

Neuroscientific Impacts towards Analytical Psychotherapies

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Abstract

The author introduces a brief and clear way about some important scientific data which gives support to a more updated comprehension over the neurobiological and neuro-dynamic nature of cerebral structures and processes which are implied at the interaction phenomena between the human brains. The author considers to be highly interesting and needed, all this effort about this scientific reflection in viewing some attempt in articulation with the most recent neuro-scientific knowledge (anatomic, physiological and neuro-dynamic) of the brain with intra-psychic and inter-relational processes hypothesis that the Psychoanalysis and the Group-Analysis have been proposing, respectively, during the last 120 years and 55 years, for the mental apparatus and the social mind and also taking into account eventual epistemological limitations.

Key-words: Analytic Psychotherapy Neurobiology, Neuro-Plasticity Neurosciences, Neuronal Systems

The author considers to be very pertinent and necessary a scientific reflection effort seeking an articulation attempt between the most recent neuro-scientific knowledge (neuro-anatomic, neurophysiologic and neuro-dynamic) over the Brain, with hypotheses about the intra-psychic and inter-relationship processes that Psychoanalysis and Group-Analysis have been proposing, respectively, along their last 120 years and 55 years of evolution, over the Mental Apparatus and Social Mind, and simultaneously taking in account eventual epistemological limitations.

At the present paper it will be presented in a clear and brief way, some of the most important scientific data which can give support to a more updated comprehension about the neuro-biological and neuro-dynamic nature of cerebral structures that are implicated at the interaction phenomena among people's brains, taking in account to the current difficulty to give on scientific terms, clear and definitive responses to these issues.

This is an attempt of theoretical reflection in which the author is not alone, because it exists an established congregation of efforts among the neuroscientists, psychoanalysts and other specialists from several areas of knowledge, consubstantiated at an exchange space of scientific information and theories, denominated: "*International Society for Neuro-Psychoanalysis*". Within the neuroscientists have already expressed on several occasions, that certain lessons, apprehended during a century of dynamic psychotherapy, they could have important neuro-scientific implications and the reverse, it would be also true. From the side of the psychoanalysts members, they intended on participating: (a) in absorbing a lot of this new information and new scientific knowledge coming from neuroscience's areas, in particular, from the affective neurosciences and (b) in reevaluating all of the hypotheses and reflections advanced and accepted by the psychoanalytic milieu, supported by a challenge proposed by S. Freud, in his 1895's monograph: "*The Project for a Scientific Psychology*" (Freud, 1895/1968). So before the foundation of Psychoanalysis, S. Freud was a neurologist curious with the relationship of Brain-Mind, which it would have motivated him in participate at study fellowship with one of the greater specialists at both, Brain and Mind, Professor Jean-Martin Charcot, at "*Hôpital de la Salpêtrière*" on the Autumn and Winter of 1889. In fact, this permanence in Paris, it must have had an enormous effect on S. Freud's spirit because we know that it will be one of contributively moments for emergence of the foundation ideas about Psychoanalysis, just as "*the idea of hidden mental processes that could have powerful effects on our conscience or the existing idea that hysteria would not be, nor a manipulation, nor a simulation, but it would be due to the power of an unconscious side of the Mind embedded in neuronal processes of the Brain and going on this perspective, the Hysteria would reflect the capacity of a traumatic experience in reorganizing the Brain and disturbing the conscious experiences*" (Cozolino, 2010).

So when S. Freud wrote this inspired monograph about J.M. Charcot's ideas and the innovations over the neuro-scientific research from his own time, "*...he postulated that what we witness of conscious and unconscious behavior is organized by and store within the brain's neural architecture. As part of this work, he drew simple sketches of interconnecting neurons to represent human impulses, behaviors and psychological defenses*" (Cozolino, 2010; pp.4). Also S. Freud expressed his desires about a not very far future when we could study through neurological ways and scientific methods, the neurological basis of our mental life and its deeper psychic processes. However, S. Freud chose to never publish, because he was very aware that this would be an awake dream, this was a challenge very much ahead from the contemporary knowledge about the nervous system and he would go against the medical and religious dogmas of his own time, just as, it was referred by Allan Schore (1997), in an paper published at the American Psychoanalytic Association's newspaper and that he decided by

himself to stay over there and set on a road that would give to the birth of Psychoanalysis.

