

PSYCHOSYNTHESIS IN THE LIGHT OF NEUROSCIENCE

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Recent developments in neuroscience research have highlighted a new and paradoxical fact: the principles that Roberto Assagioli and his pupils have enunciated in the last hundred years now find a precise correspondence in the data and models of neuroscience. The paradox is that psychosynthesis, which focusses on the individual's uniqueness, has always been based on soft, subjective evidence: the story of individual and group sessions, and the outcome of various techniques and exercises. Now, *a posteriori*, comes hard experimental confirmation of its principles.

This new development is part of a vaster tendency: whereas psychotherapeutic practice and neurophysiological research were in the past largely strangers to one another, now we find communication and convergence between the two worlds. As a consequence of this upheaval, we are witnessing changes and radical revisions that would have been unthinkable in earlier times, and which have radically altered and amplified the scientific image of human nature. This evolution is due in great part to advances in techniques of investigating the brain itself, in particular brain imaging, which allows scientists to observe ongoing cerebral activity, thus enabling them to study correlations between subjective states and physiological events.

Many studies in neuroscience show us psychosynthesis in action (without calling it that) in all its important aspects. Studying neuroscience in this context is like learning psychosynthesis again from a different, more concrete perspective. In this essay – by no means an exhaustive treatment of the subject, which would require much more space - I will highlight some basic themes that psychosynthesis and neuroscience have in common.

Empathy

According to Roberto Assagioli, empathy is “the identification, more or less temporary and to varying degrees, of one person with another”. It is at the basis of the I-Thou relationship, the truest relation between human beings. It is possible because of the essential unity of human nature beyond all differences, and it means that “in each of us *all* elements and human qualities potentially exist”¹. Empathy can be consciously cultivated in all interpersonal relationships and deliberately evoked in psychotherapy.

A large part of last century psychology is implicitly founded on the assumption of basic human selfishness: “*Homo homini lupus*”, in Hobbes's words. It is an ancient postulate, reinforced by a one-sided reading of the evolutionary struggle. In this view evolution is a cruel war, in which the only survivors are those who prevail over others. All manifestations of altruism, empathy and care for others are instrumental. For Freud empathy starts to show around seven years of age, it means caring about others' needs for the sake of interested compromise within social coexistence, and it arises with the formation of the super-ego. For Piaget empathy has first of all to do with spatial representation, that is, the capacity to see the surrounding world from other people's viewpoint: for example, I cannot see behind my back, but someone looking at me can.

For a long time few believed in the genuinely prosocial motivation of human beings and in the propensity for spontaneous empathy. One of the minority was Carl Rogers, who chose empathy as a central theme for his work. Since the eighties this area has changed radically: studies on the spontaneous altruism of children, on animal behaviour (above all on primates), on ordinary citizens who risked their lives to help Jews during the German occupation, on blood and bone marrow donors, on the central role of social contact and the sense of belonging, on the importance of maternal care and breastfeeding (earlier developed by Bowlby's pioneering work), and various others, show that the empathic and prosocial disposition exists alongside the most selfish tendencies, and that it has played a central role in the development of interpersonal relations and thus in human evolution.

In this arena the discovery of mirror neurons in the work of Giacomo Rizzolatti takes on special importance. According to Rizzolatti mirror neurons have the capacity to re-create an activity that we perceive in the environment. If I see someone raise her arm, my mirror neurons reproduce the same gesture in my brain. That happens only if I perceive that gesture as intentional: this in turn is a crucial point, because it shows that our brain is equipped to discriminate between voluntary and involuntary action – a capacity present from the third year of life².

So empathy is a basic capacity of the nervous system, not a learned social behaviour, nor a purely mental capability. The meaning of this discovery is revolutionary, because it makes the ability to enter into resonance with others central to human nature. This capacity forms the basis of interpersonal relations, communication between people, language learning and socialization; and it lends credence to the idea that original prosocial tendencies are at the core of human nature.

