

## Summary of the thesis

### *Studiul ritmicității cuvântului din perspectiva actorului-pedagog*

#### *(The study of the rhythmicity of the word from the perspective of the actor-pedagogue)*

In 2016 I became a teacher, associate lecturer at the Faculty of Theatre and Film of UBB in Cluj where, in addition to tap dance elements, I began to teach students to talk. This moment led me to study much more deeply the *phenomenon of speech, singing and rhythmicity in speech*, phenomenon that I had been practicing for many years with obvious success, but the spirit of responsibility and the will to rethink all this had become insatiable because of the responsibility I had acquired towards the students and towards the pedagogical act itself. Thus, in addition to the admiration and obsession for Brecht's revolution in the process of musical theatre, in addition to my practical studies in the realm of couplets and singers, in addition to the experiences gained in the interpretation of roles in operetta, musical performances and everything that means process of speech, rhythmicity and singing on stage, I began to study the difficulties theoretically as well, obstacles, and phenomena that link the process of speech to that of singing.

So, for several years I have been teaching my students "The Education of Vocal Expression" and "The Education of Body Expression and Stage Dance". In the case of "Education of body expression and stage dance", I deal with dance choreographies on the one hand, which I invent for the materials studied in singing classes, in other words I help my colleague, the singing teacher, to design movements and elements of choreography, which would confer to the material theatrical interpretive cadences. On the other hand, in these classes I also teach tap dance elements. I have acquired my tap dance knowledge at various international workshops over the years and implemented them in my interpretive device.

My pedagogical intentions are constantly aimed at the idea of combining the two subjects, namely speech and tap dance. Thus, discovering and approaching a pedagogical methodology of rhythm phenomenon in the two subjects has become a priority in my pedagogical activity. I often think about how I could combine the two disciplines in order to develop my students' skills more effectively. I always have better and less successful ideas, which I try to combine with each other, so that the tasks proposed in that semester communicate with each other. All this happens because theatre, but especially the vocation of an actor and the stage process itself is a realm where more knowledge, skills and competences must always be combined with each other.

In the first part of this work we conducted a comparative study of the different methodologies dedicated to the education of speech and singing. We have detailed at length the phenomenon of prosody in the case of the speech process with the help of specialists in this field. The studies approached and compared are the works of some linguists, who have carried out their scientific activity both in the field of prosody phenomena of the Hungarian language and of the Romanian language. Thus, the comparative analyses made by me were carried out with a certain intention of generalization, in order to highlight the phenomena, which are valid both in the case of Romanian and Hungarian. I continued with the comparative study of some phonetic phenomena in the case of sung vowels. The melodic line, the sound produced in the process of singing, required the introduction and study of notions of general acoustics and acoustic phonetics, and the analysis of the transformation of spoken vowels into sung vowels requires the introduction of notions of *general acoustics* and *acoustic phonetics*, and the analysis of the transformation of spoken vowels into sung vowels requires the introduction of notions of *articulatory phonetics*.

The second part of the work focused specifically on my pedagogical intentions to discover and deepen the rhythmic particularities in the process of speaking. In this approach, the study of rhythmicity in speech, respectively of rhythmicity in tap dance determined me to start on a less known path, namely the role of *mirror neurons* in the methodology of pedagogy in the field of rhythmication of speech and movement.

Thus, it has proved to be important to address some aspects of recent research in the field of neurology, but especially the presentation of discoveries related to mirror neurons. The approach, discoveries and theories of scientists in the field of mirror neurons is a very new phenomenon that touches many other areas of science. However, I limited myself to the role of mirror neurons in terms of language, speech, movement and rhythmicity. My instinct to somehow link the rhythm phenomena of speech with the rhythm phenomena of movement (tap dance) led me to look for the binder of the two fields. So we came to the idea that in fact the brain, the neurons and especially the mirror neurons would be the much-sought-after link.

In the last chapter of this study I analyzed the possibilities of developing rhythmic skills in tap dance and in speech of the student-actor. For a correct development of these skills it was necessary first of all to point out some exercises of discovery, evaluation, and development of body, motor and speech resources. Secondly, I presented a set of exercises from simple to complex that contribute to the development of the rhythmic skills of the student-actor.

