

The Children of Today and Tomorrow

Scientific contributions about the physiological, psycho-emotional
and neurological changes of children
and the education they need.

Credits

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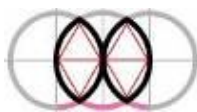
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Who are we?

We are a team who in *synergy* want to foment and promote the integral development of human beings by promoting a complete and whole education which considers the new paradigms, ethics and solidarities of the third millennium. We hope to contribute to the co-creation of a new Education, with conscience, joy, harmony and freedom, promoting and applying an Integral Education designed in function of the new needs and characteristics of the children of today and the new society that is arising with them. We see Education as a re-connecting process with oneself which generates a higher conscience, facilitates changes and improvements, both internal and external. Each pedagogical area of the 7 Petals School is harmoniously taken in account: physical, cognitive, socio/multicultural, aesthetic, ecological, productive and personal development. Pedagoogia 3000 also aspires to co-create a durable Culture of Peace and respects our responsibilities toward the Planet.

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Acknowledgements

I would like to give thanks to the whole de Pedagoogia 3000 and emAne team: to the Association 3000 from Bolivia, the Pedagoogia Foundation 3000 - Argentina, the association Pedagoogia 3000 - México, the Foundation / Association emAne International de Chile, and all those who are about to open worldwide in various places around the world.

My most profound thanks to the medical team, biologists and international researchers who accepted with great commitment, enthusiasm, care and dedication to undertake this opus together, accepting the challenge of opening the way to millions of children, making public the changes the new generation presents these days at so many levels and to have the courage as professionals to shed more light on our practices both in health and education. And to the mothers and fathers, I thank them for promoting the new Education and for loving and taking care of the children.

Thank you to all the co-author, for proposing effective solutions, practical suggestions, lucid (and ludic) proposals from such a supporting, positive and generous spirit.

To Dr. Claudio Alvaro Méndez Brieres, Chile, Synergetic doctor

To Dr. Nicolás Lujan, Argentina, osteopath

To la Lic. Andrea Soledad Coria, Argentina, Graduate in Biology

To Dr. Fernando José Díaz, Colombia, Homeopathy doctor

To Dr. Marcel Vega, Spain, Original Bio-quantic

To Dra. Mirta Guelman, Argentina, paediatrician

To Dra. Rocio Monge, Chile/Ecuador, sintergetic paediatrician

To Dra. Salete Queiroz de Tejerina, Brazil, paediatrician and educator

To Dra. Angels Codina, doctor, creator of a Ontomedicine, Andorra

To Dra Amelia Cantarero, neurologist, Spain

To Graciela Croatto, Argentina

To the testimonies and support of:

Dra. Fabiola Dueñas Ramos, Perú / Argentina, paediatrician

Dra. Marcia Soares, Brasil, doctor

Profesora Esther Revilla Rodríguez, México, Montessorri guide

Maestra Mtra. Alma Rosa Rivera Muñoz, México, educator for Peace

Prof. Yevita Rosanet Soto Allendes, Argentina, professor of Pre-school teaching

Lic. Andrea Soledad Coria, Argentina, Biologist

To the Spanish team that allowed this book to be published and for its corrections: Graciela Croatto, Daniela Martínez and Dayme Paymal.

To Editorial Kier and its editors: Cristina Grigna, Ezequiel Pibernus and Héctor Pibernus for printing the Spanish version.

In the hope that, with this book, new possibilities for Health and Education arise. This work was made by distinguished experts from eight countries, it proves that from solidarity, positive and constructive undertakings we can create a new reality and a new higher and holistic quality of life. This is not only a possibility but a reality we feel every day.

Again thanks to all and I wish you the very best in your lives and projects.

Noemi Paymal

Chapter 1

Neuro-physical changes in times of change

Dr. Nicolás Lujan, Doctor Osteopath
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Complex life on Planet Earth

We are living in times of important changes on many levels. The clearest and most manifest example is climate change and its ecological impact and on inevitably the human race. Around 150 animal species become extinct every day, and this is the biggest wave of extinction since the era of the dinosaurs. It's about hundred thousand times faster than extinction by natural causes (1).

Many ecosystems have collapsed. Scientists have estimated that if we had to divide the productive surface of land on the planet in equal parts, each of its 7 billion inhabitants would have about 1.8 hectares at their disposal to satisfy their basic needs for 1 year. However, using data from 2005, it was found that at the rate we are consuming resources, each inhabitant needs 2.7 hectares (2). That is to say that we are consuming much more resources and generating much more waste than the planet can produce and handle. In other words, we are destroying resources faster than they can be naturally generated. It has been said that if we keep exploiting the Earth like this we would need 2.3 planets (in the year 2004) to satisfy our "needs".

All this information, these perceptions and behaviours tell us that we need to make changes as a species to be able to turn this situation around.

We are aware that we are aware

Awareness is defined as the level the mind or cognition of knowledge of one's self (exterior world, one's self and interior world) and is only recognized as being present in higher animals, manifesting itself in full in the human mind (3). In other words, we are aware that we are aware. According to the theory of Santiago on which the Chilean biologist and epistemologist Humberto Maturana bases his ideas, self-knowledge is intimately linked to language and behaviour.

In his book *La trama de la vida (the plot of life)* Fritjof Capra bases his ideas on the work of Maturana, amongst others, in order to give a guideline on how to make decisions in an ecological and sustainable manner at this crossroads in time in which we live on our planet.

“Re-establishing our plot of Life means to rebuild and maintain sustainable communities where we can satisfy our needs and aspirations without damaging the opportunities of future generations. For this task we can learn a lot from ecosystems, real sustainable vegetation, animal and micro-organism communities. To understand them, we need first to understand what the basic principles of ecology are; as a figure of speech, we need to learn to read “ecologically”. ” (6)

Another factor that is to be taken into account in the context of change is the modifications in communications. Access to information, the way we link up and relate has seen a dramatic change over the last few years. This is thanks to the development of new technologies in our daily lives in the last 20 years and its impact in various areas, psychology, sociology, anthropology, economy, politics, health etc.

If we take into account that children are growing and developing systems, in a context of external change, this will no doubt have implications in the way they learn and how they relate to objects, people and this way they acquire, process, internalize and use so much available information.

There is abundant evidence that endorses that it is necessary to centre all scientific knowledge to the service of educational systems to accompany these changes in order to create sustainable communities. (5 and 6)

We are facing an enormous challenge as a species, seen as all information that is available gives us a quantum of knowledge that has to be oriented wisely to deeply understand the principles of ecology and to understand that life on Earth has maintained and sustained itself coherently, interdependently and self organized for more than three billion years. And how, as an intelligent and conscious species, can we fail to observe these facts.

We mentioned the term “conscience” which in synthesis is the capacity of human beings to know what they know. Let’s delve into how the human brain, centre of reception, absorption and processing, learns.

Neurophysiology

How the brain works

The brain controls, processes and integrates many aspects of our lives. It uses up 20% of the energy we store. It is made up of an electrical network which has, between the central nervous system and the peripheral system, more than 100 billion neurons, almost the same number of neurons as there are stars in the Milky Way. It has a characteristic which is called neural "*plasticity*" and that gives us the ability to learn. Now we know that during our whole lives we use that positive plasticity, activating habits, informing ourselves and entertaining ourselves. It has also the capacity of *resilience*, and this gives us the ability to face and overcome adverse experiences and become stronger because of them.