To be precise, there are discordant opinions on this subject. The significance of mirror neurons must be carefully evaluated, beyond the journalistic simplifications so widespread in the past few years. It is interesting however to quote the authoritative opinion of V.S. Ramachandran, who believes that the empathy generated by the mirror neurons is the main cause of the evolutionary leap made by humanity in the last five hundred thousand years, and also the more recent one in the last 2500 years. According to him, mirror neurons make it possible for us to communicate with and learn from others, and so transmit knowledge by example and imitation. According to Ramachandran the appearance of mirror neurons signalled the passage from biological evolution, based solely on genetic transmission, to cultural evolution, which is immensely faster, and based on learning by communication. Ramachandran calls mirror neurons “Gandhi neurons”, because they erase the boundary between me and the others – not just in a metaphorical sense, but literally, since these neurons are unable to recognize the difference. Ramachandra predicts that “mirror neurons will do for psychology what Dna has done for biology: they will provide a unifying framework and help explain a host of mental abilities that have hitherto remained mysterious and inaccessible to experiments.”³

Unfortunately we must also note that neuroscience has made some of its discoveries, including those on empathy, by inflicting unspeakable suffering on evolved animals such as primates and other mammals: craniotomy, finger amputation, electric shocks, etc. The paradox is that these operations are performed in some cases within the study of empathy: research done for proving the existence of empathy, but without any empathy at all. This poses basic questions about the ethical

limits of research, and shows us that empathy in humans is not a universal and necessary given.

Still within the area of interpersonal relationships, a recent research, of great interest for all who work in the area of counseling and psychotherapy, has shown: 1. Human beings (as compared to all other primates) have a strong need to communicate their own experiences, and 2. This self-disclosure activates the mesolimbic dopamine system- the same neuronal area which is activated by anticipation or receipt of reward (such as food, money, sex, nicotine). In other words, to talk about oneself (as opposed to talking about any other subject not related to oneself) evokes a sense of wellbeing similar to other common rewards, and is observable through brain imaging technology⁴. We also know that disclosure to another person will make our attitude towards that person more favorable.

Plasticity

Until not long ago a dogma reigned in the scientific study of the brain: once maturation is complete in adolescence, the brain stays the same for life, till the start of gradual senile degeneration. All that contrasted markedly with observed psychotherapeutic success: that is, the possibility of profound change in human beings' attitudes, in our beliefs and values, in our way of living; the possibility of overcoming many of our limits and pathologies.

This fundamental difference has done nothing but impede communication and exchange between neuroscience and psychotherapy.

In this context of estranged fields of research, Roberto Assagioli spoke since 1909 of the "plastic unconscious", in other words the area of our unconscious that, like a photographic plate (digital photography did not yet exist), can remain impressed and can therefore influence our emotions and behaviours. The plastic unconscious gives us an indefinite capacity to learn, elaborate, create. Assagioli formulated a series of laws that regulate our possibilities of impressing the plastic unconscious and directing it according to our will. Among these laws we find law I, which holds that images and ideas produce corresponding physical and emotional; law VI, according to which concentrated attention on ideas and images feeds and strengthens them; and law VII: repetition of acts intensifies the tendency to perform them⁵. The existence of a plastic unconscious alongside the structured one suggests concrete, extraordinary possibilities for transformation, and conscious, deliberate change of mental attitudes, emotional dispositions and behaviours, in the fields of education, self-realization and psychotherapy.

Since the nineties the idea of the brain's structural immutability has been replaced by the idea of its plasticity. The work of Eric Kandel in the field of memory is at the origin of this monumental change. Experimenting on the marine snail *aplysia*, endowed with particularly large neurons, and subjecting these creatures to a series of electric shocks, Kandel noticed that their nervous system changed and the synaptic connections between motor neurons and sensory neurons multiplied. He thus found that a strengthening of the connections between neurons became structural. "What particularly fascinated me . . . , says Kandel, was the possibility that psychotherapy, which presumably works in part by creating an environment in which people learn to change, produces structural changes in the brain and that one might now be in a position to evaluate those changes directly."⁶

The famous studies on London taxi drivers (who must memorize vast quantities of information on roads) compared to bus drivers (who habitually drive the same route) show that the taxi drivers' brains have formed more developed neural circuits because of their learning, internalization and prolonged use of road maps. The same has been found comparing cerebral maps of musicians and non musicians; experts and non experts in computer technology; medical students preparing for an exam and other students who are not preparing for one. And so forth. In all these cases the neural circuits have shown differences due to the repetition of thoughts and behaviours. In short, the brain is plastic. It can be moulded by what we do and what we think. Repeated activities and thoughts leave a deep trace in the organization of the neural circuitry. What before seemed rigidly unchangeable, now is seen as susceptible to voluntary transformation. The brain can change itself, as the title of a famous book on the subject proclaims. Clearly these findings force us to revisit the concept of human nature: to stop seeing it as an unalterable structure in which we are imprisoned, but as a physiological matrix of countless possibilities and transformations. This orientation coincides with psychosynthetic thought.