Although S. Freud went on building a psychoanalytic model of the mental apparatus, he never forgot about the psycho-biological nature of the Mind. For instance, when he wanted to explain the primitive elements of mental experiences, he felt back upon the concept of Id, on the following terms: "*Id – a portion of the mental life that was primitive and uncivilized and that we, the humans still shared with our reptilians and mammals ancestors, an inspired idea in Charles Darwin*" (Schoore, 1997).

To finalise this introduction, the author would like to call attention to the existence of an enormous ideological gap between psycho-therapeutic approaches and neurobiology, but this has been shading off in a significant way through a more larger number of scientific papers and very interesting and well grounded books which they have been trying to deal with many of the prejudices and reservations of epistemological level that come emerging when we try to make a bridge among these two domains.

The Neurobiological Origins of the Brain and the Human Mind

Concerning the neurobiological nature of the Brain, it is known that it is a highly specialized organ, which generates from its inside, in a permanent mode, a flow patterns of energy and information, through the neuronal networks. These neuronal networks processes by several ways all the information that reaches it, as much from the internal milieu (body), as from the external milieu (environment). This connection with these different involving means takes place through different sensorial systems, which they capture signs coming from the five senses. These signs are represented by "firing" or "neuronal excitability" patterns which they will transform themselves in informational "representations" or perceptions through specialized neuronal circuits. These perceptions will generate on their turn, certain psychic products, such as, affects, thoughts and words. Simultaneously, and through a self-system, they would go to be generated in the Brain, a variety of conscious levels (self, enlarged, extended, etc.) which they are very important for management of many cognitive capacities and, in particular, over decision making capacity over so much and enormous quantities of information generated by each moment.

The Brain, all together, it will be supported through these types of referred phenomena, the emergency of another entity with its own operational characteristics, the Mind, which it has as main function to help the Brain to overcome its automatic

and non-conscious nature when it introduces several levels of psychic elaboration (unconscious, pre-consciousness or conscious) in its own affective and cognitive processing through handling of other re-representations from much higher complex level, as non-linguistic symbols (ideas/thoughts) or linguistic symbols, that is, as words.

The emergency phenomena of mental products is still object of endless scientific-philosophical discussions. Nowadays, we considered that it appears through a first level of conscience over any sensation or affect or emotion, in very embryonic phases of gestation ("in uterus") and this connection Mind-Brain is deeply intrinsic, just as Daniel Siegel wrote because: "*the Mind is fundamentally created inside the interaction of internal neuro-physiological processes and through interpersonal experiences*" (Siegel, 1999; pp.2) and that "*the structure and the function of developmental Brain are determined through certain experiences, especially, inside of inter-personal relationships, when modelling genetically programmed maturation of the nervous system*" (Siegel, 1999, pp.2). Everything is on agreement with the new neuro-scientific understandings about how "*the experience models mental processes through changing both activity and structure of connections among neurons, in which experience models directly responsible circuits for memoirs, emotionality and self-awareness*" (Milner, Squire, & Kandel, 1998) or "*excluding the influence of epigenetic factors and from disease situations or degenerative conditions, we know that the Brain is highly dependent from experiential and environmental factors*" (Milner, Squire, & Kandel, 1998).

We also know that being able of a continuous growth and a lifelong adaptation, the Brain is accumulating errors and operational difficulties along its own life due to informational complexity whom has to deal and for choices and decisions that it has to accomplish in a constant mode. These choices and decisions are susceptible of errors and/or bad options, they will disturb its functioning at the present or in a future time, becoming the Mind something highly susceptible and perturbed. So, the Mind tends to be reconfigured through intra-psychic and inter-relational processes, being these last ones, dynamic inter-relational forces, one of the main forces of changing and transformation modelling it deeply since we are in relationship with the "Other".

