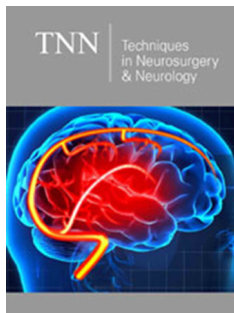


# Theatrical play for Teaching and Rehabilitation or Coming Back to Our Nature!

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## Editorial

Openness to learning is essential for the survival of all species. Genotype in interaction with the environment (epigenetic factors) alters brain development resulting phenotype; in interaction with the environment phenotype is influenced by selection and evolution and results new population. One of the most remarkable characteristic of human brain is plasticity, the ability to “change adaptively during learning and memory or in response to changes in the environment” [1] and “to acquire new information and recover from injury” [2]. Plasticity is manifested at molecular level by developing new synapses or new patterns of synaptic contact and network connections. Cognitive processes are based on common networks, but what makes an individual unique, are specific networks that develop influenced by experience that alters genes [1]. Network connections are the ones that make the difference between human and primates are network connections, which are far more complex and well represented in human brain. Fetal stages of brain development (proliferation, migration and molecular specification) are endogenous, not altered by sensorial inputs and experience independent. Starting from the preterm stage to infancy, brain development (neuronal cytoarchitecture, dendritic differentiation, axonal growth, synaptogenesis, pruning, cell death, neurochemical maturation and myelination) are mainly sensory driven. In childhood, brain development becomes mainly social driven [1]. It was proven by using functional brain imaging that different areas are activated when we hear words, or seeing words, or saying words, or thinking about words. It was also shown that there are differences in brain areas activated during reading loud compared to silent reading. Emotional inputs are involved in brain development, there are well known the images of normal brain and neglected child’s brain; besides the fact that neglected child’s brain is smaller, there are also structural and functional differences regarding certain characteristics, such as empathy, and rational thinking due to the fact that brain areas responsible are under-developed. Studies about neglected children were conducted on abandoned children from orphanage, but according to Cambridge Dictionary, neglect is defined “to not give enough care or attention to people or things that are your responsibility”, fact that these days, is common also in family children.

Theatrical play, drama, is a complex activity; it means movement and balance, vision, hearing, touch, memory, language, singing, emotions. It is in our nature to play roles, I would say that children love the role playing, while adults love drama. “Play is the work of a child”, said Piaget. Play has an important role in brain development and molding, it changes networks, mainly in the frontal areas. It was thought that theatre playing would develop only certain brain areas, in detriment of other areas involved in mathematical skills, but it was proven wrong. Playing influence our behavior, it develops cooperation and communication, sharing of ideas, the listening ability, problem solving, risk taking, concentration, perseverance, thinking flexibility, imagination and independence. Children practicing drama strategies develop better group communication skills, critical thinking skills and observational skills about the others in relation to self, increase story understanding and communication abilities (speaking, listening, reading, writing and critical thinking).

Neuronal plasticity is at maximum level in developing brain, but it is also found, in certain degree, even in older ages. Using theatrical strategies, it is possible to improve cognitive areas, like immediate and delayed word recall, verbal fluency and problem solving in older people. Conversely, there are cognitive improvements after practicing theatrical interventions, in adults with degenerative disorders (like Alzheimer's disease) in alertness, peer to peer social interactions and social engagement [3,4].

We are constantly search for therapies, gene therapies or new chemical substances. Those are valuable for genetic, degenerative disorders which are rare disorders, affecting less than 1 in 2000 people. Developmental delay appears mainly due to environmental factors that alters a normal brain development. We could support

brain plasticity using natural resources, such as theatrical play, with proven benefits and pleasant, both for education of healthy persons and for rehabilitation of neurological affected ones.

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