Disidentification

A central theme of psychosynthesis is disidentification. Assagioli held that our "I" habitually identifies with bodily sensations, emotions, desires and impulses, and thoughts. We identify with our roles too. Also common is identification with pathological nuclei: anxieties and phobias, destructive and limiting self-created images, depressive fantasies and feelings, infantile emotional habits, uncontrollable impulses, compulsive rituals, etc. etc.

It is possible to learn to distance ourselves from all these psychic realities, and to watch them while interposing distance between our "I" and any observed content. Assagioli taught that it is possible for the "I" to find a different placement within one's inner space. The distance helps us reduce the size and power of elements that would otherwise control us. The various psychic contents change from internal to external. Feelings and ideas are not anymore "inside", but "outside": we are no longer shaped and controlled by them, but we perceive them as transient forms that we can direct and transform. Assagioli believed that we are dominated by everything with which we identify; we can dominate everything from which we have disidentified. The practice of the disidentification exercise guides us in freeing ourselves from forces which would otherwise dominate us: "I have a body, but I am not my body; I have emotions, but I am not my emotions..."; etc. The goal of this exercise is the realization of the "I" as a center of pure self-consciousness and will. This process can give all who use it a sense of mastery and inner freedom. Techniques and attitudes of this kind are found in various spiritual traditions, both Eastern and Western.

A very similar technique has been adopted by various neuroscientists, and their studies and experimentation use concepts and methods in harmony with psychosynthesis techniques. For example, Daniel Siegel (UCLA School of Medicine) has coined the term *mindfulness*: the capacity to watch one's emotions and thoughts and so to reflect on one's own experiences. According to Siegel, the capacity for *mindfulness* is based on a threefold disposition: openness – looking at the inner world as it is, not as one would like it to be; observation – perceiving psychic processes in a wider context, and detaching oneself from automatic behaviour as well as habitual reactions; and objectivity – understanding that psychic processes are temporary, and

that they do not constitute our identity. Siegel believes that *mindsight* shifts the center of brain activity from the limbic area, which we have in common with all mammals, and which represents an older part of our evolution, to the prefrontal cortex area, the result of our most recent evolution. To this latter area belong the understanding of time, the sense of identity, moral tendencies, and the capacity for reflection. The central part of this area is especially important because it communicates with all the other parts and thus has an integrative function. This is the site of *mindsight*⁷.

Jeffrey Schwartz also adopts psychological detachment as a healing tool. Schwartz uses a four-point sequence to guide a subject who want to master an impulse, a thought or an emotion he sees as undesirable and debilitating. It all begins with the experimental verification of the fact that giving a name to an emotional state helps us reduce its power over us. The four stages are: 1. Relabel: become aware and define the emotions, thoughts and impulses we want to master. 2. Reframe: the subject is invited to consider the specific content and realize that “this is not me, it is my brain”. For example, if the patient has a panic attack, he first says to himself: “anxiety” or “panic”; then a phrase like: “it is the brain which is causing this panic attack, but I am not my brain”. 3. Refocus: one shifts the attention in other directions – physical exercise, reading a book, writing in a diary, etc. 4. Revalue: The last stage consists in a new appraisal of the situation, and includes a dialogue with the “Wise Advocate”, a character who represents the wisest part of oneself and who helps us see our condition in a wider context. Schwartz began working with obsessive-compulsive patients, but extended his method to various pathologies. His technique also consists in showing the patient print-outs of brain imaging before and after treatment, to show them that brain areas which were previously overexcited (mainly the right caudal nucleus in the case of obsessive-compulsive disturbance) are no longer in an overexcited state as a result of the treatment. Both Schwartz and Siegel have adopted the attitude of detached observation (the equivalent of disidentification) from the Buddhist practice of *vipassana*^{8 9}.

Mario Beauregard of the University of Montreal has conducted a two-fold series of experiments. To one group of men (monitored with functional magnetic resonance) he showed brief films with explicit sexual content, alternating them with other films of neutral content. Brain imaging revealed a normal state of sexual arousal. Afterwards Beauregard showed subjects other films, equally explicit, but after having asked them to watch in a detached manner both the film and their own reactions. Brain imaging revealed a great reduction in sexual arousal, and this was confirmed by the participants’ subjective experience. The experiment had no repressive or moralistic aims: its main purpose was to show that the male reaction to sexual arousal is controllable, and that therefore in cases of sexual violence the standard excuse of “I couldn’t help it, this is human nature”, is invalid.