Presuppositions towards the Analytical Psychotherapies

Although Analytical Psychotherapies exist for more than 120 years, they have been surviving in absence from a transformation model based on the Brain, nowadays it exists many scientific data that justifies the need for analytical psychotherapists to learn the use of new modifying concepts of the Brain, as from the attachment theory,

the affective regulation models, the mentalization models or the theory of the narratives strength, among others theories.

Nowadays, we can state that exerting the Psychotherapy, either in an individual situation or in a group setting, it is justified through facts, as this one: "*we are born starting on affective relationships and the affective relationships which shape us, our identity and they impel us to social interaction and these social interactions, they affect everything from our biology till our intellectual capacities*" (Cozolino, 2010).

Only when we start to acknowledge very recently, at neuro-scientific terms, about our capacities for connection, synchronization and regulation of each other brains, during the first childhood and so on; we possesses healing capacities to heal ourselves and each one another through affective and intimate relationships that they can modifies us, this meant that we can built and rebuilt neuron structures and, from now on, we can state that psychotherapeutic processes can be comprehended, as neurobiological interventions, deeply embedded in the cultural aspects of the personal and collective history, as Louis Cozolino, Professor of Psychology from the Pepperdine University , mentions in his book "*Neuroscience for Psychotherapy –Healing the Social Brain*" (Cozolino, 2010). For this author, some of the most important factors on the therapeutic processes with neuro-scientific impacts towards the psychotherapies, they should be:

1. *The establishment of a safe and trusting relationship.*
2. *Mild to moderate levels of stress.*
3. *Activating both emotion and cognition.*
4. *The co-construction of new personal narratives* (Cozolino, 2010, pp.26)

Stimulating the Neuronal Plasticity

As psychotherapists, we initiate almost every supporting psychological process with a deep conviction over the possession of some transformation capacities, in particular, over clinical pictures derived from trauma situations of the earliest childhood, although they could present a symptomatology more or less serious or chronic. We considered that they would be susceptible of some transformation and recovery, since we had enough time for intervention and the patients reveal by themselves some motivation and self-commitment towards one type of intervention.

Now-a-days, this conviction can be justified in a "more scientific" mode, since they exist proofs about these phenomena, such as, the "*neuro-plasticity*" who are revealed at certain brain areas or over another concomitant phenomenon, the "*sensitive periods*" that occurs at certain time period of post-natal cerebral

development and which they correspond to a: "*periods of exuberant growth in neuronal networks, with a fast development over (mental) capacities and competences*" (Fischer, 1987).

The neuro-plasticity or neuronal plasticity is "*understood as a basic principal from a healthy brain, existing in any moment of people's life and it is linked to learning of new capacities and competences. However, it seems that has to do more to how information is processed in the different phases of life*" (Cozolino, 2008; Stiles, 2000). "*They have been revealing through countless examples from neuro-genesis, neuro-plasticity and epigenetic programming that they can happen in mature brains which has been implicated to a growing recognition that different types of neuronal plasticity, exist all along in life*" (Bornstein, 1989). It has been proven the existence of a neuro-plasticity dependent from use and function at both sub-cortical and cortical areas, for instance, in the "*case of people that played violin professionally, which presented larger cortical representations in the areas dedicated to the fingers of the left hand, than those that didn't play string instruments*" (Braun et al., 2000; Elbert et al., 1994; Karni et al., 1994) or in the case of Braille readers that they "*revealed similar patterns of cortical plasticity in the sensorial areas*" (Sterr et al., 1998a, 1998b) or, still at the taxi drivers' case that they "*presented larger hippocampus when they incorporated more visual-space knowledge*" (Maguire et al., 2006).

This neuro-plasticity can be also accelerated and modified with the resource of certain substances, like D-Cycloserina with which cerebral activity could be reinforced through certain the activation of cerebral receptors in monkeys (receptors NMDA), demonstrated on a study accomplished by W. A. Myers's team (2000) or another study about phobic patients about the effects of cholinergic stimulation that seems to have a role in neuronal plasticity through the activation of neuronal growth hormones (Cowan & Kandel, 2001; Zhu & Waite, 1998).

