Moreno’s co-unconscious - Contributions from Neuroscience

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Abstract
This text presents a preliminary correspondence of Moreno’s concept of co-unconscious with contributions from Neuroscience. Literature on intersubjectivity explains the operation of a system of mirror neurons, core to unconscious resonance phenomenon, related to the creation of a primitive intersubjective space that has been called “Shared Manifold”. Some of the theoretical foundations of Moreno related to the co-unconscious concept are discussed based on correspondence of neurological facts observed in early development of human intersubjectivity. “Co-unconscious” is defined as the manifestation of unconscious content stored in the (right brain) implicit domain of memory and learning, as stimulated by the phenomenological experience, in the present moment, of the interactive process between individuals or in a group. Psychotherapeutic work with co-unconscious states is addressed together with some recommendations for the contemporary psychodramatist.

Introduction
In the beginning of the decade of 1990, neuroscience has begun to confirm that psychotherapy can influence cerebral functioning through neuronal plasticity and gene expression (Kandel, 1999). Neuroscience has begun to show how psychotherapy produces behavioral changes of long duration, and is opening new perspectives for the understanding of psychotherapeutic mechanisms and for evaluating clinical practice.

Neuroscience distinguishes differing dimensions of the processes of memory and learning, between “implicit” (relative to relational patterns, generally unconscious) and “explicit” (the declarative dimension, related to the recovery of facts). For psychoanalysis, the evidence was that interpretation, related to the explicit system of memory, could not, in itself, be transforming. It was the experiential, moment-to-moment process essentially working with the implicit system of learning and memory that promoted change.

Stern (2007) points to the here and now of experience and the phenomenological reality of the present moment. It is very similar to some of the theoretical bases of Psychodrama. J.L. Moreno, still in the beginning of the XX Century, proposed a philosophical basis to guide the posture of the Psychodramatist in his/her work, valuing the category of the present moment. He emphasized in his first book on Group Psychotherapy in 1931, p.21, which has been added to the Preface of the Brazilian edition (Moreno, 1993, p.8) "the crucial position that the concept of the moment has in my theory of the personality. Everything in the life is existential in the 'here and now', hic et nunc. My objective is the psychology of the moment, of the man

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in action, moment not as part of History, but history as part of the moment, *sub species momenti*”. It placed the Psychodrama in the vanguard as a psychotherapy model that values the experience lived in the here and now.

Another important contribution from neuroscience is a new way to understand the phenomenon of “intersubjectivity”. Moreno created an interpersonal therapy, emphasizing the phenomena 'between' persons and within groups. For him, beginning with the first encounter between two individuals, co-conscious and co-unconscious states are strengthened at each encounter. The co-conscious and co-unconscious states mediate relational patterns, which makes it an important reference point for psychotherapy (Moreno, 1961).

The aim of this paper is to explore the meaning of these co-unconscious states in the context of current neuroscience literature on intersubjectivity with a hope to further understand the psychotherapeutic process.

**Intersubjectivity and the Shared Manifold**

A dictionary definition of “intersubjectivity” might define it as “the sharing of subjective states by two or more individuals”. The “intersubjective school” had its roots in research with infants on non-verbal communication (Trevarthen 1977). “Intersubjectivity”, from a neurobiological perspective, is “the process by which mental activity is transferred between self and others’ minds … communicated via body movements (e.g. gaze, speech, facial expressions & posture) …”, a process which depends upon “unconscious motor resonance mechanisms that rely on the physiological properties of the nervous system.” (Decety 2005, p.119) The brain’s “mirror neuron system” (see below) is at the core of this unconscious resonance phenomenon, and therefore core to intersubjectivity.

An example from Trevarthen (1977) is illustrative of such resonance, in which he compared the responses of infants to caretakers and to objects in the first months of life:

"A pronounced difference in responses to objects and persons was seen when the infants were two months old. I noted a number of forms of action of body, hands and face that were associated with the infant’s smile and vocalizations to the mother. Differences were also present in the manner of response of the different mothers and we gained a clear impression that each mother-infant pair was developing a different style of mutual activity. In spite of these differences, a general pattern of development in social behavior was common to all five infants. I became convinced that an exceedingly complex innate mechanism foreshadowing the cooperative intelligence of adults, and more general than the mechanism of language, was already functioning in early infancy. The responses of the infants to persons were different in kind from those to objects, and they were pre-adaptive to reception and reply by persons."