That is why we can say the *brain* is the organ in which the information that comes in through the sensory organs (sensory INPUT) is processed, integrated and responded to (sensory OUTPUT), whether it is verbal, sensory or motor response.

The *mind* is the result of the workings of the brain and exceeds the function of the organ, because it has the ability to observe itself (conscience), being the brain in function. Or, in other words, information goes in, is processed (with previous experiences, emotions and self-observation) and is given a response.

Then there is *the body* which is the integrated system that relates to the environment and gives responses to itself. It is our "body-work", similar to a car's bodywork.

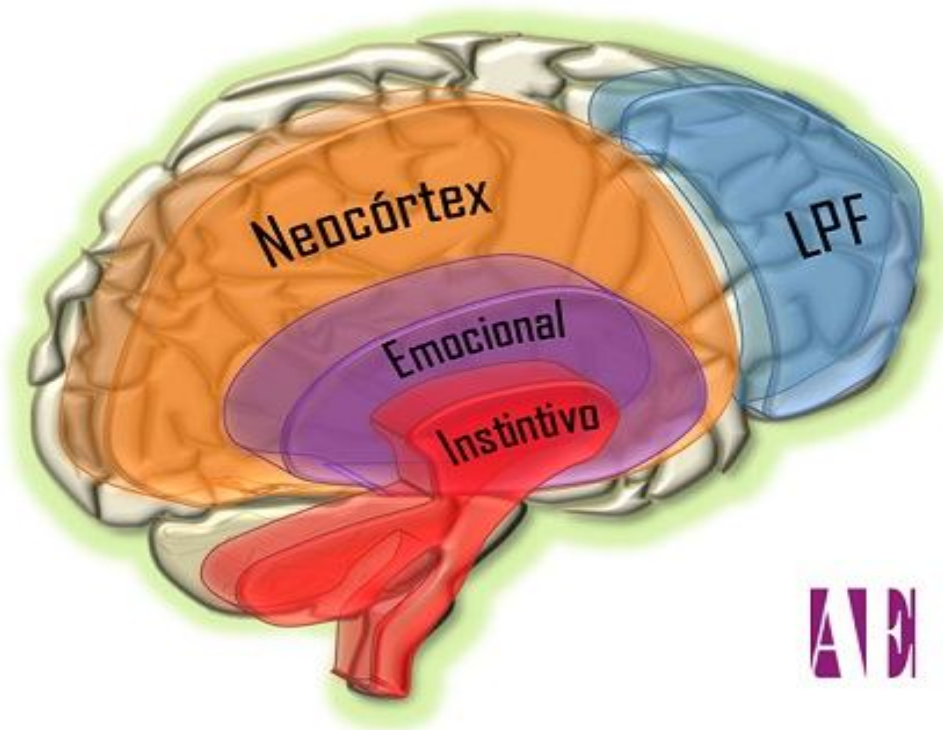
The Body–Brain-Mind Unit (BBMU)

That is why we now speak of the *Body–Brain-Mind Unit (BBMU)* which says that there is a dynamic between the teaching-learning processes which is different from what we always have been historically used to. (7)

We noticed that the children of today need to be in movement in order to incorporate and consolidate the information they receive. We can therefore understand that the dynamic between the educational spaces should be at least revised.

There is the discipline called neuro-psycho education where the knowledge of the neurosciences is applied to the processes of learning and where children are explained how the brain works on a very basic level, what the triune brain of Paul McLean is and they themselves can become aware (self observation).

This model of brain structures recognizes three brains:



Triune brain. Courtesy of bluesmarteurope.wordpress.com

1. **Primitive or Reptile Brain:** This brain is over 300 million years old. It is in charge of the most basic functions, it manages the survival functions (care of territory, it is instinctive, rivals, responds to danger, is resistant to change and is organized in a hierarchical manner), keeps the physical body in working order (search for food) and transmits genetic material of the species. It is located in the basal ganglia, cerebral trunk and cerebellum. It allows life to express itself at birth.
2. **Limbic or Mammal Brain:** This is about 180 million years old. It regulates automatic responses (e.g. Pavlov's dog). It is closely linked to emotions, a fundamental topic for learning processes. It is located in the thalamus, hypothalamus and amygdale.
3. **Neo Cortex:** This is the newest area of the brain. It controls the emotions and cognitive skills; memory, concentration, self-reflection, problem solving, ability to choose the adequate behaviour. It also plays an important role in functions such as sensory perception, generating motor orders, special reasoning and, in humans, language. However, even if it is where the formation and elaboration of the more complex brain functions reside, there are hardly any molecular or cellular differences compared to other areas in the brain. And so what conditions

the neo-cortex's ability are not so much its biological characteristics but its capacity to generate, modify and regulate the great number of inter-neuronal connections, forming a functional dynamic structure able to regulate and direct the flow of information established between the distinct existing neuronal circuits.

In children

In experiments with children between the ages of 8 and 11 where the functioning of the 3 parts of their brain were explained, they were able to identify, observe, reflect and started to modify their behaviour thanks to self-observation (conscience) of which part of their brain was taking the initiative. For example when another child takes their usual spot, often they respond aggressively to that situation. With this dynamic the Reptile as initiative taker of this action is observed, analyzed and reflected on. (12)

Frontal lobes, mirror neurons and positive circuits for learning

Now we will go into greater detail in order to understand how it learns or what stimulates learning. One area which filo-genetically speaking is newer is the frontal lobes, in charge of complex functions (8):

- Planning of behaviour and actions.
- Decision making, adequate social conduct.
- Co-ordination of thoughts and actions according to internal goals.
- Judging
- Prediction of future consequences.

These areas of the brain are the only ones that escape emotions and automatic impulses. They are conscious spectators of the mental activity.

Mirror Neurons, the empathy neurons

Another characteristic is the area of the brain where there is the highest density of mirror neurons in the brain. These neurons were discovered by the Italian neuro-biologist Giacomo Rizzolatti, who, while he was researching motor control and planning in monkeys, observed a monkey which had the electrodes still attached during a break. The animal saw a researcher take a peanut and bring it to his mouth and the corresponding motor area in its brain activated. This is how mirror neurons were, almost entirely by accident, discovered.

Mirror neurons;

- Are activated from birth onwards
- Are activated when someone else does the action.
- Are activated when the action is being planned.
- Are useful to infer actions and gestures of other people (emotions and sensations)

For this reason they are also called the neurons of empathy.

In summary the pre-frontal areas, **the area with the highest density of mirror neurons** (of empathy neurons) work guiding the cognitive actions through a dynamic filter (setting aside irrelevant and /or distracting actions) through selecting, maintaining, actualizing and redirecting actions.

As Miller and Cohen say “depending on the objective, the representations formed in the prefrontal cortex can act as attention templates, rules or goals to achieve, sending signals to other areas of the brain through a process of *from top to bottom* which guides the flow of activity through necessary routes to complete a task”. Or our prefrontal cortexes act as a filter to let relevant information through, leaving irrelevant and distractive information aside.