In another experiment Beauregard showed groups of women moving and sad films. In this case too images of the cerebral areas showed the corresponding strong emotional reaction. Then Beauregard repeated the experiment, having first asked subjects to observe with detachment everything that happened: both the film and their own reactions to it. Here too the emotional state was much less. Brain imaging revealed activation in the anterior temporal lobe, and also the right side of the amygdala, of the insula, and of the right ventrolateral prefrontal cortex. In the second experiment emotional self-regulation stimulated completely different areas: the lateral prefrontal cortex and the right orbitofrontal cortex, that is, areas of the brain that

belong to a later/posterior evolutionary phase. In short, it is possible to stop oneself from being dominated by depressive feelings.

The goal of both experiments was to show that it is possible to distance oneself from one's own psychic contents, and that the distance aids control, and that therefore we are not at the mercy of emotions and impulses, but we can learn to master our psyche instead of being its victim¹⁰.

The construction of reality

The universe in which we live is not *given*, but *constructed*. We could say that all of last century saw a crucial epistemological transition: from naive realism to mental constructivism. Scores of studies in various fields have shown how our world is not an external objective reality, but a subjective universe generated by us. Our body, our memory of our lives, our sense of identity and self-image we have of ourselves, others, society, all of reality, are nothing other than constructions of our mind. This subjectivity is the basic condition for psychotherapy, which confronts and transforms the mental maps we have of ourselves, others and our existential situation. Often these maps are not adequate, they are incomplete, distorted, or dysfunctional, and this greatly harms and impoverishes us. Psychotherapy can be seen as an attempt to make our representation of reality richer and more efficient. Psychosynthesis in particular studies our mental constructions and helps us see them as such (in itself a therapeutic development) and then to replace them with other, more functional and complete ones.

The development of the neurosciences has further deepened these ideas. The whole of our life is a creation of our brain and the world we inhabit is a microcosm created by our cerebral circuits. According to Antonio Damasio, director of the Brain and Creativity Institute at the University of Southern California, the main feature of the human brain is its amazing capacity for constructing maps. The brain makes maps of everything: objects, situations, pieces of music, people, mathematical formulae, places, machines, and so on. "The brain is a born cartographer", says Damasio¹¹. From the maps emerge actual mental images. For Damasio the brain is not a mirror that reflects reality, but a configuration of Lego pieces with which we continually reconstruct surrounding reality inside ourselves¹².

Of particular interest is the theory of pain that emerges from this view. Ramachandra believes that physical pain is not a real and direct datum, but an opinion that the body has about the health of the organism. In short, pain is an illusion because our very sensation of the body is a mental image and the brain is a virtual reality producing machine¹³.

Realizing that everything we call "reality" is our own subjective construction helps us understand that we live in a world we make ourselves; that this world does not have an objective, definitive and universal truth; that it can be deconstructed and reconstructed; and that other people live in worlds very different from ours.

Will

For psychosynthesis will is the central faculty of the human being, closer to our identity than all the others. The will is often not developed enough, or else it is oppressed and deadened in the course of our life. Assagioli believes this is an

important reason for discomfort and pathology. The impossibility of self-affirmation or mastery of one's impulses, psychological subjection to other people, dependency, lack of initiative or self-discipline, existential resignation, the absence of a goal in life, are all examples of lack of will. Assagioli points out too that he doesn't see will as a moralistic force (the Victorian will) or as "willpower", but as the directing and integrating center of the whole personality. Free will exists and can be developed. For psychosynthesis the lack or suppression of the will are a main cause of pathology.

The problem of the existence of free will has always been a subject of debate. Without free will there can be no moral or legal responsibility. But anyone with a scientific background finds it hard and incongruent to think of free will in a universe governed by deterministic laws (at least in pre-quantum science). Furthermore, free will is by definition unpredictable: and unpredictability is exactly what science tries to diminish or eliminate. The deterministic view would seem to contradict our subjective experience of having the power to choose freely. Many exponents of the neurosciences have often embraced the hypothesis that free will does not exist, that it is a mere epiphenomenon - a mental event which, though existing, has no influence on reality. Will is thus reduced to the status of subjective illusion: We think we are choosing, but everything is already decided. A famous experiment by Benjamin Libet found that before the conscious decision to move a finger, the corresponding motor area of the brain is already activated about half a second earlier. In other words, the brain has already initiated the act, and only afterwards the conscious "I" decides - or has the impression of deciding. When subjects thought they were choosing, their brain had already decided. It is as if, when a train is leaving from a railway station, I were to decide that the train should leave, and when it does leave, I thought that I was the one who made it move (The Libet experiment was repeated in subsequent years with more sophisticated equipment and in different modalities.) Nevertheless, Libet became a proponent of free choice, and in 1993 edited the publication of the book: *The Volitional Brain*, containing essays by various authors. There is at least one reason: Libet's experiments also found that the conscious "I" had power of veto: it can inhibit activation of a motor area of the brain¹⁴.