(underlines mine)

A word on “mirror neurons”: In the early-90s, scientists at the University of Parma identified a new class of neurons, initially in macaque monkeys. These neurons were active not only when the animal itself performed a certain task, but when it observed another performing that same task. The team dubbed this new class of neurons “mirror neurons”, and they have come...
to be recognized as playing a pivotal role in the way we understand the intentions of others, an “important part of the mosaic that explains our social abilities”. (Gallese, 2004). Through mirror neurons an “action representation” (of the behavior of the other) is formed in the observer’s brain. So it works like this: I see you doing a certain action (e.g. a facial expression or gesture); this activates pre-motor mirror neurons in my brain “as if” it were I who were performing this same action; if it were I who were performing this action, this is what it would mean to me; therefore I assume this is what it means to you. So this mirror neuron system lies at the neurological basis of how we understand the actions of another human being (and how we “project” our intentional system upon others). Such neural processing amounts to an internal “doubling” of the observed action. A virtual action takes place, within the observer’s brain, which neuronally mimics the observed action (in the sense that the same pro-motor neurons are activated). To be sure, there can be errors in this understanding (e.g. projection), as certain actions may not mean the same from one individual to another, much less between individuals from different cultures.

The existence of such an “intersubjective space” depends upon “resonance”, a concept introduced by Gibson (1966) in the context of all living organisms, and used by Decety (2005, p.121) in understanding human intersubjectivity from a neuroscience point of view. Gibson’s idea of “resonance” involves a dynamic interaction between the individual organism and its environment such that

1. All perception serves the purpose of adaptation of the individual organism to its external environment, and therefore provides information which guides behaviors in that environment,
2. Such information is dynamic and multi-modal,
3. Such information must afford a specificity as to which external events provide opportunities to act, or be acted upon, and
4. The perception of such opportunities depends on the perceiver’s attunement to certain stimulus invariants, which becomes specific to that organism.

The perceptual representations of individual organisms are in resonance with multi-dimensional, dynamic environmental patterns corresponding to invariants of significance to those organisms. Non-resonant features of the environment are simply ignored. Such perceptual representations are shared among individuals resonating to similar environmental invariants. These shared representations provide a core of cultural (or species) cohesiveness and, in a more evolved form, a basis of shared human emotions.

From “resonance” to “intersubjectivity” (taking an “evolutionary biology” point of view):

Out of just such shared resonances among biological organisms arises a sort of primitive “intersubjective space” among these organisms. It is “primitive” because it is many layers beneath what we would call “intersubjective” in humans. Such a primitive space develops as these organisms model various interactions in their environments, and develop motor resonances to adapt to them. This “space” was termed, by Gallese (see Hurley & Chater 2005, p.7), a “Shared Manifold”, which arises prior to any discrimination between self and other. As
such discrimination between self and other evolves, there is a co-evolution: an evolution of the means whereby individuals “understand” what is going on in the “mind” of others in their group. In humans, neuroscientists call this “Theory of Mind”, a notion that others in the common group are “like me” and a feeling of how they are thinking. These feelings, this spectrum of perceptions and emotions, co-evolve out of their shared mutual behavioral responses and support “automatic intersubjective identifications” (Hurley & Chater 2005, p.7).

**Early Development of Human Intersubjectivity**

When an infant is born into this world, its brain weight is about 300 grams. After leaving the mother’s womb, it begins a process of brain growth within what may be called the “social placenta” of the family, eventually, as an adult, arriving at a brain weight of about 1200 grams. The earliest ex-uterine growth of the brain takes place in what Moreno called the “first universe”.

