

The future of psychotherapies

I introduce myself (you can find a complete curriculum and my scientific views in www.mariopigazzini.com) by illustrating the most important steps of my work, cultural and scientific growth.

1967-75: during my academic training I work as a nurse in the first aid and neuropsychiatric unit in the Lecco Hospital, where I passed all my carrier; I took my degree with honour in psychology at the Padova' University on "The *phenomenological* aspects of nurse-patient relationship".

1975-85: I work as a community psychologist and I start my *psychoanalytic training*; during the 1983-85 I follow the *Infant Observation Tavistock Model* at Milan University.

1985-2006: I work as a psychologist in the *Department of Mental Health* and, in 1992, I become an Associate Member of the Italian. & International Psychoanalytic Society; in 1992-94 I spend two years as a Clinical and Programme associate at the *Tavistock Clinic* in London, where I realise that psychoanalysis and psychotherapy require a new scientific paradigm following the suggestion of prof. Isla Lonie: *Chaos Theory, a new paradigm for psychotherapy*.

1994-to now: I start my research on *mathematical models for psychotherapy* at the Centre for non-linear and complex systems at the Insubria University in Como, directed by prof. Casati.

1990-2000: I spent one year as a *Visiting Research Professor* at the Department of Mental Health in Adelaide University directed by prof. Barret. During this year I know Marcello Costa, professor of neurophysiology at the Flinders University, who introduce me to *the world of neurosciences*; we are still cooperating.

From 2006: I work as a psychotherapist in private practice and I dedicate my studies to integrate theoretical and clinical experiences of my 50 years of work in human relation.

There is three theoretical models of psychotherapy which I have applied during my long practice as psychotherapist:

- 1) The *symbolic narrative* model: is the original model of psychotherapy, the talking cure applied by Freud and others at the end of 1800's; it was always linked to the clinical pathology requiring medical cures. It never abandoned this contradiction, so it failed to become an autonomous science.

I have defined psychotherapy as a relational experience based on a *specific structured interaction between two persons which we call: take care of... It targets a temporary reactivation of some quality of development, in order to understand, control and modify, those parts of the parental codes which are imprinted in the subject and prevent her/him from wellbeing*

- 2) Taking care is primarily *an evolving interaction* between 2 persons. The best hypothesis of how the neo-cortex works is that it is a hierarchical array of future detectors, proceeding from bottom-up sensory information to higher-level more abstract concepts.

I have defined psychotherapy as *a deep learning process by which the stored information, is activated by novelty via sensory input. The interaction with a coupled*

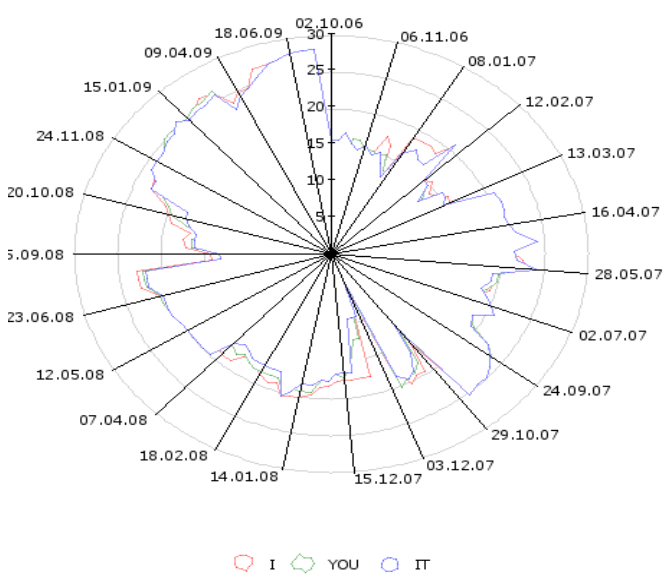
brain manipulates, via a combination of computation, the new information in order to achieve more solid behaviours.

- 3) The scientific models: because psychotherapy is a *recursive process*, it is possible to identify some mathematical relations between the variables of the models which measure the evolution of change, like the logarithmic spiral.

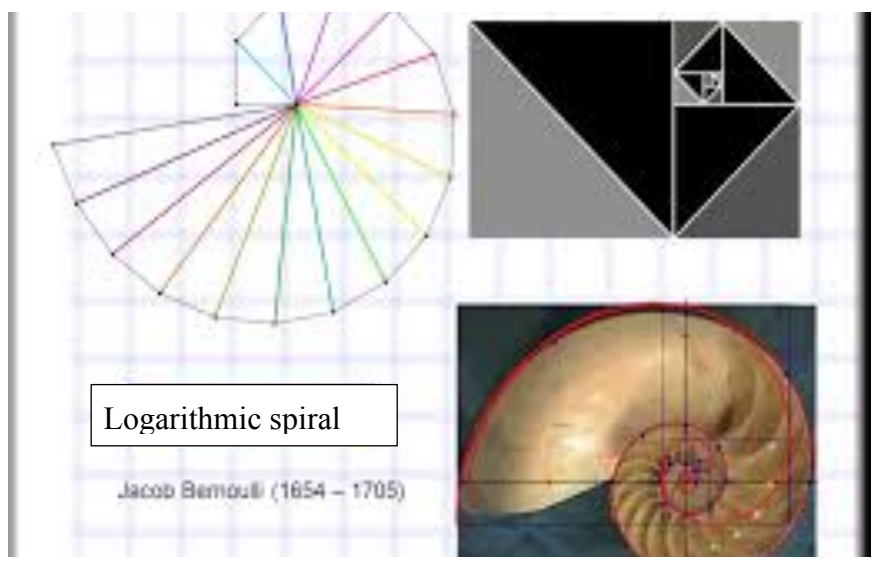
My current view is based on the integration of the three levels as suggested by J. Gordon, director of the NIMH, in *Nature*, 3 November 2016, write that we need to integrate *clinical fruit, neural circuit and lots of mathematics.*