Several studies show the existence of volitional activity in the brain. To start with, they show what happens when will is dysfunctional or absent. Examples: In the Foix-Chavany-Marie syndrome the patient is unable to smile voluntarily, though he can smile involuntarily. Certain lesions in the *corpus callosum* give rise to a conflict between the two hands, so that one hand performs a gesture and the other involuntarily undoes what the first hand did¹⁵. In Alzheimer's disease there is decline in the "executive function": that is, according to Elkhonon Goldberg, the reduced capacity to decide is one of the first symptoms of Alzheimer's, even before cognitive degeneration. The pathological absence of the decision-making capacity shows how essential it is in the normal functioning of human life¹⁶.

Another study shows that a volitional act uses a certain amount of blood glucose. According to R. Baumeister, the author of this research, the will not only exists but can be developed "like a muscle"¹⁷. In another study, made on subjects invited to choose between various items at the virtual supermarket (Coca Cola or Pepsi?), it was found that between the presentation of the choice and the moment of decision, an interval of about 2.5 seconds passed; in the first 800 milliseconds the cerebral cortex corresponding to visual activity was activated - within the 800 milliseconds, the right parietal cortex - but only when the subject made a choice. The researchers concluded that this is the decisional area of the cerebral cortex¹⁸.

Of particular interest, too, are the essays by Adina Roskies on free will. Roskies wonders if neuroscientific studies undermine the idea of free will. Her answer is that, first of all, the term “will” or “volition” is too vague, and that it must be split into five different meanings: as the endogenous beginning of an action (in contrast to reaction to a stimulus, which is exogenous), as intention, decision, executive control, or subjective experience. Roskies says no neuroscientific discovery doubts the existence of the will in each of the senses mentioned above¹⁹.

Many studies have begun to look at the possibility of influencing the brain in the matter of commercial choices – so called *neuromarketing*. This method, the ethical implications of which are doubtless in question, uses brain imaging to study the cerebral reaction to various images and logos. Those that evoke in the brain the sites linked with identity are the most promising from the commercial point of view, because they evoke identification with the logo and the lifestyle it symbolizes: hence the phenomenon of brand loyalty. The brain reaction is not in relation to the product or the service offered by the logo, but merely to the logo itself and the emotional contents it represents. This is an example of the commercial appropriation of the will, and assumes that free will exists, but can be manipulated²⁰.

Visualization

In psychosynthesis visualization is a major technique, and it is used in many ways. One of the most efficacious is the technique of the ideal model, in which we may visualize the person we would like to become. The ideal model affirms the project of a human being constructing his own future. Often this project is unconscious, inexistent, involuntary, distorted, or based on false self-images. This faulty representation creates discomfort and disorientation. Often the faculty of projecting oneself is damaged by trauma, and must be reinstated. The ability to conceive and visualize one’s future is energizing and helps give order and harmony to the human psyche. Visualization of symbolic images can be a great help and a guide, and can produce significant therapeutic effects. The efficacy derives also from the fact that symbols are the language of the unconscious.

In general the imaginary world (symbolic or not) can be an excellent laboratory in which to experiment and cultivate new attitudes and behaviours.

The kinaesthetic representation of movements has been amply studied by neuroscience, and is often used in neurological rehabilitation, because imaginative simulation of movement stimulates the same motor area of the brain as the actual movement itself. Visualization of complex actions is very useful in the reeducation of brain damaged patients. In the case of stroke it has been found that visualizing the movement of a paralyzed limb, while not offering total rehabilitation, causes blood flow to the cerebral zones immediately next to the affected areas, and thus limits the damage²¹. Furthermore, visualization of images activates processes similar to perception, as was found by showing people drawings of ordinary objects and then asking them to visualize those same images²². Finally, the subject of a visualization (for instance a human face or a landscape) determines which area of the brain is activated²³.

Even language may or may not be activated by visualization. The fascinating studies by A. Just compared brain reactions to phrases with visual content - such as: “The number 8, when rotated 90°, looks like a pair of glasses”- and to sentences with

less visual impact - such as: “Though the marathon is these days a sport, it began at the time of Ancient Greece when messengers brought news”. He found that the sentence with greater visual content stimulates very different areas from those that requires less visualization. This is a relevant fact for anyone interested in learning and education²⁴.