Now, what does our brain consider “relevant”?

Let’s look at these circuits and the way they function.

RAD and RAS

RAD: reticular-amygdala-dopamine

RAS:ReticularSystem Activator

There are areas in the brain that generate these circuits or paths of learning (10).

One circuit that has been studied is the RAD (reticular-amygdala-dopamine). Let’s look deeper into this:

- The reticular system is a system which regulates the sleep-wake cycle and is activated by novelty.
- The amygdala is related to the emotional mechanisms, emotions of threat or fear (stress) inhibit it (because of functional magnetic resonance the level of oxygen is diminished in the cognitive centres and the brain goes into *survival mode*, which we will see later on) and positive emotions activate the previous positive emotion register to the present experience and fix it in the long term memory.
- Dopamine: is excreted when pleasant experiences are had.

So when the information is:

- New
- Stimulating for the different senses (multisensory)
- Motivating (awakens from a desire to achieve)
- And is creative.

Our brain feels that it is under low stress levels and little risk and is stimulated to focus on the sensory information. The areas in charge are the amygdala and the reticular system (RAS).

This frees up the neurotransmitter dopamine (enjoyable experiences) and a strong (or long term) memory is built (the circuit that anticipates reward), it is consolidated and stimulates the connection with related past events.

In order for the learning process to be satisfactory

Related to the area we are in the RAS and the amygdala, the deepest areas of the brain.

If all the previous was positive (new information, multisensory and motivating) there is a circuit of stimulation towards the frontal lobes to stimulate the attention focus through the neurotransmitter acetylcholine. This is the positive feedback circuit needed for learning.

For example:

One group acts out words beginning with "M" and another draws the same words. Afterwards the list with the drawings is repeated and the brain recreates and frees up dopamine in anticipation of the initial positive learning experience.

It has been noticed that the freeing up of dopamine in the learning process and increases in the following have been observed (11):

- movement
- personal interest
- social contact
- Music
- Novelty
- Sense of achievement
- Intrinsic reward
- play
- humour

This gives as a result: pleasure, attention and memory. These are necessary requisites to be taken into account for a satisfactory learning process

And what happens in the classrooms?

If we take into account what we have seen so far and we cross reference it with what happens in classrooms, we can better understand what happens to the students.

Let's look at a hypothetical case, which is not always the case.

Low stimulation classroom	High stimulation classroom
The children have to sit still	Movement
The information is often irrelevant to them	Personal interest
Repetitive and stimulates short term memory	Novelty
The student studies for an exam based on memory	Sense of achievement
The learning process is not comforting	Intrinsic reward
No fun	Humor
Nor playful	Play
The information is usually mono or bi-sensory in the best case scenario	Multi-sensory

Neuro-physically speaking dopamine does not appear on the scene and the positive feedback circuits are not formed. The stress neurotransmitters are adrenaline and noradrenaline which inhibit the formation of these circuits. There is no connection with the frontal and pre-frontal cortex which stimulates and focuses attention.

What needs to be done is to stimulate the formation of the positive feedback system.

From the previous example it can be remembered what happens in any classroom today, **the formation of the positive feedback system is not being stimulated**, and this from an ever more early age of the brain. **This has repercussions on the stress mechanisms that DO NOT favor learning.** Therefore we have demotivated and stressed children, who as a logical result of what we have seen from a neurophysiological point, generate less attention because the frontal lobe circuits are not stimulated (which are in charge of attention stimulation) helped by the neurotransmitter acetylcholine.

Neuro-typical children and learning difficulties

Statically speaking there are behaviors or models which are more repeated than others. From a neural point of view the most abundant or which are present in the highest number of people are called **neuro-typical**, as opposed to **neuro-divergent** which are typologies which are different from the most common in any sense (16). Within this last group we find the so-called disorders of the autism range TEA (Autism, Asperger syndrome, disintegrative syndrome of childhood, non-specified general development disorders. DSM V)

After making an approximation of the neuro-physiology of learning and memory, and having a somewhat clearer idea of the mechanisms, actions and neurotransmitters implied, we can infer how the educational practices can generate positive or negative feedback circuits.

The 2012 study of the World Health Organization indicates a 78% rise in children diagnosed with DAR (Disorder in the Autism Range) worldwide in the last ten years (13). This study also formulated that no intellectual deficiency has been seen in these children. This data clearly show that it is necessary to put all available knowledge in education, psychology, psycho-pedagogy, neuro-development etc. to in use to accompany the learning processes of all children.

Also thanks to the evolution in communication today we can say that the tendency is in change and that there are more and more people, individuals as well as family and institutional groups, begin to find government organisms which are more committed to and focused on this educational change. People no longer speak of alternative pedagogy but of **alternative pedagogies** which from a semantical point of view is very distinct and implies something very present day, which is to center on the learning in action and on the group of community in particular without following a pre-established model.

And so to attend and accompany the needs of all children, the so-called *neuro-typical* and the children who are catalogued as various disorders of learning and behavior.

An optimistic outlook from Neuro-science

Let's talk about the critical moment from an ecological point of view and how this impacts on all the aspects of the human being, on themselves and their relation with the whole ecosystem.

We have known for years what the road to reverse this tendency would be, but in spite of the environmental top meetings and the commitment of the governments, the planned objectives still haven't been reached.

A new division of the brain

To explain things neuroscience uses hypothesis. There is a new division of the brain, leaving behind the old model of the triune brain of Mc Clean.

1. There is a brain called the "*survival brain*". This brain is the instinctive emotional brain. It has two modalities, the Human C (from studies with chimpanzees) and the Human O (bamboo monkeys): The first is in charge with fights and territory and the second of sex and reproduction. According to this theory the human brain is still heavily influenced by the survival brain when it comes to take decisions in daily life. Why? This brain is unconscious, controlled by basic emotions (territory, alpha male, etc.) and we operate a lot easier because this brain does not use much energy and is not as easily tired as our transcendental brain.
2. This brain of *transcendence* is located (what a coincidence) in the newest areas of the brain, the prefrontal lobes, where there the highest concentration of mirror neurons is to be found. The trouble is that this brain uses a lot of energy, it is slow and easily tired (it has 3% of brain material and uses 30% of the organism's total energy, just like the muscle-skeleton system).

What is known is that what gives most satisfaction to human beings is to help others (from a neuro-physical point of view that is). We are therefore in a transition stage from survival brain to transcendental brain. (15)

Final comments, Education is at the heart of the problem and of the solution

A lot is written, read, discussed and commented about this topic. But in line with the philosopher Claudio Naranjo I believe that the biggest challenge and greatest impact we can have as a species is to act *on educating* this generation

Our greatest need is for an education to evolve, so that people know what they could become. The crisis in education is not just one more crisis among the many crises we already have but education is at the heart of the problem. The world is in a deep crisis because we don't have an education for consciousness. We have an education that in some way is robbing people of their consciousness, their time and lives.

The economic development model of today has eclipsed the development of the person, says Naranjo (17).

The development of new technologies, modifications in the way we communicate impacts on how we relate to each other and this generates and impact on the neuro-physiology of the development. I believe that neuro sciences can give data that help to understand how the brain Works, how it learns, what the favourable conditions for learning are and it gives hypotheses for future research in the various areas.

