



MIRROR, MIRROR

Empathic Procedures in Dance

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Abstract

This text describes an artistic and pedagogical experiment begun in July 2015 at the Cultural Alagados (Alagados Cultural Center) in Salvador-Bahia, with public performances from its aesthetic results occurring beginning in May 2016. Young people who had no access to the practice of dance or who had practiced informally and sporadically, along with university students in a dance course of the Federal University of Bahia, could come into contact with the application of knowledge from the cognitive science that reveal powerful possibilities of analysis for the field of dance. Studies about empathy, carried out from research on mirror neurons, were used in the process and the writing of this essay, and hence, in the artistic creation itself. Authors such as Noë (2004), Ramachandran (2014) and Iacoboni (2011) are utilized in the preparation of this work, as well as Najmanovich (2008) and Acaso (2015).

Keywords

dance, mirror neurons, artistic creation, Alagados space.

During the last fifteen years, I had the great and wonderful privilege of working with the relationship between dance, neuroscience and cognitive sciences. Since my Doctorate in Communication and Semiotics at PUC-SP (Pontifical University of São Paulo), I have related practical and theoretical studies with various personal experiences in the dance classroom, whether by aesthetic analysis of artistic work, or by daily practice. The approach presented here will be filtered through analysis of elements of visual perception and through empathic processes in dance. How do we perceive ourselves? How to explain the differences in learning a gesture or a dance step for students? What triggers imitation in dance? With what results? How to explain phenomena that occur during a creative process in dance?

Far from intending to answer such questions, what interests me here is to share how and what kinds of the many unknowns mobilize us when we move. If a more developed contact with the areas of expertise collaborating with dance has practical implications in the act of dancing; and if this more developed contact alters learning processes or not, among many other considerations. My hypothesis is that a greater awareness of the cognitive processes involved in dance will certainly have creative implications.

I wish to present, here, a artistic and pedagogical experience with a group of young people with and without experience in dance, which resulted in several reflections about disseminated truths in dance, commonly found didactic mistakes, unfounded reiterations, and finally, several dubious aspects that have been bruted about as untouchables and absolute. Just as an example, who has not heard the expression? “Do it, do not think.” Noë (2004) presents the thesis that perception, action and thought are not divorced from one another, but rather that perception it is a way of acting; that perception is active.

About twenty young people, between 13 and 25, expressed interest at first in studying classical ballet. After a few months working qualities of movement associated with the principles of classical ballet technique, I suggested that the group put together a performance that would be comprised of various types of dance manifestations, under the umbrella theme of samba. And why samba? The response to this is very direct and obvious: because samba provides daily contact with the popular culture of choice. However, the decision and desire to practice classical ballet was not at all abandoned. But how to incorporate it? By approaching technical characteristics of classical ballet with qualities present in the act of dancing the samba. I would like to explain, here, that although this bridge is not the subject of this essay, it is important to mention such a possible approach, in part because it serves didactic principles found in the works of Freire (1996) and Acaso (2015), for example: A kind of rhizomatic mix that enables ideas emerging from other ideas to create an infinite rhizome of knowledge. As mediator, the teacher encourages the encounter of knowledges and promotes possibilities of action regarding them.

One question that always appears to me during the process of teaching: how to articulate distant desires (like learning ballet), often culturally rarefied, with common practices (samba).

If, in fact, the dream that animates us is democratic and united, it is not by talking to the other, from top to bottom, above all, as if we are the bearers of truth to be transmitted to others, but rather as we learn to *listen*, for it is by *listening* that we learn to *talk to the other*. Only those who listen patiently and critically to the other, talk *with him*, even though, in certain circumstances, they may need to talk to him. A person never learns to listen if he is addressed in a *mandatory* manner. Even when it is necessary to speak against positions or conceptions held by the other, one must talk to him as the subject of listening to his criticism as spoken, and not as an object of his discourse. The educator who listens learns the hard lesson of transforming his discourse, sometimes necessary, to the student, in order to talk with him. (Freire, p. 113: 1996)

Following this advice, I could observe and analyze throughout the process of classes, production, rehearsals and the presentation of the show “Samba Pede Passagem,”¹ certain patterns whose analysis intersected with the studies I have done within the University. In recent years, I have increasingly turned to the cognitive sciences in order to relate to what I have researched, studied and worked with in dance throughout my life. In a non-hierarchical exchange of knowledge, I have established possible approximations that I have been able to analyze or apply in technical, compositional and creative exercises.