"The matrix of identity is the infant’s social placenta, the locus in which he roots. It gives the human infant safety, orientation and guidance. The world around it is called the first universe ... The first universe ends when the infantile experience of the world in which everything is real begins to break up into fantasy and reality." (Moreno, 1946/1977, p. 64)

An interesting neurological fact, emphasized in Alan Schore’s seminal work (Schore 1999), is that this early brain development is biased largely toward the right cerebral hemisphere of the infant in which early emotional, relational and attachment process mainly develop. It is this right cerebral hemisphere of the human brain that becomes the warehouse of a host of unconscious processes. To quote Schore (2001):

“Since this [right] hemisphere is centrally involved in unconscious processes (Joseph, 1992\(^2\); Schore, 1998\(^3\)) and in "implicit learning" (Hugdahl, 1995\(^4\)) non-consciously processed socio-emotional information is stored in right cerebral implicit-procedural memory. Neuropsychological studies reveal that this hemisphere, and not the later forming verbal-linguistic left, is the substrate of autobiographical memory (Fink et al., 1996\(^5\)).”

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This “substrate of autobiographical memory” corresponds to what Damasio (1999) calls “core consciousness”, a largely right brain phenomenon, while the self-narrative itself corresponds to “extended consciousness”, resident the left brain. What we ordinarily call “ego” is largely a left brain phenomenon, the contents of the right-brain providing information it has to live with, but often felt as ego-alien.

It has been argued in the psychoanalytic literature that there is a correspondence between the infant’s earliest group life (family, social placenta, first universe within which the infant is developing and managing its attachment processes) and infantile (later unconscious) fantasies of the original womb.

The teasing apart of fantasy and reality, which Moreno’s model places at the end of the first universe, takes place at a time when the child is emerging into the “play space” or “potential space” (Winnicott’s terms). Winnicott defined this "intermediate area" of human experience as "the area that is allowed to the infant between primary creativity and objective perception based on reality-testing" (Winnicott 1953, p.238). The development of this potential space is essential to the later mental health of the developing person. It is the locus of the person's creative adaptation to his culture. And it is the locus of maladaptation, which can lead to a variety of mental illnesses.

Not coincidentally this potential space phase of the child’s life corresponds to a relatively rapid development of his/her linguistic left brain and to a growing facility with language, though the “unconscious” right brain is also expanding. Also expanding is the large bundle of neurons connection the right to the left brain, called the Corpus Callosum, the major bridge between right (core consciousness) and left (extended consciousness) cerebral hemispheres, and an important vehicle for their integration.

"The experience-dependent expansion of the right brain is reflected in the growth of the unconscious over the life span. This reorganization is accompanied by more complex interconnections with the also expanding left brain, especially the anterior sections of the corpus callosum which include axons of the orbitofrontal areas that participate in interhemispheric integration on a broad scale." (Schore 2001)

We may say, and not only metaphorically, that maturation has much to do with the integration of left and right cerebral hemispheres, which is normally facilitated by the Corpus Callosum.

The developmental process, which Moreno identifies as the “matrix of identity”, is the origin of all social aspects of the human being, experienced in the here and now. It is in this inter-relational space that the sense of proximity and distance begins to develop, leading to attraction and rejection of persons and objects, which Moreno (1946/1977) called the first social reflex of the child, manifesting as “Tele”. It will be the nucleus of future patterns of attraction-repulsion and specialized emotions, and the beginning of the interpersonal structures. In this way, the matrix of identity is the root of the first process of emotional learning in the child (Moreno, 1946/1977, p.61)
Tele, for Moreno, is “reciprocal empathy” (1934/1994, p.159), that “operates in all dimensions of communication” (ibid., p.178). It can be understood as the “socio gravitational factor that operates between individuals, inducing them to form pair relations, triangles…. more positive or negative than by chance” (Moreno 1946/1977, p.84). Today, we can understand that these descriptions of Moreno correspond, in the biological field, to the operation of a system of mirror neurons in the brain, from the beginning of the social life, favoring the creation of an intersubjective space.

For Moreno, the first relational patterns are developed in the relationship of the new born with his/her context in the process named “matrix of identity”. These patterns influence interactions throughout life. He did not use the concept of subjectivity or intersubjectivity. Their correspondence in his theory is “I” and “Other”, operating in an inter-relational space. During the developmental stages in the matrix of identity, first interpersonal structures will be formed with biological, psychological and social components.

Lepage and Théoret (2007) review evidence suggesting the presence of a mirror neuron system in the human child, as well as, although indirectly, the existence of a mechanism matching the perception and the execution of actions in the human newborn. Child and caregiver mutually regulate each other’s affect through implicit emotional communication (Mancia 2006), through a process of “limbic resonance” (Lewis 2000) mediated by the child’s developing mirror neuron system. Limbic resonance is the “feeling of we together”, the ability to feel the feelings of others. In order for the infant’s brain to develop properly it is necessary for the infant’s and mother’s limbic systems to resonate properly.