Visualization has often been used to improve sporting performance. Athletes vividly and in detail imagine themselves performing an action at their very best – for instance throwing the ball into the basket – and the visualization has value as proper training. An essential condition is that the athlete be familiar with the performance, and that the visualization happen in first person and with inner perspective. An interesting research by C.J. Olssen et al., using fMRI, studied athletes active in high jump, and compared them to subjects without experience in this sporting specialty. When they were asked to visualize high jumping, the athletes activated the cerebral motor zones, the non-athletes only those corresponding to visual activity: they were visualizing from the outside²⁵.

Reading and writing

Book therapy is a technique of psychosynthesis. It believes in the capacity of books to evoke emotions, convey ideas, develop reflection, facilitate personal growth, stimulate action, and show new ways of relating with others and viewing the world. Reading can give great enrichment: anyone whose life has changed from reading a book knows this. Book therapy is not an easy psychotherapeutic technique because it requires, first, a deep knowledge of a fair number of books, and, secondly, the intuition necessary for choosing the right book for the existential situation and for the patient’s taste. Assagioli advised therapists to have a “book cabinet” comparable to the medicine cabinet, so as to have books available for offer in the course of therapy. (Naturally this can be extended to DVD’s, which did not exist in Assagioli’s time.)

In recent years book therapy and associated activities have developed greatly. It is very helpful in fighting depression. It has also been found that for people with chronic pain reading can be more useful than acupuncture, painkillers, physiotherapy or hyperbaric chamber. Reading groups where readers share experiences about books they have read and read out loud from their favourite books, offer the chance of socializing. In the rapid transition from the era of books to the digital age, reading hard copy is an invitation to reflect and slow down. Reading on the computer, even digital books, is often more fragmented and scattered and less deep than reading books in hard copy.

In the neurological field much attention is given to reading: an activity that is unnatural and fairly complex, and therefore (especially for the English-speaking countries) not easily acquired. A study at Carnegie Mellon found that after a six months reading program for people who had reading difficulties, their cerebral area for language had grown²⁶. Also a study conducted by Mayo Clinic shows that reading can bring about an increase in “cognitive reserves”, thus serving as prevention of Mild Cognitive Impairment (MCI), which often precedes Alzheimer’s syndrome²⁷. Reading could also help *prevent* cerebral damage: a study looked at 112 smelter workers who had suffered lead poisoning, all of them with damage to the motor apparatus; but those who were in the habit of reading, had suffered much lesser cognitive damage²⁸. From this evidence the researchers concluded that reading can give a certain

protection to the brain and an increase of cognitive reserves. For the time being neuroscientific studies on reading show benefits of *function*, whereas book therapy involves mainly if not only benefits linked to *content*.

Writing has been used in psychosynthesis with therapeutic intent: autobiography, journal, and other kinds of writing are useful for several reasons: first of all, they all express psychic contents which would otherwise be repressed and could cause psychosomatic disturbances. Let us remember the ninth psychological law: “Instincts, impulses, desires and emotions tend to be expressed and *demand expression* [italics mine].²⁹” Moreover writing can be a method for exploring the unconscious and an invitation to reflection.

Recently several researches have proven the therapeutic efficacy of writing³⁰. Some neuroscientific studies show that writing about one’s emotions can foster psychological balance and good brain function. In subjects monitored with visualization of cerebral activity, reduced stimulation of the amygdala has been found. This points to a reduction in emotional activity, and the stimulation of other cerebral areas that regulate the emotions. According to Matthew Lieberman of UCLA, it is the act of naming emotions and putting them down on paper that helps in mastering them³¹.

Transpersonal experiences

Assagioli believed our true identity is constituted by the spiritual or transpersonal Self. The Self manifests through the superconscious, which is the source of enlightened states, aesthetic experiences, creativity, altruistic attitudes and behaviors, ecstasy, intuition, etc. and especially the understanding of our life’s meaning, without which we are prey to alienation and despair.

Transpersonal experiences were once called “religious“ (in the non confessional, vaster sense of the word) by William James, “oceanic” by Sigmund Freud (who interpreted them as regressive), “numinous” by R. Otto and C. G. Jung, “peak experiences” by A.H. Maslow, “transpersonal” by Stan Grof, and, with perhaps a more limited meaning, “flow” by M. Csikszentmihalyi. For Assagioli these inner events, far from being casual and secondary episodes, take on a profound relevance, because they form milestones on the path of each one of us. They are sources of revelation, hope and positive interaction with others. According to Assagioli transpersonal experiences are a legitimate field of scientific investigation, independent of any religious creed. True “ways” of realization exist, such as the way of meditation or action, dance or prayer, beauty or science. Furthermore, the transpersonal dimension, when not elaborated and assimilated in a balanced and conscious way, can cause pathology.

