meyer-Dinkgräfe, (2014). *Consciousness, Theatre, Literature and the Arts 2013*, U.K.: Cambridge Scholars Publishing

De Dreu CK., Kret ME., (2016). Oxytocin Conditions Intergroup Relations Through Upregulated In-Group Empathy, Cooperation, Conformity, and Defense, *Biology Psychiatry*, 79(3):165-73

Frazzetto, G., (2004). Different and yet alike, *Science and Society Analysis, EMBO Reports*; 5(3): 233–235

Green, J. (2002) Somatics: A Growing and Changing Field, *Journal of Dance Education,* 2:4, 113

Grotowski, J., (1968). *Towards a poor theatre*, New York: Routledge

Hanna Somatic Education®, (2019), https://hannasomatics.com/index.php/about_somatics/what_is_somatics/

Hanna, T., (1986). The Body of Life. *Somatics: Magazine-Journal of the Bodily Arts and Sciences*, V(4)

Herzog, H., (2003). Neuropeptide Y and energy homeostasis: insights from Y receptor knockout models, *European Journal of Pharmacology, 480(1-3):21-9*

James W., (1884). What is an emotion?, *Mind*, os-IX (34), 188–205

Jankowski, M., Hajjar F., Al Kawas S., Mukaddam-Daher S., Hoffman G., McCann S.M., Gutkowska J., (1998). Rat heart: A site of oxytocin production and action, *PNAS*, 95 (24) 14558-14563

Johnson, G., (2018). Theories of Emotions, *The Internet Encyclopedia of Philosophy*, ISSN 2161-0002, https://www.iep.utm.edu/

Jones, (2000). *Psyc*hology of Learning and Motivation (2013), https://www.sciencedirect.com/topics/neuroscience/proprioception

Julie, A., Brodie, Elin E. Lobel, (2012). *Dance and Somatics: Mind-Body Principles of Teaching and Performance,* North Carolina, U.S.A.: Mcfarland

Lande*, R., (1995). Mutation and Conse*rvation, *Conservation Biology*, Vol. 9, No. 4, 782-791

Li, Larry., (2014). Organism. Retrieved November 4, *Biologydictionary.net*, from https://biologydictionary.net/organism/

Libet, B., Gleason, C. A., Wright, E. W., and Pearl, D. K. (1983). Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential). The unconscious initiation of a freely voluntary act, *Brain*, 106:623-642

Linklater, K., (2006), *Freeing your natural voice,* New York: Drama Publisher.

Maroun M., Wagner S., (2016). Oxytocin and Memory of Emotional Stimuli: Some Dance to Remember, Some Dance to Forget, *Biological Psychiatry*, 79(3), 203-212

Meyer-Dinkgraefe, D., (2006). *Consciousness, Theatre, Literature and the Arts*, Cambridge Scholars Publishing

Mosso, A., (1904), Fatigue, New York: G.P. Putnam's sons, London: Sonnenshein & Co. LTD

National Park Serivce, (2018). Adaptations for Survival

https://www.nps.gov/shen/learn/education/classrooms/adaptations-for-survival.htm

No author, (2018). Yamaha Artificial Intelligence (AI) Transforms a Dancer into a Pianist.

https://www.yamaha.com/en/news_release/2018/18013101/

Nummenmaa, L., Glerean, E., Hari, R., Hietanen, J. K., (2014). Bodily maps of emotions, *PNAS*, 111(2) 646-651

Pert, C., (1988). The Wisdom of the Receptors: Neuropeptides, the Emotions, and Bodymind. *Advances* Vol 8, No 8 Summer, p8-16

Pert, C., (1997). *Molecules of Emotion,* New York: Scribner

Pert, C., Ruff, M.R., Weber, R, Herkenham, M., (1985). Neuropeptides and their receptors: a psychosomatic network, J*ournal of Immunology*, 135(2 Suppl):820s-826s

Pope. C., Mays, N., (1995). *Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research,* British Medical Journal, *1;311(6996):42-5*

Ranada, S.S., Syeda, R., Patapoutian, A., (2015). Mechanically Activated Ion Channels, *Neuron,* 87(6), pages 1162-1179

Ribot-Ciscar E., Roll JP., (1998). Ago-antagonist muscle spindle inputs contribute together to joint movement coding in man. *Brain Research*. 27;791(1-2):167-76

Richards, T., (2003). *At Work with Grotowski on Physical Actions,* U.K.: Routledge

Rothwell, J., (1994). *Proprioceptors in muscles, joints and skin. In: Control of Human Voluntary Movement*, Dordrecht, The Netherlands: Springer.