Following the thinking of Alan Schore (1999), the harmony of this resonant process leads to the development of child’s internal affect regulation and feeling of connection with the caregiver(s). It is in the nature of the emotional communication that they mutually regulate each other’s affects and interactions, which strongly influences the child’s development. A positive dyadic experience leads to the construction of “meaning” (the infant’s connection with reality) in the infant (Tronick 1989). When this “limbic resonance” process is effective, the child develops internal affective self-regulating mechanisms that provide feelings of being connected to the caretaker (Schore 2003).

Nevertheless some degree of disharmony, “disruption with timely attunement” (Schore 2003) leads to maturation and progressive autonomy of the child, lacking which the developing child may become excessively bound to the caretaker. In negative interactions, the child develops a self-directed style of regulatory behaviour, such as turning away, escaping, or become perceptually unavailable, strategies whose purpose seems to be to control negative affect. Despite their positive contributions to autonomy, with excessive repetition of such negative experiences, the infant may develop a representation of self as ineffective and of the caretaker as unreliable, corresponding to dysfunction of the developing mirror neuron system leading to neurodevelopmental disorders such as autism, since “action understanding” depends on a functioning mirror neuron system.
The development of the mirror neuron system within the child’s brain leads to action understanding, empathy, and Theory of Mind, which are the basic elements of intersubjectivity, and central to maturation, reality testing and the construction of meaning.

**The concept of co-unconscious**

Even though Moreno did not give a detailed definition of co-conscious and co-unconscious states, he did explain that they are “experienced and produced together by participants. They cannot belong to one individual but they are reproduced or represented by them all” (Moreno 1946/1977, p.vii).

These states are described “as the shared states, the matrix of what is good or destructive, the group fantasies, atmosphere, climate, coincidences of thought and action, feelings of synchronicity and emotional consonances that may occur among people” (Knobel, 2007, p.219).

For Moreno, all partners must be involved in the re-enactment of these states, through the psychodrama. They are “the matrix from which participants draw their inspiration and knowledge”. .. “The encounters between individuals and the co-conscious or co-unconscious states developed between them are the source from which tele, transference and empathy spring” (Moreno 1961). Early unconscious attachment processes probably lie at the origin of what Moreno calls the “co-unconscious”.

In the developmental process (through stages in the identity matrix described by Moreno) the child interacts with caregivers who bring the entire surrounding sociocultural context to the inter-relational space. Naffah Neto (1997, p.125) understands that Moreno has moved the concept of unconscious to an intersubjective dimension. In this way, the intrapsychic dimension is expanded to include “cultural conserves” with roots in the culture, with its rules, prescriptions, taboos and ideologies.

In the relational process, co-conscious and co-unconscious states are experienced, bringing past and future into the present. This collective co-unconscious contains also transgenerational aspects that are manifesting in the current relationship (Marra, 2008). Schutzenberger (2007) makes the distinction between intergenerational (known contents clearly transmitted) and transgenerational (unknown contents, as unfinished dramas and traumas, which remain secret). Based on the concept of co-unconscious of families and groups by Moreno, she understands transgenerational links by the concept of extended family unconscious.

The locus for unconscious relational patterns would be in the (non-verbal, unconscious) right cerebral hemisphere, which may manifest themselves in action or through metaphors or symbolisms, expressing their internal resonance in the present moment. Considering that co-conscious and co-unconscious states are experienced and produced together, it will depend on the current relationship, whether these contents may become one of these two states.
Considering what is produced in the inter-relational process, when two or more individuals get together the contents will develop in co-conscious and co-unconscious states. Co-unconscious phenomena correspond to elements of the individual unconscious (the unconscious for Freud and Lacan) being the collective, group, cultural and even the civilization process (Almeida, 2006). When these contents can be recognized by individual or group, they change to co-conscious states.

In the biological field, this process can be seen as corresponding to the early development of the linguistic left brain of the child, accompanied by the experience-dependent expansion of the unconscious right brain, further accompanied by an integration of left and right brain processes stimulated by intersubjectivity.