This neuro-plasticity is not exclusive from childhood and adolescence and it is happening under several cellular processes of proliferation, migration and neuronal differentiation or even through neuronal apoptosis and pruning, till very late in people's life. This theory has been sustained by investigations where they found a continuous increase of volume from the white matter at temporal and frontal lobes, at men till the age of 50's (Bartzokis et al., 2001) and on other studies over adult's brains, they were mentioned that certain alterations on cognitive processing, in the sense of increasing of cerebral inter-hemispherical activity and simultaneous, a decrease on speed of the same cognitive processing (Beason-Held et al., 2005; Cabeza et al., 1997; Maguire & Frith, 2003).

Thus, it is common among neuroscientists, to state that: "*the human brain is capable of more and faster functional reorganization than we had thought about*" (Ramachandran, Rogers-Ramachandran, & Steward, 1992).

These data take us to think that psychotherapies can have significant impacts in our patients' brains, and that the areas more susceptible to be sculpted by these effects and environmental factors, they should be: "*the motor-sensitive areas from the frontal lobe that they seem to possess sensitive periods earlier and on a more permanent way with the possibility of neuronal reorganization*" (Cozolino, 2010) and also, the ones from the parietal lobe. In fact, both of them have a role at the synthesis of the physical, social and emotional information, what it makes these areas, the primary target areas for Psychotherapies.

Enriched Environments and Stimulating Lives

The scientific investigation over the so call enriched environments and stimulating lives, it has been verifying that these two group factors seem to have positive impacts and for long duration, as much on neuronal architecture, as on neuronal neuro-chemistry. They were investigated in mice, with a full detail and in a controlled and experimental ways. In these studies, the brains of mice became larger, more complex and more resilient in these enriched environments by varied types of incentives and they have been select several types of incentives in their brains, namely, "*increases in weight and thickness of cortex*" (Bennett, Diamond, Krech, & Rosenzweig, 1964; Diamond et al., 1964); "*increases in weight and thickness of hippocampi*" (Kempermann et al., 1998; Walsh, Budtz-Olsen, Penny & Cummins, 1969); "*increases in length of neuronal dendrites*" (Kolb & Whishaw, 1998); "*increases in synapses among neurons*" (Kolb & Whishaw, 1998); "*increases in activity of glial cells*" (Kolb & Whishaw, 1998); "*increases in levels of neural growth hormones*" (Ickes et al., 2000); "*increases in levels of neurotransmitters*" (Nilsson et al., 2000); "*increases in the levels of cerebral vascular activity*" (Sirevaag & Greenough, 1988); "*increases in levels of cerebral metabolism*" (Sirevaag & Greenough, 1988); "*increases in amount of gene expression*" (Guzowski, Setlow, Wagner & McGaugh, 2001) and finally "*increases in levels of nerve growth factor*" (Torasdotter et al., 1998) (in Cozolino, 2010; pp.328).

Starting from some of these research lines, it was placed a theory of *cognitive reserve*" supported by the following observations:

- 1) "*That stimulating lives build more neural material, and the more you built, the more you can afford to lose and still function in a competent manner later in life*" (Richards & Deary, 2005; Stern, Alexander, Prohovnik & Mayeux, 1992), (in Cozolino, 2010, pp.329);

- 2) *"A number of these studies support the idea that those who have had more education and challenging occupations tend to have brains that age better and resist the onset and progression of dementia"* (in Cozolino, 2010, pp.329);
- 3) As, Y. Stern and collaborators (2005): *"People with more cognitive reserve typically have had better diets, higher quality education, and more intellectually challenging jobs than those with lower reserve"*;
- 4) *"Skills most dependent upon frontal functions - such as verbal fluency, controlled processing and the abstract thinking demanded by high-complexity occupations - appear to contribute most to cognitive reserve"* (Ardila, Ostrosky-Solis, Rosselli & Gomez, 2000; Le Carret et al., 2003), (in Cozolino, 2010, pp.329).