Following my research applied to my clinical practice, I now suggest that psychotherapy could be defined as *a reorganization of the logarithmic curve of life by an experience of Coupled Interactive Brains.*

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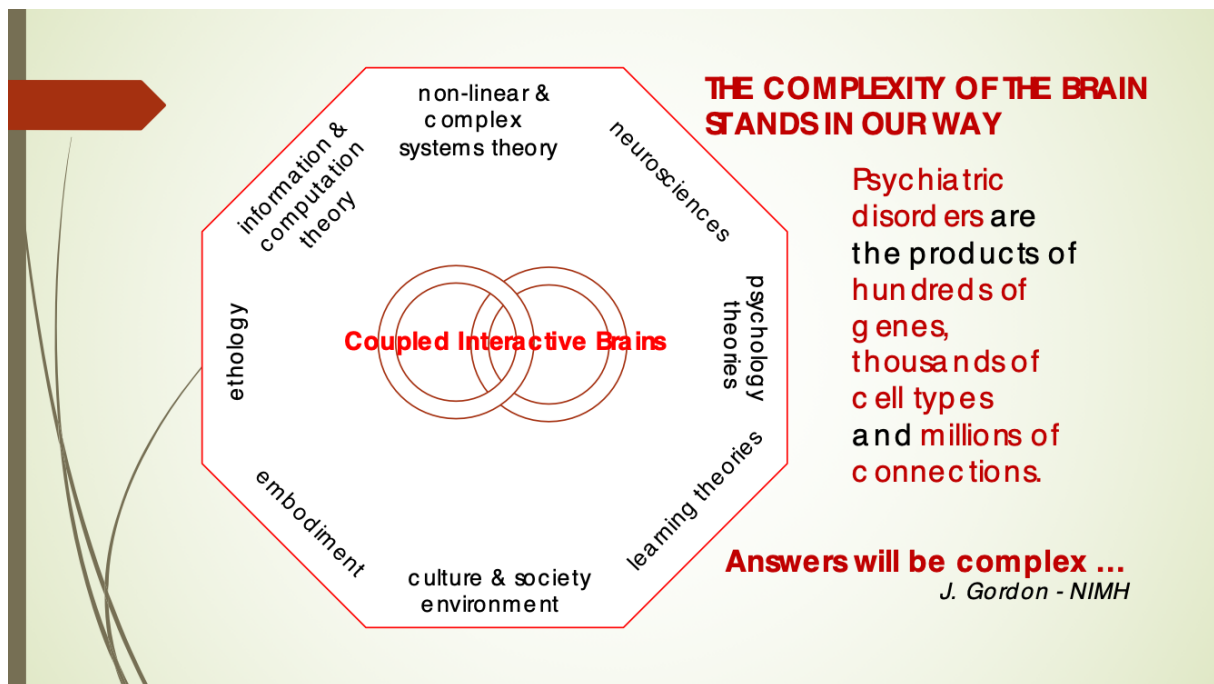


An example of a diagram which represent a good outcome of the psychotherapy evolution; its look like a logarithmic curve.



Previously, in the 2015 in a conference at the Flinders University, I have suggested that, in order to organize psychotherapy as a scientific autonomous field, we need to create: *a modern model of taking care, scientifically autonomous, which avoids to medicalize manifestations of distress, which must integrate the knowledge coming from various disciplines, in one well organised conceptualisation, able to explain how the interactions between two persons work.*

To do this psychotherapist need a good integrated training, like a residency, combined with an extending knowledge in different disciplines like:



I would like to remember that:

- 1) The human relations are determined by the interaction of two complex systems which follow the specific laws of non-linear dynamic and complex systems.
- 2) The therapeutic action, inasmuch determined by two inter-connected (coupled) active elements (brains/persons), behave like a dissipative system, that means it produces an increase order in the systems.

All this means that the formation of a psychotherapist must be organized on the three levels of mental-neural-brain reality:

- 1) *Symbolic-association* understanding, on which is based the history of psychotherapy, but frequently it creates very occasional and magic interpretation;
- 2) *neural circuits*, the structure and function of the brain, from which emerges the phenomenology of behaviour and the combinatorial richness, which is the arrangement of words and letters of a language, the juxtaposition of ideas or materials, or encounters among diverse people;
- 3) *mathematical laws of nature* which determine and control the function of neural network, by which the brain is able to predict, with a high probability, the recursive process of psychotherapy process.

To conclude I quote T. R. Insel, previous director, for 13 years, of the NIMH, who in *Science* 1° May 2015, wrote:

...one of the most powerful and precise interventions to alter such activity may be targeted psychotherapy, ...

Mario Pigazzini

Lecco, Italy, 16th of August 2020