Among the numerous possibilities of approach I can list, I have found the empathic processes involved in making dance, and specifically here in the case with the young dance students, particularly important. Initially, and for a time, a hypothetical relationship between mirror neurons and the ability of empathy came up. However, I would like to preface this with a brief description of what the discovery of such mirror neurons (NE) has meant.

The discovery of NE dates from 1994, when Gallese, Rizollatti and Fogassi at the University of Parma, Italy, revealed that the observation of actions of others activate the same regions of the brain of those who perform them. NE are associated with the ability to learn, for example, from a look or even a dance step. Therefore, the quality of visual information and corporal demonstration are fundamental. The NE can illuminate issues such as cooperation, autonomy, solidarity, and empathy. The experience with the Alagados youth dance group is discussed in light of an analysis of empathic processes.

We all have neurons in the cerebral cortex that are activated when we act. But, also when we see another person doing something. Some people are more sensitive to this, others less. Some people put themselves

in the place of another, feel pain at someone else's suffering, have pity on another's tragedy, rejoice in the good mood of others, in other words, are transported to the experience of the other. Studies have shown that neurons activated in situations like these are mirror neurons. And what is the importance of these neurons? First of all, they must involve elements like imitation and emulation, since to imitate is a complex act that requires one brain to adopt the point of view of another person. And why is imitation important? In the phenomenon of human culture, considering human evolution, for example, language or the use of tools or the ability to interpret the behavior of another person was due to the appearance of a sophisticated mirror neuron system that allowed a person to mimic the actions of other people. And, as there are mirror neurons for action, there are also mirror neurons for touch. If anyone touches me, neurons fire in the somatosensory cortex, just as the same neurons fire when watching someone else being touched. This is a matter of an empathic process, neurons of empathy, or as Ramachandran calls them, Gandhi neurons.

Let us now consider the dance education in our case study. It was observed that the greater the information that was given on a step or choreography sequence, in conjunction with a higher connection to something habitual —be it a memory, a desire a feeling or emotion, a smell or image — resulted in a greater probability that a likely connection with imitative properties would be involved.

Culture consists of huge collections of complex skills and knowledge that are transferred from person to person through two essential means, language and imitation. We would not be anything without our ability somewhat *savant* to imitate others. Precise imitation, in turn, may depend on the uniquely human ability to “adopt another’s point of view” - both visually and metaphorically - and may have required a more sophisticated development of these neurons in relation to how they are organized in the brains of monkeys. The ability to see the world from the point of view of another person is also essential to build a mental model of the complex thoughts and intentions of others in order to predict and manipulate their behavior (Ramachandran, 2014: 157-158).

Thinking in this manner about the artistic experience that involved the young dancers, we worked with choreographic propositions that stimulated the same mechanisms involved in the above reported observation. Through musical references and dances from the everyday repertoire of each person, we worked with what was common among them; and from this empathic relationship, we challenged them all to create new repertoires that could be associated or not with the matrixes presented. Without discriminating whether the proposals imitated other dances and rhythms, or if they were influenced by their own colleagues,

we managed to select small cells or dance steps created by them (or imitated) and propose spatiotemporal organizations that also demanded the students' active participation.

Another important factor to be considered is that the greater the stimulus from an empathic imitative procedure was, or in other words, seeing and repeating something known in their daily lives (for example, a dance step or a samba rhythm), the greater was the creative response to generate new meanings.

It is important to emphasize that, in the brain, there is connection among mirror neurons in the limbic areas that deal with emotions. Scientists took some time to understand how that happened, anatomically. Iacoboni (2008), following a question during a lecture, reports that there were doubts about it until studies found that the insula² (a term coming from the Latin, meaning island) shows a pattern of numerous anatomical connections in our brain, also in regards to this interaction. Thus, the fundamentals necessary to justify the existence of links between the neural systems of imitation and empathy (mirror neurons) and neural systems of emotions (limbic system) are solid.