After this small review of scientific data, the author considers pertinent to make some inquires to our spirits, namely:

- a) The analytic psychotherapeutic processes, they would be effective, when they have a duration, maybe or probably, more than 2 years?
- b) For inducing modifications at the capacities for mental elaboration and psychic awareness, i.e., to develop in the mind of our clients, an analytic function, it would be that psychotherapeutic processes had to be in affective terms, more stimulants and challenging, besides the cognitive aspects?
- c) To be submitted to Psychoanalysis or Group-Analysis, will it increase the expansion probabilities of emotional resilience and cognitive reserve on the brains of our clients?

The Moderate States of Arousal

Another factor studied on experimental psychology and neuropsychology, it has been the presence of moderate levels of stimulation during psychotherapeutic processes. This notion was initially formalized through the classic paper of Roberts Yerkes and John Dodson, in the year 1908, through a very known inverted-U learning curve (Figure 1) (Yerkes & Dodson, 1908).

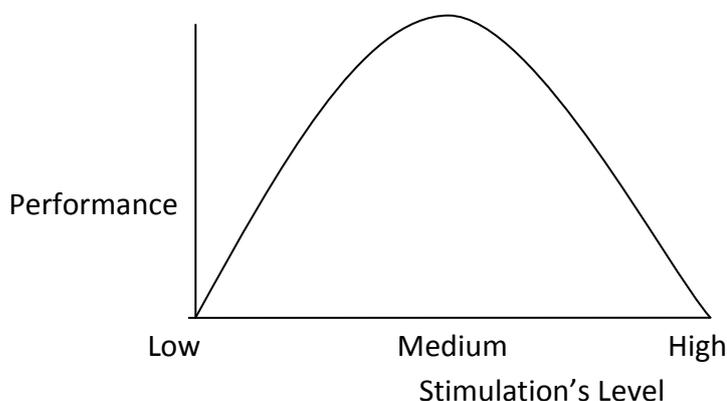


Figure 1

The Inverted-U Learning Curve (Yerkes & Dodson, 1908)

It is an important factor among psychotherapists of different schools, because all of them tend to create moderate states of stimulation in their clients throughout their processes of psychological help, either when they do systematic desensitization, either during the processes of psychological analysis with their moments of confrontation and interpretation with the client(s), within a delicate balance between challenge and support.

All the psychotherapists must know that they have to understand, intuitively, people's needs and also they have to motivate them and stimulate them for learning. The psychotherapists have to assure the existence of peacefulness and some isolation conditions, in the intervention place, because *"our patients should be in mental states, between a calm situation with some satisfaction and an alert state with some frustration, which allow them to start learning something new and trying them to change their internal patterns"* (Anderson, 1976).

Now-a-days it is considered that in trauma situations and similar situations, it can happen a mechanism of inter-hemispherical dissociation in reaction to the trauma and this can represent a such rupture for the neuronal integration and for the neuronal plasticity, so the psychotherapies, beyond the use of *"such moderate and appropriate levels of stimulation to get access to cortical and sub-cortical mechanisms from our patients"* (Cozolino, 2010), the psychotherapists can promote a lot of the neuronal reintegration and reorganization, *"through the activation of the association areas from the frontal, parietal and temporal lobes"* (Cozolino, 2010) *"which they coordinate, regulate and guide multiple neuronal circuits for memory and emotion"* (Cozolino, 2010).

This idea about a simultaneous activation of the emotionality and the cognition, it is as much recognized by neuroscientists that present some scientific evidences for *"the idea that moderate levels of arousal optimize the production of neurotransmitters"* and the idea of *"neural growth hormones that enhance long-term memory (LTP), learning and cortical reorganization"* (Cowan & Kandel, 2001; Zhu & Waite, 1998).

The psychotherapists consider as fundamental for their patients' clinical improvements, that it occurs *"a liberation of emotions associated with painful memoirs"* or *"that the patients should be capable to face the situation that they fear deeply"* or *"still, when they (patients) deal with the recurrent experiences from previous or new inter-personal relationships"* (Cozolino, 2010). *"All of them are situations that involve a certain stress level, anxiety and fear, and on which the patients re-actualizes,*

their mental defences, in order to prevent them for total access to self-awareness of previous and eventually painful memoirs" (Cozolino, 2010).