*The first chapter* of this thesis deals with the similarities and differences between the philology of the text and the art of uttering it. The art of speech is an unscientific one, but in

its approach we cannot go over the regularities and scientific phenomena that characterize the written text. Apart from explaining, or giving meaning to, a written text, the aspects of the spoken word introduce several phenomena of prosody, which should not be omitted in the semantic and referential analysis of the text, since the interpretation of a text requires a grounded approach to denotations and deep connotations. *The phenomena of accentuation, volume, rhythm, tempo, vocal timbre, intonations of meaning and those with an emotive character* participate together in the process of knowledge, deepening, and then of presenting a text.

In the process of perceiving and reciting a literary text, the artist acquires a double role, according to the scheme of constituting the *verbal and nonverbal message* of Roman Jakobson. The artist as the recipient of the ensemble of decoded messages from the literary work becomes the destinator, the transmitter of the previously deepened semantic ensemble, an ensemble that acquires new emotive and meaningful values following the previous analysis process. Thus, the artist becomes the new "composer" of the text, the one who reinvents the written literary work and consequently he aims at a new recipient, the spectator, who in turn becomes the new medium, the receiver of the literary work, revived as a result of the discoveries made by the artist.

The main core in the process of speaking is emphasis. The chapter details the different forms of emphasis, and their approach influences the understanding of the meanings of the statement and the discourse (phrase). The utterquion and speech are defined as larger units in the speech process. The analysis of these units denotes the discovery of some *phenomens of change of vocal register, volume, rhythm, tempo, vocal timbre*, which should not be overlooked in the semantic and referential discovery of the text, these aspects even producing collisions and syncopes in the process of analysis.

The chapter details more broadly the *phenomenon of intonation*, as an emotive factor of the discourse, a factor that three-dimensionalizes the analysis of the text. Thus, the subtleties of intonation give the text its melodic character. Intonation becomes the most expressive element of the speech process.

The rigors of intonation of the text also require an *aesthetic approach* to the analyzed work, in order to make the actor a part of the decoding of the written work, the one that gives the text an adequate intonation. Consequently, Hans-Robert Jauss' conception of the aesthetic reception of written work becomes important. In his approach, the reader appears in several situations: *consumer receiver, discriminatory receiver, producer and negotiator*. There is a succession of various subjective readings, factors that are defined by the concept of a *horizon*

*of expectation.* The waiting horizon shapes the three levels of reading as follows: the *progressive horizon of aesthetic perception, the retrospective horizon of semantic perception, respectively the receptive horizon of historical understanding.*

*The second chapter* aims to present the general aspects and particularities of the weighing process, these aspects being of an articulatory nature and of a phonetic nature. The introduction of some notions of articulatory phonetics and phonetics were necessary to better understand the process of transition from the spoken word to the sung word. Thus, it was necessary to introduce general notions of acoustic phonetics of sound: frequency, intensity, length and harmonic content.

Next, the introduction of the idea of resonance, which occurs in the supralaryngeal cavities, required the approach of some basic notions in the field of resonance, notions that are the basis for treating the most important research topic of this chapter, namely the identification and process of changing the formations in the transition from the process of speech to the process of singing.

From the interpretative point of view of the subject, the emotive factor contributes to a great extent to the transformation of a statement into a sung one. The emotive factor introduces into the process of speech an accentuated intonation, which influences the melodic line of a statement. Thus, we witness a much larger picture, which three-dimensionalizes the phenomena of prosody of the utterant, adding the phenomena of intonation, and thus the melodic line of the spoken statement attacks the boundary between the two processes (the spoken one and the sung one).

Vowel is the decision-maker in the phonetic analysis of the transformation of the speech process in the process of singing, this being the target of transformations, the environment where those phenomena can be observed and investigated, which are important in the analysis of the transformation process. The major transformation of the vowel structure is the most active phenomenon, the role of consonants in this process being a helpful one in perceiving the newly identified vowels and with the structure changed. In other words, the new configuration of the sung vowel can be perceived in the vicinity of consonants, of pronounced words, in the context of deciphering the content of sentences, ideas.

From the point of view of the joint, the component parts of the supralaryngeal apparatus (in the case of the same vowel) have different positions in the case of speech and singing. These changes of positions have as a consequence the change of the frequency of harmonics (identified with the help of the trainers) at the different points of the phonator apparatus.