And, last, it goes towards following what developing conscience (self-knowledge) would be. Working and educating this would give as a result a balance between survival and transcendence. And it would definitely simply modify the way we relate and (according to neuro scientists) act in a way that gives us the most satisfaction which is helping others.

“If we taught meditation to each 8 year old child we would eliminate violence in but one generation”

Dalai Lama

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Biography



Nicolás Lujan was born in Buenos Aires and is 42 years old. He is a doctor, studied at the UBA and specialized in pediatry in the Hospital Británico of Buenos Aires, Argentina. He worked in the social area together with the social services of the Hospital Argerich in the program of health promoters in the plan "heads of families" from 1999 to 2002. Afterwards he obtained a Superior Diploma in Tropical Diseases in the Instituto Superior Carlos III in Madrid, Spain in 2003. From 2004 to 2005 he obtained a Master in Health Administration in the Escuela de Salud Pública of the UBA. From 2004 to 2009

he followed the course of Osteopathy in the Instituto Argentino de Osteopatía in Buenos Aires.

At present he works in the Hospital Británico of Buenos Aires in pediatry and in his practice for Osteopathy in Buenos Aires. He is member of the educational project AYNI in the city of Buenos Aires, and is actively involved in Pedagogía 3000 in events, workshops and conferences related to health and education.

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Chapter 2

The new children: What has changed?

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In the modern world, where technology and speed are exalted characteristics, we remain surprised when new challenges manifest themselves. To the pediatrician this makes it imperious to take in the task to inform themselves, to educate society. It is necessary to review old concepts and to learn about the changes that the last generations of children and adolescents have suffered, in order to be able to assist and support them in their processes.

Never before so many children have been diagnosed with Attention Deficit and Hyperactivity (1) and Disorders in the Autism Spectrum (2) and diseases that are considered rare. The difficulties in managing them, as well as on a social level as on a medical and educational level, continue to be a great worry, mainly for underdeveloped countries and developing countries.

Who needs to change?

Could they be difficulties of the new children?

Could it not be the incapacity of professionals and parents to perceive that the way of learning and being of children nowadays has changed and that the old formulas of education no longer work?

Could it not be that the new children have new skills, in order to do various tasks at the same time and concentrate on various things at the same time?

Who needs to change?

The process of inclusion of disabled children and adolescents in society put in evidence that there is a lack of preparation in the educational sector and the health sector in this area, which includes communication and diagnosis in the family (4), the application of specific medical protocol, curricular adaptations, training of tutors up to the orientation of the life plan of each person, independent of their diagnosis.

The road to full inclusion has to begin with basic education, with the students teachers, social workers and parents and continue in University (bachelor and Phd), with the training of various professionals in various areas, prepared to work from Resilience reaching up to the construction of new paradigms about the potentialities of each human being. Research shows the enormous capacity of the brain to develop and regenerate starting from the adequate stimulus (5, 6). The nervous system is capable of structural change and function in response to the environment (neuro plasticity). Epigenetics has proven that, using the right instruments, maximum development of the development of the individual potential can be reached.

New generations

We have seen the emergence of new generations (7), known as generations Y and Z, which have taken over their parents in the race for information, resulting in generational leaps. For the first time young people, and not their parents, are the authorities in the innovation in society, dominating easily machines and programs, technology and IT, which their parents have difficulty understanding and managing.

However, these generations, mainly Generation Z, which appeared at the end of the 90's and first half of the decade of the new Millennium, has serious difficulties with regards to interpersonal relations and social life. Likewise they have a resistance to the traditional "Vertical" educational system and formal classes being demotivated by this model. Teachers are faced with students who challenge them, that question everything, they do not want to read and obtain their information via the Web. They want to use all that is new and manage it with natural ease. For this reason, educational environments have to compete with the situations of the students (8). We need to re-educate them.

New students, new tools

There are some behavioral patterns in many youths nowadays where "living in the Internet", "living to surf" and making "selfies" are noteworthy, in a desperate attempt to obtain approval and attention, where the number of "likes" affects their self-esteem and self-perception of the individual (9).

The addiction to "Chat" via the various messaging systems and social networks is now also shared by adults, and both, youths and adults can reach levels that are dangerous to becoming dependent of technology. This generates serious social conflicts, just like any other drug, because it impedes doing other activities such as meeting with friends, studying, working, doing exercise among others. We need to be aware of this risk and establish limits on the use of technology and provide spaces for a real life, without forgetting that the Internet can be a useful tool, when it is used properly, to spread strategies to improve wellbeing.

Furthermore, the new resurgence of old diseases (whooping cough, Influenza, Ebola ,among many more), the social-economic differences, child abuse in all its forms, explicit and limitless sex, new family models, physical abandonment, both moral and psychological in overprotective and authority lacking families, the failure of the traditional educational models with little focus on basic education and excess of authority, abundance of scholastic content and tasks with little technological support puts today's child at serious risk of physical, mental and emotional survival.

But as Professor Toru Kumon (10) already said, "The child is not to blame".

In spite of all the difficulties, there is hope

There is a strong global movement in search of new methods of medical attention and education, for the formation of a new society. We need to get involved. We also see more and more children and youths, dedicated to this transformation, who do not always enter in these traditional molds of the societies, but they have a message of tolerance and love. We need to pay close attention to them. With them we will see a spontaneous awakening of gifts on infinite levels.

It is imperious to obtain the adherence of more governments, professionals and parents, aware of the emerging needs of the new generations, in order to reach critical mass that can reach the quantum leap needed for this change.

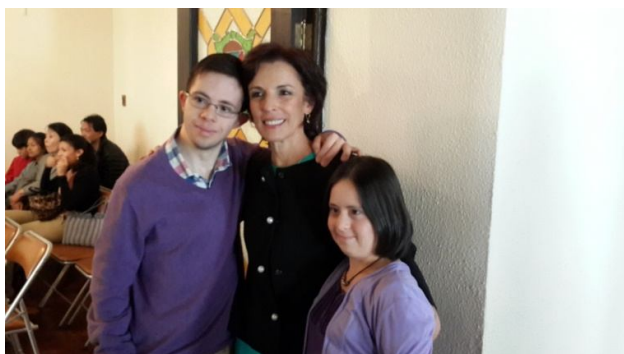
As Dr. Elsa Moreno, pediatrician, said: "I would like to reaffirm the necessity to change the present and project ourselves into the future. We need to maintain a firm will in those engagements even if this means believing - in spite of what reason and reality show us - in man's destiny and their capacity to forge a better future." (12).

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Biography



Maria Salete Queiroz de Tejerina is a doctor specialized in Pediatrics, with a subspecialty in Homeopathy, Psychosomatic Medicine and a Master in Nutrition. She works with children with Down Syndrome and has a Unit of the Kumon method. She has published two books for children ***Los animales de Don***

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Chapter 3

Physical, psycho-emotional and neurological changes in today's children

By Noemi Paymal, anthropologist
Bolivia/France

Since a few decades ago, parents, teachers, psychologists (1) and some pediatricians (2) have reported significant changes in babies and children. From their direct and empirical observations they inform us that some children have innate talents of greater perception and sensitivity in physiological, affective, emotional, behavioral, emotional, ethical, cognitive, social, psychic and (sometimes) transcendental aspects.