Transpersonal experiences have been the object of research also in the field of neuroscience. Especially interesting are the investigations by Mario Beauregard on cerebral activity during contemplation and mystical union. Beauregard asked a group of fifteen cloistered Carmelite sisters to recall and try to re-create the most intense spiritual experiences of their lives. A while later he also asked them to enter, as far as possible, into a contemplative state during fMRI. The chief characteristics of these experiences were (according to the Hood Mysticism Scale):

“I know I am having an experience of the sacred”

“I have had an experience in which it seemed I was absorbed in something greater than myself”

“I felt deep joy”.

All these states had exact correspondence in the visualization of cerebral activity³².

Some spiritual traditions warn against the excessive use of the rational mind, and offer techniques to inhibit its activity. The rational or discursive mind can filter distort or veil the transpersonal dimension. The same or similar phenomenon is apparently detected by research in the field of neuroscience., especially the ones on the *flow* state. According to Csikszentmihalyi, the state of *flow* is attained when body or mind reach their limits in a voluntary effort to accomplish something difficult or worthwhile³³. The cortical activity in the median-frontal area has been found to subside during the state of *flow*³⁴.

The following sections also concern the transpersonal dimension.

Meditation

Meditation seen as an inner targeted activity is another crucial theme of psychosynthesis. Often the need for an inner life, for silence, reflection, solitude and inner space, is squashed or ignored or regarded with suspicion in our society so bent on extraversion. When that happens, problems inevitably arise, because many individuals, mainly introverts, find that their chances of compensating for a scattered and chaotic life, by creating a private space in which to recharge and regenerate, are inhibited. Psychosynthesis acknowledges this need for an inner world and offers several kinds of meditation, besides recommending the meditations of various spiritual traditions, like Buddhism or Vedanta.

In the past few years there has been keen interest in meditation by the medical, psychotherapeutic and neuroscientific fields. A. Newberg, author of various studies on this theme, says that the brain is equipped for survival. Spiritual experiences show us that our life has a purpose, the universe has meaning, that is, they make an inhospitable and frightening place more benign, and they help us to better cope with it. It is for this reason that spiritual experiences have an adaptive function³⁵.

Yet meditation has often been approached in a superficial way, merely in a few of its mechanical aspects, as a relaxation technique, detached from its spiritual roots, and its deep meaning has been forgotten. But even with these reservations, we have seen a proliferation of highly interesting work. For example, in a study conducted by the Medical College of Georgia, students who had learned a simple meditation (relaxation, deep breathing, repetition of a mantra) showed reduction in school absence and improved behaviour. A longitudinal study made in schools found that pupils who practised meditation showed fewer signs of exam anxiety and better ability for concentration³⁶. In 2011 another study conducted under the Massachusetts General Hospital Neuroimaging Program, a group of subjects took a course in vipassana meditation for eight weeks (the control group did no meditation). At the end the subjects who had meditated for an average of 27 minutes a day, showed psychological and cognitive benefits, and, at the cerebral level, increased density of the grey matter in the hippocampus and the areas corresponding to awareness and compassion, as well as a decreased density in the amygdala. Although several studies have already shown that the brain of meditators is organized differently, this is

actually the first one showing structural cerebral change caused by meditation while it happens³⁷.

Beauty

Another transpersonal experience is that of beauty. For Assagioli beauty is a centrally important factor in human experience from an educational, developmental and therapeutic point of view. For him aesthetic contemplation is liberating: “The sense of beauty illuminates, nourishes and enlivens human life”. In my research on the experience of beauty and aesthetic intelligence I have fully verified this phenomenon. A considerable number of recent studies have shown that certain artistic activities, as well as contact with nature, improve academic performance, have a calming and regenerative effect, prevent some childhood pathologies, encourage prosocial attitudes, reduce aggression, and even raise IQ.