The analysis of the phenomena of relation, change and awarding of the trainers in the process of pronouncing the sung vowels makes us understand better how opera artists manage to produce such loud sounds so that they can be heard without amplification even in the vicinity of large orchestras. Also, how do sopranos and tenors manage to produce very high sounds, and vocal artists who sing in a wide register (of a few octaves), not to lose their vocal timbre (voice color), while in everyday life people, speaking in a much narrower register, lose the color of their voice when they try to speak louder, or on a higher note, with higher sounds.

*The third chapter* aims to highlight some phenomena that characterize how the human brain participates in the process of speech. The approach requires in a first phase to review a cursory analysis of the nervous system and the structure of the brain. At first we introduced a series of notions and expressions from the field of biology and neurology, in order to better understand the specialized language of these phenomena. In this approach, researching the nature of neurons and how they function has become important, because it is the system of neurons that through special maps – located in different areas of the large brain – directs different processes of speech.

The phenomena related to mirror neurons (their discovery and the way they work) complete the process of studying the nervous system, but at the same time I support my approach to detail the existing theories that study the phenomenon of language and its evolution. Initiated in the 90s of the last century, the discovery of mirror neurons is a very recent one, their study being intense even today and expanding every day in many scientific fields, such as medicine, psychology, sociology. Their identification is linked to the name of Professor Rizzolatti and his team of researchers at the University of Parma.

In addition to Professor Rizzolatti and his team, currently in many university centers and specialized clinics in the world countless experiments and discoveries are carried out. I highlighted Joachim Bauer and V.S. Ramachandran, who identified (among many others) some basic functions of mirror neurons. In this way, mirror neurons are important actors in phenomena such as *imitation, intuition, empathy, abstraction, the ability to metaphorize, the ability to learn*.

The connection between *movement and speech* or the relationship of the *ways of communication* in terms of *language* are related to phenomena that lead us to ask ourselves the question: how was language formed, how is the process of evolution of language characterized on the one hand, and on the other hand, by what characterizes the role of mirror neurons in the process of language evolution?

It is well known that the center of speech and movement constitutes the same system of maps of neurons, so movement and speech have the same center of guidance, which with the help of distinguished researchers leads us to the idea that the supposed starting point of language formation was certainly the close connection with movement. The respective subchapter details the aspects related to movement-speech and their evolution in tandem, starting from older theories, which in the absence of scientific conquests of our days, submitted hypotheses (more or less valid even today) about the evolution of language. In this regard, Noam Chomsky's *discontinuity theory* and Derek Bickerton's *theory of protolimbage* are highlighted. Bickerton's theory is related to a discovery that concerns how Creole children learn their mother tongue, and which presupposes a system of innate rules to create a new language, with lexicon, syntax, and semantics renewed. Bickerton believes that the hominid man's brain had similar abilities to recreate language to that of Creole children.

Regarding the role of mirror neurons in the evolution of language, I tried to present two relevant theories. One relates to the name of Michael A. Arbib, and the other theory is advanced by V.S. Ramachandran.

Arbib points out three important hypostases in the evolution of language. Thus, we can talk about an *innate grammar*, a *language with a multimodal character*, and thirdly, prehominid communication began due to the existence of *mirror neurons*. In this context, Arbib outlines six stages of language evolution.

Dr. Ramachandran proposes his own version versus the theories of Stephen J. Gould and Steven Pinker, namely the *synesthetic initialization sequence theory*. He then returns to his favorite neural maps to formulate his own ideas about the evolution of language in his inegalible manner as a neurosurgeon.

At the end of *the fourth chapter* I managed (I think) to point out two sentences for which I studied, wrote and looked for arguments for several months. It is an ecstatic and cathartic sensation to be able to conclude in two sentences my personal contribution to the pedagogy of developing rhythmic capacities in speech through the study of rhythmicity and the development of rhythmic capacities in tap dance. In this personal approach, the decisive aspect was the study of mirror neurons. As I said before, this started by chance. I simply received from a friend professor Dékány Endre's book, which impressed me and which I read with great fondness. In this book I first read about mirror neurons. Next, I started looking for the related literature and thus began the journey into the world of star neurons, about which a lot is written today.