“Children have changed; societies, technology, means of communication and daily life have changed. Are we giving them an education that corresponds to those changes and to their real necessities?”

When we think about that and the unmistakable evidence that these changes are happening, a warning light starts flashing that allows us to see that education has not changed sufficiently (except for some exceptions in innovation) to give a global and urgent response to the educational needs of the children of today and tomorrow. The crisis that goes beyond education in the majority of countries represents its present inefficiency to tackle these transformations.

Facing this double observation, today, the matter definitely requires the attention of scientists at global level. What do pediatricians think? Neurologists? How can we explain these changes that we see in children today, both on behavioral as on cognitive level? And how can we improve on education consequently? The matter is crucial and urgent.

This article wants to compile and analyze these changes on the following levels:

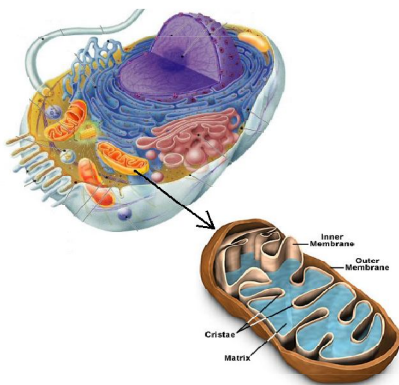
- physiological
- psycho-emotional
- neurological.

This analysis is complemented by some suggestions for applied educational tools that today's children urgently need.

1. The physiological changes in children of today

A fast metabolism

Pediatricians have observed that the metabolism of children has changed. In general they present a higher energetic level, they are faster and mature faster in all areas of development of the human being. It is likely, they say that their mitochondria present a higher production of ATP (a); this translates into a higher availability of energy for the daily metabolic processes in today's children and youths. This is not to be confused with hyperactivity, as these children are perfectly healthy. To give an idea of the "false cases", the Columbian psychologist Patricio Pérez, after an investigation in 2002 and 2006 in Ecuador which involved hundreds of patients, confirms that about 80% of the children that came to his practice are healthy and sometimes even extremely brilliant, whose only problem was that they "clashed" with the educational and family system. This can be resolved, he said, with family therapy and by changing the education given to them. The remaining 20% yes, and this is undeniable, presented "real" difficulties that also can be improved on with the previously mentioned and alternative therapies.



(a) ATP: *Adenosine Triphosphate*, is a fundamental nucleoid in cellular energy. It is produced during the photo-respiration and the cellular respiration.

Dr. Víctor Jiménez, pediatrician, says that since 2005 many changes have been seen in small children. "In lactating babies and small children we see, undoubtedly, a faster learning, especially in gross psychomotor skills; 20% of the children have between 5 and 6 points more than expected. For example, they can sit at 4 months, instead of the normal 5 or 6, they turn over sooner, walk with support when they are 6 to 8 months instead of 10. The same happens with language. (Quoted in Paymal, 2008:51) (3)

Dr. Gonzalo Córdova, La Paz, Bolivia, pediatrician gives us the following report:

"I have been *receiving children* for the last 15 years, and I see many differences in today's babies and children. Generally newborns have a healthy weight even if the mother is malnourished or has a slim build. Generally (babies) are born healthy and what is striking is that after a few minutes of birth they easily react to stimuli. Before they were sleepy and it was difficult to wake them up. Now they are more awake, react more. We see this when we dry them, clean them or dress them. They also react immediately to oxygen, which wasn't the case before. Ten years ago they had their eyes closed and stayed like that for two to three days, sometimes weeks. Now they are born with their eyes open, they have a fixed gaze and sometimes watch the doctor- that is to say me!- something that didn't use to happen. (...)

Generally children are labelled hyperactive, restless. They eat little (or better, they are selective in what they eat) and don't sleep as much as they used to. The small children that I see today are brought by their mothers who tell me that their children are bold and their parents seem to think "there is something wrong" with them, that they are sick. But when we examine the children we see the following:

- a. They are physically healthy; we cannot find any physical disease.
- b. 2 Even if it is clear they are restless we also see a contradiction, because they are really quite tranquil, participating, collaborating in the sense that they are not destructive children (like we used to say ten years ago when they threw and destroyed everything they could get their hands on and were very rebellious and badly behaved). Today's children, rather, look at everything, touching, observing, climb up and down but are in no way destructive or damaging. That is a particularity.
- c. In spite of eating little, their weight is normal according to the official tables, they are within the adequate weight for their age. And their mothers are surprised: "But they don't eat Doctor!" Therefore it is necessary to explain to them that their only nourishment is not necessarily food but also affection.
- d. Their memory is excellent. They find it easy to retain, even if adults believe the contrary, and are even labelled as Attention Deficit. But no, they remember very well and even make (adults) remember!
- e. When it comes to meat, they are very selective. They prefer to eat fruit, bread, cookies rather than meat. Or when they eat meat it is in small quantities. They prefer fish or chicken. They don't like red meat or beef.
- f. Their sleep patterns have also changed. Before lactating babies and small children slept between twelve and fourteen hours a day, in addition to one or two hours in the morning and between one and three hours in the afternoon. This is now exceptional. They have almost the same biorhythm as an adult, which is to say between six to ten hours; also, if during the day they are distracted with games or toys, they don't even have their nap.

Taking the patterns we have just mentioned into account, it seems that we are talking about a different type of metabolism. We also know that their immune system is different; for example, the classical children's diseases are not the same as before. (Paymal, 2008:51ss) (3)

Hyperesthesia

Facing sensory stimuli, paediatricians have seen a rise in perception levels, including from the day of birth. It is common to see that the psycho-motor and sensorial part is more developed, as says Dra. Lilian Toledo Jaldín, gynaecologist / obstetrician, in babies born in 2015 and later. " I see in my specialist

field that today's babies, in cases of a smooth birth, are more alert and all have a good APGAR.¹ They look at everything and don't have their hands bundled up in fists like before. Generally they are born with their hands open and relaxed. The psycho-motor level is more advanced. It is obvious that the human being is evolving." (Paymal, 2008:51) (3)

It is also seen that the 5 senses are more acute; vision, hearing (very noticeable), touch, taste and smell. This phenomenon is known as *hyperesthesia*, which is to say that the senses are hyper-developed. For this reason noisy environments, chaotic playrooms, noisy appliances (blenders, hoovers, ambulance sirens and shouting as well as "itchy clothing" (such as woollen clothing) are a nuisance.

Glandular activity

Some paediatricians have seen that not only physiological development and psycho motorist development are more precocious but also the hormonal and glandular development is more active.

Dr. Márcia de Carvalho Soares, Brazil, sees the following in her medical practice (2008:cp):

"I have observed some surprising points in the children in my clinic, with an anthroposophical vision and in my opinion over sensitive vision. I have witnessed three noteworthy changes:

1. The neuro-sensorial system is sharper
2. Cardiac system (heart/thymus complex) seems to be more sensitive
3. And the metabolism system is generally more precocious and developed.