Told in different way, all these memoirs can be updated and reformulated, and if they turn in something more acceptable for the self, but to happen this, it is necessary that occurs several phenomena, named:

- 1) *A new dissociation between the perceptive contents and their affective and emotional registers;*
- 2) *Subsequent and complex coding of contents and their affective and emotional registers that it will determine how they will be kept in the different long-term memoirs, that is accomplished through the processes of mental discernment, re-memorization, reflection and mental reformulation, in which these memoirs will be initially disconnected from these forces of affective and emotional register allowing its subsequent reformulation through the narratives;*
- 3) *To be kept again in new registers (memoirs) in a healthier and useful way for a future use, through a reintegration, in accordance, with a new moment of classification and re-codification of these present experiences, including, the ones lived inside from the therapeutic processes (Cozolino, 2010).*

The Language and Communication

The language is an important source for modulation of our brains, in emotional terms and when is integrated within significant human relationship frameworks. All along our evolution as specimen within capacities and volumes of certain regions of the cerebral cortex, it have occurred a corresponding development with all type of communication styles, towards to the construction of socio-organizational structures which were created all along our history. Therefore we have built several and different ways and styles to communicate, because it is *"Through the use of autobiographical memory, that we can create narratives that bridge processing from various neuronal networks into a cohesive story of the self. Narratives allow us to combine – in conscious memory –our knowledge, sensations, feelings, and behaviors supporting underlying neural network integration"* (Cozolino, 2010; pp.343).

Then it has been attended, the co-construction of narratives between sons and parents, as a transference medium between the internal world of the parent to one from his own son, repeated from generation to generation and whose narratives will emerge the implicit values, strategies and worldviews from our parents, which it will be useful to us on defining ourselves towards the "Others" and to guide us in the complex social world. *"Research in attachment has demonstrated that the coherence*

and inclusiveness of narratives correlate with both attachment security and self-reflective capacity” (Main, 1993; Fonagy, Gergely, Jurist e Target, 2002) (in Cozolino, 2010; pp.343).

So, all along the process of our human evolution, different levels of language had emerged, in parallel with different layers of consciousness, which would be the following ones:

- 1. A reflexive social language (of the left hemisphere interpreter) serves the purpose of creating a logically cohesive and positive presentation to others. This language evolved from grooming and hand gestures with the primary goal of group affiliation and coordination.*
- 2. An internal language, also reflexive, allow us to have private thoughts, plan and guide behavior, and deceive others. There is an aspect of internal language that preserves early learning expressed through critical voices in our heads, reflecting early shame experiences.*
- 3. A third language, one of self-reflection, appears to be far less reflexive and arises in states of openness, low defensiveness, and safety.*

Although the first two levels of language occur spontaneously, the self-reflective language requires higher levels of neural network integration, such as, affect regulation and cognitive processing. The reflective languages keep us in the present moment, while self-reflection language demonstrates our ability to escape from the present moment, to gain perspective on our thoughts and feelings, and make decisions about what we would like to change and how to it. Attaining and utilizing this level of language is one of the specific goals of psychodynamic psychotherapy.

(in Cozolino, 2010; pp.344)

Final Reflections:

The author, being aware about what it has been presented, he considers relevant this statement: *“the psychotherapists can be, in a certain manner, conceived as neuro-scientists working in practice” (Cozolino, 2010).*

They promote psychotherapeutic processes, under established conditions for functioning and environment, with the purpose of facilitating intra-psychic dynamics that it made easier for focalization over the mental phenomena and the human relationship, trying to avoid any other environmental stimulation, beyond the minimal needed in an environment plenty of sensations, with some protection, good taste and pleasure and within a space which is simultaneously, physical, affective and mental.

As matter of fact, the analytical psychotherapist tries to handle some of the needed conditions for an appropriate evolution of the psychotherapeutic process, they foster a stimulant environment, for the emergence of such emotional learning that it enhances an eventual psychological modification, reflex of reprogramming over certain neuronal networks, in several areas of neuro-dynamic functioning from ours patients' Brain/Mind, for example, at the level of implicit and explicit memories, decision taking, self-concept and over some emotional self-regulation mechanisms.