Moreno (1961) pointed out that co-unconscious states can be either “result of direct interpersonal experience between intimate ensembles of individuals [or] the result of shared experiences on a social and cultural level. The personal contact of the intimate ensembles is then replaced by indirect, transpersonal or symbolic contact. The familial interpsyche is replaced then by a ‘cultural interpsyche’." The sociodrama of a group of participants becomes feasible when common experiences shared by people from all walks of life are brought to enactment.

**The psychotherapeutic work with co-unconscious states**

Psychodrama is a model of interpersonal relation psychotherapy based on the concept of Tele. Tele is a “collectivist unity”, part of the sociometric matrix of the group. The Telic network of the social group is what binds it together and organizes it. It is “that flow of feeling of which the social atom and networks are apparently composed” (Moreno 1934).

Almeida (2006) identified in Moreno’s ideas and practice evidence that confirm Psychodrama as a psychotherapeutic phenomenological-existential method. This method values the original experience of each person, his/her concrete existence, relation to other, to the world and with him/herself. It values the phenomenological reality of the present moment.

The inter-relational processes in this phenomenological paradigm have three attributes: intentionality, intuition and intersubjectivity, which are the same attributes of the Tele (Almeida 2006):

1. Intentionality as openness to the world, as a way to identify and look for meaning. The direct relation between conscience and phenomena is an intentional dynamism. It is close to knowledge, not as cognitive images but more as a presence of the subject in a reality that is open and illuminating of the present instant.

2. Intuition, defined by Almeida (2006) as the capacity to perceive clearly and correctly the truth, before thinking or reflecting. Intuition comes mostly from a pre-reflexive perception.

3. Intersubjectivity implies encounter, such that two subjectivities transform one another. The Morenian concept of encounter expresses basic characteristics of intersubjectivity,
meaning that two persons not only get together but they live each other, understand each other with all their being. It is an encounter of two persons (Moreno, 1946/1977, p.251) that can be also hostility, one opposing to another person (Moreno, 1969/1993, p.72).

These three inter-relational processes connect back, in the neuroscience perspective, to unconscious resonance processes, mediated, at least in part, by the mirror neurons.

Neuroscience, through attachment theory, understands that the non verbal affective system of the child continues operating throughout the life. The empathic and intuitive psychotherapist is psycho-biologically attuned and creates resonances with the affective states of the patient. Stern (2007) points to the importance of non verbal communication between therapist and patient, expressed by the voice tone, face expression, corporal position, often outside consciousness, but provoking reactions in both. In this way both participate, actively co-creating a context in which the psychotherapist can act as a regulator of the physiological states of the patient.

For Stern (2007), it is in this context that the explicit, verbal domain interacts with the implicit (images, feelings, intuitions) dimensions of the patient-therapist dyad. For him, two minds create intersubjectivity which influences the two minds. This exchange continuously occurs between the therapist and patient, mainly in the implicit domain, but involving the operation of co-conscious and co-unconscious states.

A psychotherapeutic psychodrama is a process in which the psychotherapist is attentive to the manifest content of the patient (facts, thoughts, everyday situations) and also to the latent material that is manifested within the protagonist’s theme, an expression of the co-unconscious. Considering that the experiential part of the session is a conjoint construction, the psychotherapist contributes with contents or meanings that have been produced in his/her internal world, evoked by the expressions of the patient and relevant to the psychotherapeutic process. These interventions, through verbal or action means, will promote new expressions in the patient and they will create new views and understandings of the experience, in a continuous construction of moments that will be apprehended and dialogically recreated. It characterizes the experience of two subjectivities (Fleury, 2007).

Establishing parallels between early attachment processes with the caregiver and the later therapeutic relation, Schore (2003, p.264) synthesizes diverse studies to conclude that in the affective transactions between the therapist and patient, there happens a co-creation of an intersubjective context that leads to structural growing and new connections in the brain, favoring affect regulation, and the processing of cognitive-emotional interactions and meanings related to the emotional world. Schore points to a resonance in which the subjectivity of the therapist is empathically synchronized with the internal state of the patient. The resonance can intensify and increase the duration of the affective state of the two. He recognizes that the resonance phenomenon plays one of the most important roles in the cerebral organization and the process of regulation of the central nervous system. This
mechanism has been called by Zeddies\textsuperscript{6} (2000, apud Schore, 2003, p.50) “nonlinguistic dimension of the relational unconscious of both the therapist and the patient”.