¹The Apgar point system is the first test to evaluate a newborn. It is done immediately after the baby is born. This test was developed by the anesthetist Virginia Apgar in 1952 in order to know the physical state of a newborn baby and to determine which additional medical care or emergency treatment is needed. Generally this test is done twice; the first time one minute after birth and the second time five minutes after birth and five factors are used to evaluate the physical state of the baby according to a scale from 0 to 2, 2 being the highest score possible. The factors are as follows:

1. aspect (color of the skin)
2. pulse (cardiac rhythm)
3. irritability (reflex response)
4. activity and muscle tone
5. respiration (rhythm and effort in breathing)

Doctors, midwives and nurses add these scores of these five factors to calculate the Apgar score. The score can vary between 0 and 10, 10 being the highest possible score.

When I am dealing with small children I feel that I am facing some new characteristics that were NOT studied in the medical treaties with which I graduated”.

2. Psycho-emotional changes in today's children

A Super-developed Emotional Intelligence

The terminology “Emotional Intelligence” was used for the first time by Psychologists: Peter Salovey of the Harvard University and John Mayer of the University of New Hampshire in 1990. Daniel Goleman (4) with his famous book “*Emotional Intelligence*” helped to widely diffuse the concept and the need to develop Emotional Intelligence- He even showed that the Emotional Intelligence Quotient is more important than the Intellectual Quotient when it comes to the professional success of an individual.

CE > CI

It is generally seen that today's children and youths have the tendency to have a higher Emotional Quotient, which implies particular ways of learning, which are, as explained by the same Daniel Goleman (2000: 334) (4):

1. *Speed.* Emotional intelligence is extremely fast; it is much faster than the rational mind.
2. *Ease of immediate action.* For this reason they are children of action and change.
3. *Certainty.* The emotional mind carries a feeling of particularly strong certainty. It gives perseverance and stubbornness, definite leader qualities (they don't let go of their dreams!)
4. *Assimilation of things immediately and as a whole.* This is based on the principal of the *hologram*. Whereas the rational mind of the left cerebral cortex makes logical connections based on “cause and effect” relations, emotional life has a holographic logic, where a single element evokes all. Everything is in all.
5. *Functioning by association.* The logic of the emotional mind is associative by nature. Its principal is *release*. That is to say that a single element is enough – and this element can be visual, audio, olfactory, taste or touch, a feeling or cognitive data- to release a memory or understanding of something.
6. *Collaboration.* Emotional Intelligence is altruistic in nature. It incentivizes collaboration but loathes authority and vertical teaching. It is based on the principal of *freedom*. To this logic everything is possible, there are no restrictions.
7. *Management of the language of Arts and Spirituality.*
8. *Principle of Association.* With the logic of the emotional mind, things are perceived for what they represent and for the feeling/emotion associated to them.
9. *Personalized approach.* One becomes actor and co-creator of the emotional mind.
10. *Principal of healing.* *Emotional Intelligence is healing and also self-healing.*

Daniel Goleman recognizes that: "The name itself *Homo sapiens*, the thinking species, is misleading in the light of the new value-system and vision that science proffers in relation to the space that emotions have in our life. Feeling and emotions are as important as thoughts, and often more so." (Goleman, 2000:22) (4).

Dr. Xavier Pérez, doctor and professor in the Universidad Mayor de San Andrés, La Paz, Bolivia declares the following:" The first thing that strikes me is the tremendous affective demand of these children. I often see cases of depression and anxiety masked as diagnoses of Hyperactivity and Attention Deficit. Without mentioning the noteworthy increase of suicide attempts in youths". (Paymal, 2008:52)(3)

Dr. Patricio Pérez Espinoza, clinical psychologist, Ecuador, states that: "Generally these children do not have Attention Deficit Disorder *per se* as often diagnosed. The excessive speed with which they can accomplish several tasks at the same time can often be confused with attention deficit. But the child is simply bored and does other things. We should consider that these children have Super-Attention, as well as the ability to do various tasks at the same time. (Pérez, 2003:cp)

3. Neurological changes in children of today

Dr. Carlos Eduardo Alborta Aliaga, Surgeon, Chief of the general medical service and Researcher in Neuro-physiology in infants in La Paz, Bolivia, comments:"(...) We have to find a reason why children of today- those who do not suffer from anomalies in their developmental stages- have a faster neurological development than professionals are used to find and evaluate". (Report2008).

Present day changes are partially explained thus. Children show a certain ease in at least 5 of the following axles:

- cerebral laterality
- Multiple Intelligence
- Hemi-Sync© and Alpha Waves
- The Fourth Brain
- Lateral thinking.

a. Cerebral laterality

Generally children of today tend to use both their brain halves, right and left, with ease and agility. This gives them speed, holistic thinking and creativity (and the ability to do various tasks at the same time... and this.. is not Attention Deficit, it is SUPER attention, as commented previously by Dr. Pérez).

In effect, professionals in both Health and Education nowadays mention (2014) that children of today tend to present a good cerebral laterality, using their right hemisphere with agility. Many kindergarten school teachers report a tendency towards ambidextrousness. Some pediatricians report a possibility that there is a higher plasticity in the thalamus, hypothalamus and callous body as well as in the brain as a whole. (Rodríguez, 2012: cp).

They have a *natural synchronization of both cerebral hemispheres*. The right hemisphere provides them with intuition and creativity, the left hemisphere with clarity and structure to achieve what is offered to them. The synchronization of both hemispheres accompanied by a high motivation without stress gives a state of Hemi-Synch[©], accompanied by a natural activation of Alpha waves, and wellbeing; which is in accordance to the theory of *Flow*, according to the psychologist Mihaly Csikszentmihalyi². See point 3.

b. Multiple Intelligences

Teachers have noted that children use all the Multiple Intelligences simultaneously and with ease. What makes children sometimes seem distracted, but in reality they have diverse interests and capture things easily. That is why they are bored if classes are slow and repetitive. Again, this is NOT Attention Deficit but a new characteristic which is not pathological and rather interesting in children.

c. Hemi-Synch[©] and alpha waves

The hypothesis is that children easily enter in Hemi-Synch[©] (synchronization of the two brain hemispheres, as studied and demonstrated by Dr. Monroe) and are naturally in alpha waves (with delta and theta spikes, when in state of vigilance); this is due to their balanced use of both brain hemispheres. For this reason they tend to have a wider and sharper multi-level perception.

d. Fourth brain

The fourth brain corresponds to the activation of the frontal lobes. The behavior in some children of today is similar to the characteristics of the fourth brain. And they continue to develop this part of the brain until the age of 20 to 25 according to neurologists.

e. Lateral thinking

The use of lateral thinking is the faculty to look for various solutions, establish strategies (for this reason they obtain what they want), and furthermore have the tendency to be "stubborn", or we can also say they are perseverant and determined.

See more in Chapter 8 about these topics.

4. The "ines" and the 3000 games

Among the various neurotransmitters (7) we would like to mention the three following:

- Serotonin: Novelty, pleasure, the ability to be amazed
- Dopamine: Satisfaction, joy in achieving.
- Endorphin: Physical pleasure

a. Serotonin: Novelty



² Mihaly Csikszentmihalyi is the former director of the Department of psychology of the University of Chicago and director of the "Quality of Life Research Center" of Claremont Graduate University, in California.