The field of neuroscience, too, has recognized the aesthetic experience as an observable cerebral fact. Semir Zeki coined the term “neuroaesthetics”. In a study on a small number of university students he invited the subjects to look at images, which he distributed in three categories: beautiful, ugly and neutral. The subjects then looked at those images while monitored by fMRI. Brain imaging showed the reaction to beautiful images was different from that to ugly ones³⁸. V.S. Ramachandra talks of a neurological theory of aesthetic experience formulated in eight governing laws³⁹. In an elegant experiment by Cinzia Di Dio, Emiliano Macaluso and Giacomo Rizzolatti, and published under the title “The Golden Beauty”, subjects monitored with fMRI were shown fifteen images of sculptures of male and female bodies, all respecting the classical canon of the golden mean (1:1.68), and then the same images after they had been slightly shortened or elongated (1:0.74 and 1:036) so that they no longer adhered to the golden mean. The subjects first had to look, then give an aesthetic evaluation, and secondly another evaluation of figure proportion. FMRI showed a difference in brain activity between exposure to the canonical and the distorted images. The experimenters conclude that the brain has a specific response to beauty (at least the visual beauty of pictorial proportions), and it can be located in the joint activity of the insula and areas 45 and 46 of the prefrontal cortex (objective evaluation of beauty) and the amygdala (subjective response)⁴⁰.

Eric Kandel as well has researched this subject, and has recently published a book in which he examines in detail the biological significance of aesthetic experience, also in relation to psychoanalysis and perception psychology. According to Kandel, art has an adaptive function for survival because it helps us tune into other people’s minds and share experiences⁴¹.

Play, smiling, humour

From the start of last century Assagioli brought to light the regenerative importance of laughter, smiling, playfulness and good mood: all attitudes that improve our physical and mental health. At a time when the main subject in psychology was suffering and pathology, therefore anxiety, anguish, depression, alienation, etc., Assagioli was interested also in laughter and smiling, regarding them elements of fundamental import:

“Modern man has to learn three things above all in order to be healthy and whole:

The art of rest.
The art of contemplation.
The art of laughter and smiling.

..

Laughter relieves stress and gives great relief, produces beneficial inner relaxation, replacing the activity of worn out faculties with that of other, fresh ones, far too seldom used at all”⁴².

It should be pointed out that by “play” Assagioli did not mean any particular kind of game like chess or soccer, but the *attitude* of playfulness. Play expresses a state of well being and activity with no ulterior motive, but rather an end in itself: any activity can therefore become a game, from walking in the mountains to artistic expression, from reading to watching movies, from travelling to collecting stamps, and even work itself can be approached and experienced in a playful mode.

For Assagioli:

1. the capacity to laugh at ourselves allows for greater disidentification, therefore it frees us from everything that can sadden, burden or anguish us.
2. Playfulness, joy, and philosophical humour are true transpersonal qualities.
3. These states of fulfilment and happiness facilitate and strengthen psychophysical health. A sense of humour brings lightness and the ability to see connections that are otherwise invisible; so it is creative. Joy is perhaps the central quality of being.
4. Repression of these states can produce pathology.

The beneficial effects of play, as they are documented by research, are an increase in intelligence, the possibility of coming to know the world and trying various kinds of behaviour, and the development of the capacity to adapt to change⁴³.

The importance of play for the brain has been amply proven. Since the pioneer studies by Marian Diamond in the 60’s it has been shown that rats raised in rich and stimulating environments and with many possibilities for play develop larger brain mass and are much more intelligent than rats kept in a poor, unstimulating environment⁴⁴. Play fosters the growth of the neurotrophic factor (BDNF), a substance that favours the growth and maintenance of cerebral cells⁴⁵. Some studies also show that various games, including puzzles, increase resistance to neurodegenerative disturbance. John Byers has performed detailed analyses of play in animals, and corresponding brain development. He has found that the quantity of play directly correlates with development of the prefrontal cortex⁴⁶.

In another study subjects saw a funny film of their choice. In a nearby room control subjects waited with no stimulation. From all of them blood samples were taken for analysis every ten minutes. In those who watched the funny film, several immune functions were strengthened and the level of cortisol (which increases with stress) had diminished; whereas all the data on the control subjects remained unchanged. It really is true that laughter is good medicine and that smiling is a powerful stimulant of the neural circuits that facilitate social interaction and empathy^{47 48}.

From a psychotherapist's point of view the new frontiers of neuroscience give a wider and more complete picture. Suddenly the subjective events with which for a long time we have had familiarity in ourselves and in our patients, assume a clearer and more detailed physical dimension.

Wary of being either a neuromaniac nor a neurophobe, we may ask: Is it of any use to know which brain areas are activated in correspondence to an inner event? I believe it is. An inner event happens: an emotion, an ability to distance the self from subjective experience, the perception of beauty, an act of will, a memory, a mental image. Meanwhile we have a precise, outer graphic representation of this same event. It is as though events in our inner world were receiving a new ontological status: a confirmation that they are not merely vague, indefinable processes, but concrete happenings and shapes on a map. The soul has at last started to incarnate.



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