In the interactive process, there is the interaction itself (influenced by relational patterns located on the implicit domain) and the creation of images, feelings, intuitions. These contents, also from the implicit domain, can be understood as manifestations of co-conscious and co-unconscious states.

In long term psychotherapies, considering the complexity of this relationship, co-unconscious states can be recognized by a shared reaction changing the pattern of the therapeutic relationship; for example, avoiding difficult topics. When these behaviors are recognized by the psychotherapist, they can be enriching and promote growth in the process. However, when these contents remain unconscious, they can jeopardize the psychotherapeutic experience (Fleury, 2007).

Dramatization activates the emotional right brain and, at the same time, the left brain through verbalization (Hug, 2007), facilitating emotional integration. We could understand this process as co-unconscious states becoming co-conscious. For Hug (2007), the “warm up” facilitates opening a "Window of Tolerance": too much stress (due to psychodramatic interventions) can produce re-traumatization and too little stress can produce no change. It is based on the fact that stress stimulates the Amygdala to (after a few steps) produce cortisol which stimulates the Hippocampus (responsible for integrating experiences), and there is an optimum level of stress to stimulate the Hippocampus at just the right level (window of tolerance).

In groups this resonance phenomenon plays an important role in the constitution of the group and in the development of its culture. When a group meets for the first time, a thin link starts to grow among participants. This early network starts in subgroups, but gets strengthened, depending on previous experience or on the group coordination. This network is influenced by the environment, the history of the group, similarities and differences among participants, leader, political and/or social determinants, etc (Rodrigues, 2005). It is similar to what Moreno (1969/1993) explains as Sociodynamic law or effect: groups creating a network of connections that follow laws and rules specific for that group. In groups, part of this content is conscious, as the goal for the meeting, etc. Other parts are unconscious, held as myths, codes, etc. These are co-unconscious states that might facilitate (or not) the constitution and maintenance of the group (Rodrigues, 2005).

Emotions of participants stimulated by the telic network in the group can create similar subjective states in some of them. The focus in this network brings organization to experiences, emotions, thoughts and sensations, transforming this co-unconscious content into shared material. Knobel (2007) understands that this experience brings familiarity, intimacy and momentary fusion, the feeling of understanding the other. For her, in the socio-psychodramatic activity, shared scenes in the here and now open channels for new spontaneous roles.

Some have found it useful to use the term “co-unconscious” to describe this unconscious network. Others find it not so useful. The neuroscience community would use terms like “shared manifold” and “mirror neuron system”.

**Conclusions and reflections**

Based on these discussions, a preliminary definition of co-unconscious has been produced, as manifestation of unconscious content stored in the (right brain) implicit domain of memory and learning, stimulated by the phenomenological experience in the present moment of the interactive process between individuals or in the group.

These states are the source of Tele, transference and empathy, supporting the relevance of this concept for the psychotherapeutic process, as well as for the creation and maintenance of groups.

We are looking forward new contributions for further conceptualization of Moreno’s co-unconscious.

Important contributions from neuroscience have been discussed before (Hug, Fleury, 2008), inspiring some recommendations to the contemporaneous Psychodramatist. Together with propositions discussed in this text, some preliminary guidelines should include:

1. Creation of an intersubjective space that guarantees feelings of security and confidence, aiming at the re-creation of relational patterns established by the perception of self as effective and the other as trustworthy.

2. Therapist with a good system of mirror neurons (i.e. with good Tele sensitivity) provides an activated link sensible to the relational patterns of the implicit dimension, as much in the patient-therapist relationship as in those expressed in the images and dramatic scenes.

3. Consider Psychodrama as a phenomenological-existential method, to be open to the identification of implicit relational patterns presented in the intersubjective space, guarantying integration of cognition, emotion, sensation and behavior.

4. Attempt to stay in the moment, which brings an existential character to the experience, favoring implicit relearning.

5. Staying within a "Window of Tolerance".

6. Attempt to understand expressions from co-unconscious states, which bring specific characteristics to the intersubjective patient-therapist space. In groups, they strengthen the telic network among participants.

**Bibliography**