Serotonin is a monoamine neurotransmitter. It has an important role as a neurotransmitter, in inhibition of anger and aggression. We could say it is the “pleasure hormone” as well as the “humor hormone”. It is activated with novelty and amazement among other. Aristotle said that the engine of Philosophy is amazement. This is why human beings are fascinated by magic, surprises, novelties, Art, creation....

b. Dopamine: Satisfaction, joy in achieving.

Dopamine is a neurotransmitter. It has a multitude of functions in the brain, including some important roles in behaviour and cognition, motor activity, motivation, mental agility



and the satisfaction in “achieving something”, regulating milk production, sleep, humor, attention and learning.

Furthermore dopamine is stronger when the activity is shared (that is why football is so successful, why concerts are popular and why we are “fans” for example)

c. Endorphin: Physical pleasure

Endorphins are opioid endogen peptides that act as neurotransmitters. They are produced by the pituitary gland and the hypothalamus during physical exercise.



That is why here there is a summary of the relation between these three neurotransmitters and education.

	Neurotransmitter	Causes	Advised Activities	To be avoided
1	Serotonins	Pleasure Good humour	New things Pedagogical surprises Magic Fun activities Excursions (the best)	Boring and repetitive tasks. Scarcely lit classrooms. Inside teaching as

			education is the one that happens outside the “classroom / cage”.	opposed to excursions.
2	Dopamins	Satisfaction, joy in achievement. Furthermore the effect of dopamine is stronger when the activity is shared.	Have a clear goal Actions and applications versus theoretical classes Team work	Senseless tasks without motivation. Theory-only classes
3	Endorphins	Physical wellbeing	Lots of movement. Physical activities Non-competitive games	Sitting immobile for 8 hours Being immobile

Table: For a pleasant, fun, efficient and loaded with “ines” education.

To which we have to add laughter, the effect of sunlight and neuro-ludology (Juegos 3000).

Laughter

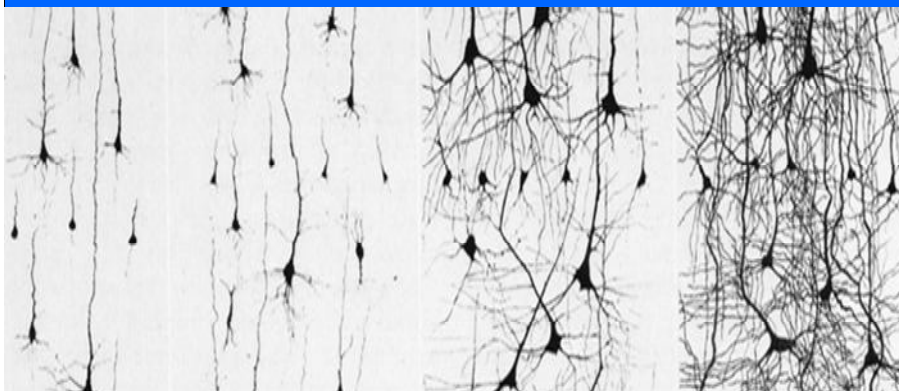
Laughter provokes the secretion of diverse substances at brain level, such as adrenaline (linked to creativity and imagination), dopamine (which stimulates mental agility) and serotonin (a chemical which has calming effects that diminish feelings of hunger and anxiety); therefore the most intense production present is that of endorphins.

Sunlight

When sunlight hits the skin this produces endorphins, which causes a feeling of wellbeing, according to David Fisher of the General Hospital of Massachusetts.

5. Neuro-ludology: Games 3000 (Juegos 3000)

Juegos 3000, un gran impulsor del desarrollo neuronal



Desarrollo neuronal en varias etapas a través de los juegos (Fuente: Investigación de Lumosity)

What is of interest to us is the brain's plasticity that is to say to provide more synapses between the neurons as is indicated in the drawing.

The terminology "plasticity of the brain or plastic cognition" refers to the capacity to learn and improve our cognitive skills, like when we learn how to solve problems or when we remember each detail of an event. Plasticity is the ability of the brain to remodel the connections between the neurons. It is in the foundations of the memory processes and learning processes, but sometimes also intervenes to compensate the effects of brain lesions by establishing new networks. These local modifications of the brain structure depend on the environment and allow the brain to adapt itself.

We look for games that reconcile wellbeing, fun, learning, companionship and augment the level of conscience. The Games 3000 (Juegos 3000) are based on *fun-learning*, games like Bits of Intelligence and games like NeuroFLASH 3000. They back up the research of Pedagogy 3000, EDSP (Espacio de Desarrollo de los sentidos en Potencia, Uruguay), methods of Dr. Makoto Shichida (5), Dr. Glenn Doman (6), Dr. Paul Scheele (7), Noe Esperon among others famous researchers.

There benefits are legion.

The Games 3000 (Juegos 3000):

- Lead naturally to a Culture of Peace and NVC (Non-Violent Communication).
- Bring wellbeing and relieve stress (in other words the ensure the production of serotonin, dopamine and endorphins)
- Provide a harmonic and creative environment
- Permit a high scholastic return

- Develop the “Integrated Amplified Activated Rooted Brain”. See chapter 8.
- Augment the neural net of the neocortex
- Activate the frontal and pre-frontal lobes
- Reduce violence and *bullying*
- Are geared specifically to the needs of the children of today
- Develop Emotional Intelligence, Intuitive Intelligence, Practical Intelligence and Co-creative intelligence, among others
- Improve both mental as well as physical health
- Diminish Attention Deficit, Hyperactivity, boredom etc.
- Are cooperative as opposed to competitive
- Incorporate Universal Geometry
- Include children with special needs

6. Summary of the characteristics of the children of today and their way of learning

The tendencies we see today in children are generally as follows, according to an enquiry done with 250 boys and girls in 2006 in Bolivia and corroborated in 2013 by the Autonomous University in Baja, California, Mexico with a bigger sample and multidisciplinary crossovers (Paymal, 2008:431).

In summary the present tendencies in the way children learn are as follows:

- a. **Auto didactical and self-developing.** That is to say that they generally present a leading profile for self- learning with a high psycho-emotional development. This profile was presented by Dr. Abraham Maslow –humanist and transpersonal psychologist and generally corresponds to the children of today. (Statistics of P3000 in 2006: 83% of the positive replies on average in the sample).
- b. Associated to a **high sensitivity**, also physical, in their five senses, both internal as external, such as emotional, social, ethical and in some cases spiritual. Their metabolism is faster. (P3000 statistics; 77% positive response on average in the sample).
- c. A **super developed Emotional Intelligence**, such as described by Dr. Daniel Goleman. This is what is provided to the children of today: speed in understanding, faculty for immediate action, sensation of being sure and holistic assimilation of knowledge. (P3000 statistics; 80% positive response on average in the sample).
- d. Related to the use of the **extended use of the right brain half**, which develops the following faculties:
 - Visual learning
 - Creativity

- Imagination
- Taste for arts and music
- Emotions, affection, intuition, sixth sense
- Non-verbal expression
- Multitasking
- Independence
- Persistence
- Among other qualities.

