

The quantum interpretation of perception and change of knowledge in science and in contemporary art.  
**<Quantum Science and Art has to open the brain to new ways of seeing and thinking.>**  
Paolo Manzelli: egocreanet2012@gmail.com  
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Abstract: → Considerations "Quantum Brain Theory".

Recent developments in " Quantum-Neuroscience" highlighting the emergence of a new perspective of "social construction of knowledge" as an evolutionary response of the neuronal network in the construction both of cognitive patterns and of neuron's connections, designed to overcome the cognitive limitations of the traditional dualism between culture and nature.

Cognitive processes are the result of the calculation of probabilities . The brain similar to a quantum computer compares the different probability of building up inter-hemispherical images and scenarios to give solution to our senses information. In the eventuality of equivalent probability of perceptual scenarios we will see optical illusions. Therefore the study of ambiguity gives us some valuable points on how the activity probabilistic quantum brain can be translated into coherent choices. Normally quite identical two-dimensional images they have greater probability of visual alternation this because an image (2-D) is compatible with multiple interpretations 3-D.

The Quantum Theory of the Brain (QBT), by assimilating the brain and a super quantum computer, shows how the neuronal structure is flexible in order that the understanding of the world, in which we live, may be shaped though an epi-genetical information coming from the environment. Therefore, the re-organization of the neuronal network it is activated to search for and to select the most 'appropriate strategy of thinking activities (cognitive matrix) that would be capable of giving meaning to sensory information by means to interpret them in a consistent manner with the changes of experience.

→ Quantum physics since its origins (Uncertainty Principle - 1927) has highlighted how the mode observation itself modify the knowledge of reality. Consequently when we change ideas with which we proceed to the observation, then even what is observed can be changed just because there is a close relationship between thought and observability.

In this regard, Rudolf Arnheim in his book "The visual thinking" writes:

"..the Cognitive operations called thinking are not privilege of mental processes placed above and beyond perception but the essential ingredients of perception itself."

The "quantum neurology" think as a single procedure the probabilistic decoding / encoding of the construction of the brain's images in which both the activities' of perception and thought , interact in the resolution of quantum probability . Therefore our thoughts influence how we see and vice versa. E.g. the idea which of course the light comes from the top level , as the sun, influence our choices on the perception of concave or convex.

Every visual image put in evidence that the perception of the relationship of information related to the figure and background are to be characterized by means of probabilities' of "coexistence and separability", allowing us to focus and pay attention to a perceptive scenario. The rapid eye movements (saccades) correspond to statistical programs for which the vision depends on a process to select more levels of choice and processing of quantum information.

If it did not exist any form of conflict between the probability of information, size shape and color, of the figure would be totally unnoticeable. From not easy distinction of perception's probability between the figure from the background this draws facilitating the "mimicry" in nature.

Some relationships between the equivalent probability of information between figure and background may create optical illusions. Also we can see that in the dynamics of perception the brain full or cancels the virtual contours of the figure, to allow the established perception of dynamic information from various angles and various dynamic situations.

Therefore our brains acting at quantum level , "bet" on the probability that things are in a certain supposed way, and then produces both perceptual and thought scenarios that create the crash of the uncertainty in the prediction of what we perceive as a probable vision .But sometimes in this way of perceptual cognitive construction quantum brain at once making us to fall into the trap of optical and cognitive illusions.

The neurologist Semir Zeki, one of the first neuroscientists to deal with Neuro-aesthetic specifically dedicated to artistic intuition, believes that the thinking that pervades modern painting, can be considered as an applied science of change of brain functions, that tend to interpret and communicate the renewal of artistic intuition. Semir Zeki also stresses how the great artists (see e.g. "The smile of the Mona Lisa by Leonardo da Vinci") are able to exploit the ambiguity of perception to create a strong empathetic attraction of their work.

The brain does not process the images as objectivity in their entirety, but as a quantum organization generates probability, which are then synchronized by use of memory, that normally determines the most optimal choice. The probability of perception are not only those related to optical illusions but there are also those coming from auditory, tactile, olfactory perception and therefore unfortunately we need to carefully consider the illusions and cognitive mistakes that take us away from a more coherent construction of reality of we perceived and known.

In summary, the "Theory of Quantum Brain", indicates that the brain does not see objectively the external world this because the brain constructs some "expects" as probabilistic scenarios based on an innate tendency to the foresight of the future. So now we know that the brain Quantum actively builds scenarios of perceptive quantum probability. Therefore, the visual perception consists of a virtual representation that describes the probability of possible future interactions between our body and the environment around us.

This quantum conceptuality aimed at the prediction of perception was the strong point of alchemy and astrology of ancient times, but has found its limit in the reductionism of mechanistic conception of contemporary academic science, that remained crystallized in a cognitive structure based on the limitations of reductive "mechanics", closely related to the uniqueness of the ancient Euclidean geometry of space-time.

The QBT leads to giving an innovative and disruptive development into a context where knowledge can not more be considered as a linear sequence of discoveries of reality of a natural pre-existing world as they were governed by the logic of cause and effect. Quantum-Brain build up both probabilistic images and interpretative thought, to fit with the restructuring of the quantum neural network as it is evolving in response to renewed epigenetic change that required by biological and mental creative-adaptation.

The Quantum Theory of the Brain (QBT), exceeding the arbitrary division between subject and object of perception, therefore generates a new perspective in the field of cognitive constructivism, (initiated by Jean Piaget -1936). In fact the QBT outlines how, creative development of brain's activities are not more understood as linear growth of the knowledge that is developed from the concrete to abstract, starting from the observation of nature. Conversely the contemporary development of knowledge, interpreted on the basis of QBT, comes to be the result of the restructuring of the quantum neural network that follows the rupture of previous biological adaptation and mental needs. So that Quantum Brain neuronal network may be regenerated as a consequence of the uncertainty and the risk of survival of life and its bio-diversity in the context of contemporary progressive degeneration of the environment, that has been determined by an obsolete linear vision of mechanical development of the industrial society.

Starting from the above considerations on the change of the quantum-neuronal cognitive constructivism, therefore we can creatively overcome obsolete mechanical -reductionism producing a cognitive logic going forward the obsolete linear growth that belong to the old model of development of industrial production. Therefore Egocreatnet would propose to enhancing creativity on the basis of the Quantum Brain conceptualization through developing the project BREAK -CREATIVE EUROPE 2015, focused on creating new conceptual modes of understanding the quantum-brain evolution, that would be in favor of developing innovative activities for building a "circular thinking high social responsibility".

In that way Egocreatnet and collaborators would improve modern creativity in enhancing the quantum science and art, including the best use of emerging communication technologies of Augmented Reality. This strategy of building cognitive evolution will be essentially guided by the program BREAK / promoted by EGOCREANET and collaborators, which ambition is to make culture innovation as capable of defining and disseminating a new perspective of the development that it is conceptually "holistic", and crucial for a better and more conscious future development of humanity.

Based on these considerations and objectives of the "Quantum Brain Theory", seek for finding international partners and supporters, interested in the development of the European Project entitled "BREAK", that aim to favor a pause of reflection in quantum art and science, that would allow us to rethink and to

reorganize the cognitive processes on the basis of a high responsibility of science and innovation in the contemporary social and economic crisis.

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