I therefore feel empowered, after treating the previous chapters of this doctoral study, to affirm in two sentences my personal contribution as a teacher specialized in acting to the practice of improving the rhythmic skills of speech.

Mirror neurons have a very important role in the development of rhythmic capacities in speech. The development of rhythmic capacities through tap dance, thanks to the existence of mirror neurons and thus the *ability to empathize rhythmically*, can have a very important contribution in the process of developing rhythmic capacities in speech.

In order to substantiate the above statement, or rather for the rigorous and reasoned preparation of this statement, I have presented at length in a previous chapter (*Chapter 3. The process of speech and mirror neurons*) everything that needs to be known about the discovery and functioning of mirror neurons, then we highlighted their role in speech and their possible contribution to the evolution of language.

As a result, this chapter (*Chapter 4*) has the role of reiterating the phenomena of rhythmicity in speech, but this time looking in parallel for the phenomena of rhythm and in tap dance. As I said before, my desire to look for the parallel elements between rhythmicity in tap dance and rhythmicity in speech began as early as the year when I started teaching tap dance and speech as a university lecturer at the Faculty of Theatre and Film of the Babeş-Bolyai University in Cluj. Studying mirror neurons made me understand much better the evidence of this parallel character, and so my intuition to correlate rhythmicity in tap dance to rhythmicity in speech began to take on a much more reasoned, more scientific form.

On the other hand, this chapter wants to highlight the role of mirror neurons in the development of rhythmic capacities of speech, through the beneficial development of rhythmicity in tap dance. Thus, it became necessary to punctuate a system of reception-reproduction of the rhythm lesson in tap dance and in speech, in which to clearly identify the place and role of functioning of the mirror neurons. Consequently, the question was raised of defining the *rhythmic competences that participate in the process of developing rhythmic capacities in tap dance and in speech*, and which in turn are propelled by mirror neurons.

In subchapter 4.2. *The rhythm in tap dance and in speech*, I redefined the rhythm, but this time I defined the rhythm in tap dance as a particularity of the musical rhythm. This approach was facilitated on the one hand by Daniel Levitin's approach, which *links the rhythm to the measure and the musical tempo*, so that by *rhythm* we mean the length of the notes, by the *tempo* we define the speed of a musical piece, and the *measure* is the special unit of the moments when we beat the foot louder or slower, but also the way these beatings group. On the other hand, step dancer and pedagogue Derek Hartley outline the specifics that

characterize the rhythm in the tap dance. This highlights specific elements for tap dance: *swing element, syncopation, stop time and tacet*. For the practical presentation of syncopation I presented two examples: *Fascinating Rhythm* and *Singin' In The Rain*.

Next I turned to the PhD thesis of my friend Adrian Strâmtu for defining some basic elements in tap dance. With the help of these basic elements I described a beginner-level choreography, which I studied with my second-year students at the Faculty of Theatre and Film. In the presentation of the basics and choreography, we have always noted the short (U) and long (–) beats in order to parallel the *rhythm schemes* in tap dance with the rhythm schemes that we have detailed and in the case of presenting the *rhythmic phenomena of speech*.

Next I presented the rhythmic phenomena of speech, but with emphasis on the regular succession of accentuated and unstressed syllables, respectively of the long and short ones, this regularity being characteristic of the Hungarian language. The *regular sequence of accentuated and unstressed syllables, respectively of long and short ones*, respectively, is the aspect that has deficiencies in the speech process of my students. These rhythmic speech deficiencies are actually those problems in whose correction I have engaged as a specialized teacher and as an actor, and their correction has propelled me towards the idea of starting in parallel the identification of a method of tandem development of rhythmic capacities in tap dance.

From the point of view of the *accentuated and unstressed syllables*, respectively of the *long and short syllables*, I analyzed two texts: *Sara pe deal* signed by Mihai Eminescu, respectively the first three stanzas of Kosztolányi Dező's poem, entitled *Groteszk*.