Saldana, J., (2009). *The Coding Manual for Qualitative Researchers*, California, U.S.A.: Sage Publications. p. 13

Scott-Phillips, T.C., (2008). Defining biological communication, *J. Evolutionary biology*, 21 387–395

Seong, J.Y., Vaudry, H., (2014), *Neuropeptide GPCRs in neuroendocrinology,* Frontiers Research Topics, Frontiers E-books

Smith., J.A., Eatough, V., (2007). Analysing Qualitative Data in Psychology. Sage, research methods.

Soon, C.S., Brass, M., Heinze, H.J., Haynes, J.D., (2008). Unconscious determinants of free decisions in the human brain, *Nature Neuroscience*, 11, 543-545

Stroupe, D., and Kramer, A., (2014). Students Modelling Molecule Movement Through Science Theater, *National Science Teachers Association* (NSTA). Reprinted with permission from *Science Scope*, 38(2)

Sue Carter C., (2017). The Oxytocin–Vasopressin Pathway in the Context of Love and Fear, *Front Endocrinol (Lausanne)*, 8: 356

Takenoya. F., Kageyama, H., Shiba, K., Date, Y., Nakazato, M., Shioda, S., (2010). Neuropeptide W: a key player in the homeostatic regulation of feeding and energy metabolism?, *Annals of the New York Academy of Sciences* 1200:162-9

Tataryn, D.J., (1983), *Emotions, Muscles and the Cortex: A Physiological Basis for Repression.* University of Manitoba

Timothy David Noakes, (2012). Fatigue is a Brain-Derived Emotion that Regulates the Exercise Behavior to Ensure the Protection of Whole Body Homeostasis, *Front Physiol.* 3:82, doi: 10.3389/fphys.2012.00082

Todd, M.E., (1937). *The Thinking Body,* U.K.*:* reprint by The Gestalt Journal Press

Urfy, MZ., Suarez, JI., (2014). Breathing and the nervous system, *Handbook of Clinical Neurology,* 119:241-50

Van den Dries, L., (2004), Corpus Jan Fabre: observaties bij een werkproces, Volume 356

Van den Dries, Research *Centre for Visual Poetics,* https://www.uantwerpen.be/en/staff/luc-vandendries/research/

Windhorst, U., (2007). Muscle proprioceptive feedback and spinal networks, *Brain Res. Bull.*, 73, pp. 155-202

Zhu, H., Perkins, C., Mingler, MK., Finkelman, FD., Rothenberg, ME., (2011). The role of neuropeptide S and neuropeptide S receptor 1 in regulation of respiratory function in mice, *Peptides*, 32(4):818-25

Appendix I - Video link

Link to the video documentary: https://www.youtube.com/watch?v=EgDRl5So8AE&t=1s
Link to the video trailer: https://www.youtube.com/watch?v=t-qxCZvn1QU&t=124s

Both video are filmed and edited by Pierluigi Muscolino and refer to the workshop#1, April 28th and 29th , 2018, Accademia Teatro Dimitri, Swizerland.

The graphic in the first page is created by the artist Carlo Bortolini.

Appendix II - Exercises

Contraction exercise

The trainees lay down on the floor on their back; while exhaling they contract the muscles of a precise part of the body, while inhaling they extend the muscles. After contracting and elongating the muscles of head/face, shoulders, arms and hands, chest, belly, pelvis, legs, feet, this exercise fades into an improvisation phase that originated from the exercise itself, when the trainees use patterns of contraction and elongation to express their impulses.

Diagonals: voice support in the lower part of the body

These diagonals lead to explore the resonator in the lower part of the body by creating a solid muscular support in feet, knees, legs, pelvis and lower back. For instance in one of the diagonals one trainee crosses the space and vocalizes by being pulled from the hips by a partners.

Appendix III - link to the questionnaires of the participants

All the questionnaires of the participants are available at this web link:
http://docs.wixstatic.com/ugd/301199_e747872023e64cf8a132b4b4c5d433bf.pdf