At bottom, what it is that humans do throughout the day?
We read the world, particularly people with whom we interact. My face does not look very good in the mirror early in the morning, but the face at my side in the mirror tells me that me my beloved wife is going to have a good start to the day. A brief look at my daughter of 11 while we eat breakfast tells me to walk on eggs and drink my coffee in silence. We all make dozens - hundreds - of such distinctions every day. That is, quite literally, what we do. (Iacoboni, p.13, 2008).³

Many researchers are committed to studying the functions of mirror neurons, to determine if they are innate or acquired, or if they are involved in conceptual learning processes and abstract thinking beyond motor processes. We know that such recent discoveries are subject to scientific speculation. However, much progress has been made and evidence that NE play an important role in allowing us to imitate is incontestable. Imitation, as skill, signified a “key step” in evolution:

... It is possible that imitation was the key step in the evolution of the hominid, resulting in our ability to impart knowledge by example. Once given this step, our species suddenly made the transition from Darwinian evolution based on genes through natural selection - that may require millions of years - to cultural evolution. A complex skill initially acquired through trial and error (or by accident, like when some ancient hominids first saw a bush on fire because of lava) could be quickly transmitted to all members of a tribe, young and old (Ramachandram, 2014: 175).

As a dance artist and researcher, what really motivates me to understand is the desire to understand ourselves, to understand the intertwined processes of learning and creation in dance. Always engaged by questions, often not answered, what I have presented here is an experience that has encouraged me, now, to reflect on and analyze processes of knowledge construction that come hand-to-hand with proposals in which you have access to information of this nature. I have found that, when working such information with young dance students, they are able to retranslate, reframe and restate languages and gestures different from those they habitually realize. Certainly, the effect of action of one person on the action of another, or of another in me, is directly related to affection. We don't choose just anyone with whom to dance together. Our dancing partners are related to the efficiency and consistency of what we strive for.

Alluding to the fairytale phrase "Snow White and the Seven Dwarfs," mirror, my mirror, reveals even in mirroring for learning situations that we tend toward natural mechanisms that favor, sometimes more, sometimes less, empathic processes, which in turn favor the exchange of knowledge. Empathy is one of our most admirable traits and one of the pillars of social cognition. And, mirror neurons are mechanisms that reinforce this in the sense that they are fundamental to the way we see people in the world. Maybe we can ask ourselves: Mirror, mirror, what kind of transformation am I creating with my life?

Endnotes

- 1 Trans. note: "O Samba Pede Passagem," literally translated as "the Samba requests permission to enter or pass through," is traditionally the way that groups of samba dancers and musicians give reverence to the public and the space they are about to enter in order to perform.
- 2 The insular cortex is a brain region that is hidden in the lateral sulcus, between the temporal and parietal lobe, divided into two anatomically distinct regions of the anterior insula (or frontal) and the posterior insula.
- 3 En el fondo, ¿que es lo que los seres humanos hacemos durante todo el día? Leemos el mundo, en especial, a las personas con las que interactuamos. Mi rostro no luce muy bien en el espejo a primera hora de la mañana, pelo el rostro que está a mi lado en el espejo me dice que mi amada esposa va a tener un buen comienzo. Una breve mirada a mi hija de 11 años mientras desayunamos me indica que vaya con pies de plomo y que beba mi café en silencio. Todos hacemos docenas -cientos- de tales distinciones todos los días. Eso es, bastante literalmente, lo que hacemos. (Iacoboni, p.13, 2008).

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Biography

Dance artist, with a PhD in Communication and Semiotics (Public Policy in Dance) and a Masters in Communication and Semiotics (Literature and Dance). A Professor of the Escola de Dança da University da Bahia (UFBA School of Dance), Moura is also currently artistic coordinator of the Department, and a Professor in the Graduate Program of Performing Arts / UFBA. She is Director and a dancer of the Grupo Gestus and a founder of the Municipal School of Dance “Iracema Nogueira” and of the project Gestus Cidadãos (Citizens Gestus) in Araraquara, São Paulo, Brazil. She was a Visiting Professor at Impulstanz- Vienna International Dance Festival, in 2012 and 2013. Her activities include teaching, research, creation and curatorial activity in dance.

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