After the parallel presentation of rhythm phenomena in tap dance and speech, in subchapter 4.3. *The role of mirror neurons in the development of rhythmic capacities in tap dance and in speech*, I proceeded to identify the specific functions of mirror neurons, but this time paying special attention to their role in the rhythmicity of tap dance and speech. Thus, I detailed the role of mirror neurons in the ability to *imitate, intuit, empathize and abstract the student in the process of reception-reproduction of the rhythm lesson in tap dance and in speech*.

Regarding the ability to empathize, I defined the notions of the *capacity of rhythmic empathization in tap dance and the capacity of rhythmic empathization in speech*, as special capacities in the case of the study of rhythmicity and which are activated by mirror neurons.

Consequently, I identified a *three-step system of reception-reproduction of the rhythm lesson in tap dance and in speech* through the prism of the importance of mirror neurons, these being special performers in the learning process. In this reception-reproduction system,



***imitation, rhythmic empathization capacity, abstraction capacity and intuition participate, rhythmic skills that participate in the process of developing rhythmic capacities in tap dance and speech and are propelled by mirror neurons. These skills need to be developed to function as stimulators in the learning process.***

Initially, at the beginning of my doctoral studies, this work had different objectives than the road I eventually came to take. Here I again emphasize my interest in writing in my doctoral dissertation about speech, singing, rhythm and tap dance. About the instinct of searching and the will to put together rhythmicity in tap dance and in speech I have spoken to you several times in the chapters of my phd thesis.

But my biggest problem at the beginning of my studies was: *how and in what way to talk about these things?* How to merge them? What's the direction? And finally, what will be those five inches of discovery of this study? Will I have something new to say about rhythm, speech and dance? These were my inner questions and stutters when I answered Professor Marian Popescu: "If I knew, maybe I wouldn't search for again."

I have to admit that, in a totally surprising way, the direction of my research took an unexpected turn when I started reading about mirror neurons. To the extent that the discovery, in the early 90s, of these star neurons managed to give scientific answers to many phenomena related to imitation and empathy, phenomena that were known until then, my assumptions and intuitions related to the relation of the rhythmicity in tap dance and the rhythmicity in speech acquired much more reasoned answers.

Thus, the research direction of my PhD thesis was finally outlined. The awareness and development of rhythmic speech skills, by applying the rhythmic possibilities found in the process of empathizing and imitating the deepening of the tap dance lesson, has acquired a certain scientific basis, but also an explanatory role through the participation of mirror neurons as common performers in the two processes.

I admit that all my inferences about the role of mirror neurons in these endeavors are hypothetical in nature. In fact, all the literature that has been written and is still being written about mirror neurons has a hypothetical character, as they cannot be detected concretely in the human brain, for the simple reason that the introduction of precision devices that could immediately measure the existence and functioning of these neurons is not possible in the case of humans, but only in the case of primates. But conducting experiments with a different character in humans has shown that these neurons certainly exist in our brains. What's more, new neural maps are constantly being discovered that hold this double imitating and empathizing role, thus acquiring the mirroring character. Last but not least, the discovery that

entire neural maps have the ability to communicate with each other explains the relationship of functions and phenomena whose connections could not be explained, for the time being, empirically, but only one could intuit.

However, my intentions and intuitions are motivated by a transposition of the role of mirror neurons in my artistic-disciplinary practice.

Thus, I allowed myself to draw some important conclusions that are closely related to the didactics and methodology applicable to the development of rhythmic competences in the case of speech.

Consequently, I allowed myself to state that **mirror neurons have a very important role in the development of rhythmic capacities in speech. And the development of rhythmic capacities through tap dance, thanks to the existence of mirror neurons, and thus the ability to empathize rhythmically, can have a very important contribution in the process of developing rhythmic capacities in speech.**

Regarding didactics and the methodology applicable to the development of rhythmic speech skills, I take responsibility to conclude that **the appropriation, production and reproduction of exercises that contribute to the development of rhythmic capacities in tap dance and in speech will contribute to the development of rhythmic speech capabilities, thanks to the communication between mirroring neural maps.**

With the help of these conclusions based on scientific grounds, I allowed myself to finally point out on the one hand exercises of discovery, evaluation and development of body, motor and speech resources, and on the other hand exercises for the development of rhythmic skills in tap dance and in speech.

**Keywords:** prosody, intonation, vowel sung, mirror neurons, tap dance, body expression, professional education.

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