So individual and group psychotherapeutic processes, they should be a private and special learning places for communication capacities and human relationship skills, promoting a reprogramming of current neuronal patterns based on many representations of infantile experiences, in particular, those that had happen in the very early moments of life (days, months, years) and they were originate from certain (traumatic or not) relationship dynamics.

The neuro-scientific research suggest that emotionality serves as a central organizing process for our brain, being each one's ability for organize the emotions consequent from early attachment schemes, that they would support directly the possibility shaping for each one's mind. The emotional communication (pre-conscious and unconscious) is one of the primary ways through which they integrate the previous experiences with the current ones and they support the best work efforts with current and futures stress moments.

The psychotherapists are specialized experts "*at teaching clients to become aware of unconscious processing, take ownership of their projections and risk anxiety in the service of emotional maturation*" (Holtforth et al., 2005) and also to work with illusions, distortions, and defences are that our patients present to us and they reveal us along their psychotherapeutic processes, with our comprehension capacity, we try to explore, test and propose modifications to them getting near to the truths about their Selves in reconstruction.

Finally, it is possible to face the psychotherapist's possibility on promoting a new neuronal integration and growth of neuronal networks, through a combination of empathy, affective and emotional transactions and by listening the verbalizations from our patients with "*a new integration that is going on several directions and senses, for instance, among the sub-cortical networks where they keep memoirs from the fears, from the phobias and from the traumas, activating them and turning them accessible to a new integration through the action of superior cortical inhibitory circuits, in particular, the frontal and pre-frontal areas of the cortex*" and that "*the essential of this integration goes through the connection between implicit and explicit circuits, conscious awareness and control of memoirs, feelings and negative emotions*" (Cozolino, 2010).

In conclusion, the author presents a brief proposal for a new neuro-scientific understanding over some aspects from the analytical psycho-therapeutic processes.

It seems to be somewhat more justified, the need for existence of previous conditions for framing the analytical psycho-therapeutic processes, for them to have a better functioning and a more fruitful evolution, with the importance for creation of a calm and holding atmosphere, and promoter of belonging and proximity feelings, that they were associated with a open and previous mental and affective disposition in behalf from the therapist. All this, with the purpose to allow the patients to a new opportunity for an emergence of a renewed basic trust and from a recovery of the self-esteem and the self-image, whatever is enough.

All of this, it would depend from the possibility on occurring affective/emotional interaction phenomena among the participants' brains, through sequences of affective / emotional experiential moments, probably revealed through alternate interaction patterns among synchronizations and des-synchronizations associated with resonant or no-resonant moments and when attachment mechanisms and processes of Identity and Identification, they would serve as support for many of unconscious phenomena resultants from these affective / emotional interactions.

So, the transfer and counter-transfer phenomena should be understood within this new perspective of neuro-scientific understanding, as an affective/emotional interaction phenomena conditioned by resultant dynamics from very precocious personal experiences and through emergence of psychic defences from the patients and from the analyst, under an effort of discernment and conscious understanding. All along, the psycho-therapeutic processes, it would happen significant possibilities for neuronal reorganization and reintegration accomplished through the active participation of the analytical part of patient's mind and from the analyst, supported by de-codifications / interpretations accomplished by this last one or eventually by the group, making it possible, the creation of new symbolic capacities at the true patients' Selves, who should be on affective/emotional disposition open to a deep neuropsychic reframing.

Abstract

The author introduces in a brief and clear way some of most important scientific information's which gives support to a more updated comprehension about neurobiological and neuro-dynamic nature of the cerebral structures and processes which are implied at interaction phenomena between human brains. The author considers to be highly interesting and needed, all this effort about a scientific reflection, viewing attempts to articulate the most recent neuro-scientific knowledge (anatomic, physiological and neuro-dynamic) from the Brain with the intra-psychic and inter-relational processes hypothesis that Psychoanalysis and Group-Analysis have been proposing for the Human and Social Mind, respectively, during the last 120 years and 55 years and simultaneously taking in account eventual epistemological limitations.

Key-words: Analytic Psychotherapy Neurobiology, Neuroplasticity, Neurosciences, Neuronal Systems

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