(P3000 statistics; 82% positive response on average in the sample)

- e. Linked to **diversified learning standards**, including the new multiple intelligences described by Drs. Gardner y Armstrong. Furthermore they naturally use the energetic or intuitive intelligence, emotional intelligence, practical intelligence and co-creating intelligence, amongst other. (P3000 statistics; 76% positive response on average in the sample).
- f. Sometimes related to psychic talents, also called para psychic or intuitive talents, presenting innate aptitudes for clairvoyance, telepathy, precognition and other extra-sensory faculties. (P3000 statistics; 44% positive response on average in the sample).

	Characteristics of learning	Line of pedagogical tools	Example (1)
1	Autodidactand self - development	Self-exploration	Montessori, Steiner Democratic Schools
2	High sensitivity	Emotional stable environment. Absolutely no shouting No rewards nor punishments	The “7 Petal School”
3	Emotional Super developed Intelligence	All the tools that foster Emotional Intelligence	The Listening circle Sugestopedia Emmy Picker
4	Right brain half	Arts Anything that involves creativity	Reggio Emilia IDEJO
5	Multiple Intelligence	All techniques applied of the ecological Multiple Intelligence Matters Workshops and trades	Kilpatrick Armstrong
6	Psychic Talents	Techniques with biomorphic tools and bio-reconnectors. Holding exercises. Nature	ASIRI IN-CRE
	In general	A balanced education that administers to the levels of development of the human being; physical, cognitive, social and multicultural, aesthetic, ecological, productive and transcendental.	The “7 Petal School” Pedagoogy 3000

Table. Summary of the characteristics and pedagogical need of the children of today

- (1) Please see the practical pedagogical notebooks Pedagoogy 3000 at www.pedagoogy3000.info and the book "the School of the Seven Petals" by the same author.

7. Practical Recommendations

Physiological changes

Practical suggestions for the accelerated metabolism of children

- Due to their accelerated metabolism some children may eat less. Do not force them. It's the quality of the food that counts, not the quantity and tender loving care is what feeds them.
- Give them plenty of water. Because of their high energy levels they tend to dehydrate.
- Make sure they have lots of freedom to move and plenty of physical movement every day.

Psycho-emotional changes

Practical suggestions to develop Social Intelligence, Interpersonal Intelligence and a Culture of Peace

- Campaigns of *positive* thinking in the whole school system
- Showing pictures (film) about the topic of *a culture of Peace* for all the members of the school.
- Breathing exercises and daily *Brain Gym*, (9)
- Regular relaxation and visualization
- Auto-massage and anti-stress techniques for students and parents and teachers.
- Pleasant back ground music through loudspeakers in the entire school.
- Sessions of listening and free exchange of ideas
- Non Violent Communication, charismatic and empathic, from an early age onwards.

Suggestion to secure Emotional Intelligence

- Exercises of conscious breathing
- Art, theatre, dance, music
- Exercises that use the body in a conscious manner
- Creative games and stories where the main character or hero adequately handles their emotions.
- Exercises that aim to strengthen the self-esteem of the child, parents and teacher.
- Exercises that aim to value the name of the student
- Exercises of affirmation or positive thinking
- Energetic balance, in the shape of games or other
- Chi Kung or Tai Chi for the adults
- Yoga for the adults (faster and adapted if for children)
- Aikido, Karate, Kung Fu and Capoeira for children and youths

- Exercises of rooting: percussion, African dancing, gardening, ceramics, self-massage of the feet
- Paying special attention to the greeting at the beginning of the class and the end of the day
- Hug therapy
- Laughter therapy
- NVC, Non Violent Communication
- Exercises to develop a culture of Peace.
- other

These exercises are valid for both children and youths as for their parents and teachers.

Practical suggestions for sensitive children

- Express your emotions honestly so that the child is not perturbed for sometimes not being able to discern their own emotions from those of someone else because of the *sponge effect* (absorption of the emotional surroundings), which is a characteristic of sensitive children.
- Explain to children the possible conflictive emotions within a group, because they might begin to doubt their own stability otherwise.
- Care for the immediate emotional surroundings of the child and generate support and genuine interest, even if often it is not easy to understand what is happening to them, give them unconditional love.
- Never be afraid of an extra-sensory experience of the child or of your own. Just listen and believe them.
- Give babies, children and youths clothes made of natural fibers. Use natural cleaning and cosmetic products. Avoid all that is synthetic.
- Make sure they have enough physical exercise and regular exchanges with nature's own energy. This is the safest, healthiest, most natural, and cheapest and without side-effect *medicine* there is.
- Absolutely avoid physical violence. In other words; under no circumstances resort to beating, shouting, physical punishment or emotional blackmail. Obviously this advice, just like all the others, is valid for all children, adults, women, men, elderly people and even animals and plants.
- Some of these children have a special sensitivity to electromagnetic fields, solar flares and other astronomical phenomena and can be influenced by them. Do not put televisions or other electromagnetic appliances in their bedrooms, especially when the child is very young or even a baby.
- It is recommended that they walk barefoot in the grass or indoors.
- Provide them with positive thoughts; give them a healthy, stress-free, tension free, argument free and shout free environment.
- Pets and living plants have a healthy influence

It is important to listen to the child without placing any element of valorization, neither positive nor negative. Really listen to what the child wants to express, accept it as it is and give them unconditional love.

Neurological changes

Some tools for the cognitive part

To obtain positive results with the children of today in relation to their integral cognitive development it is important to take two fundamental aspects into consideration.

- a. Make sure cognitive development is integrated in a balanced way in the other areas of integral development, that is to say; physical development, social/emotional/ethical development, aesthetic and creative, ecological, productive and personal development, promoting a truly integral education (also called holistic development in some places, from the Greek *Holos*, which means "all, everything")
- b. What the cognitive area is, being 7ABCD

What does Cognitive Development AAAAAAAGCD mean? (short;7ABGD)

The abbreviation means that education needs to be;

- **A**rticulated, that means that the topics are related among themselves, favoring lateral thinking. "School unites instead and does not divide."
- **A**utonomous and Auto didactical, which is to say that the children should teach themselves as much as possible. That education allows self-discovery, exploration, enthusiasm and own investigation. "Learning (is) better when I investigate and dis-cover by myself".
- A good **A**cademic level, teachings should have the highest academic level possible. "I deserve to receive and give the best"
- **hA**ppy, the environment needs to be happy and propositive "I smile and give hugs".
- **A**ffectionate, affection is the basis of everything. "I develop better when I love and am loved". In fact this is the reason to live.
- **A**ctive, it is important to promote movement and school projects. "They are happier and more pro-active children which will build the new society".
- **A**ppplied and contextualized, that is to say that the subjects are rooted in real life, both at local and international level. "Society enters school and school inserts itself in society, there is no separation"
- **G**ood humor and being positive as the basic attitude in all topics and stages of life. "I reap what I sow. Good humor attracts good humor"
- **C**ooperative, that means that education allows for cooperation and support among students. They teach each other. "I am solidary, I learn more"
- **Y D**iversion or Fun, *Fun-learning*, developing the right hemisphere of the brain and creativity. "Laughter develops the frontal lobe and creativity."

These principles are keys to success when it comes to:

- Good school results with a high academic level
- Avoiding stress, violence and *bullying*, preventively and durably

- And promote, in the long run, a responsible citizen and loving parents, creating a true Culture of Peace both locally and globally.

In general

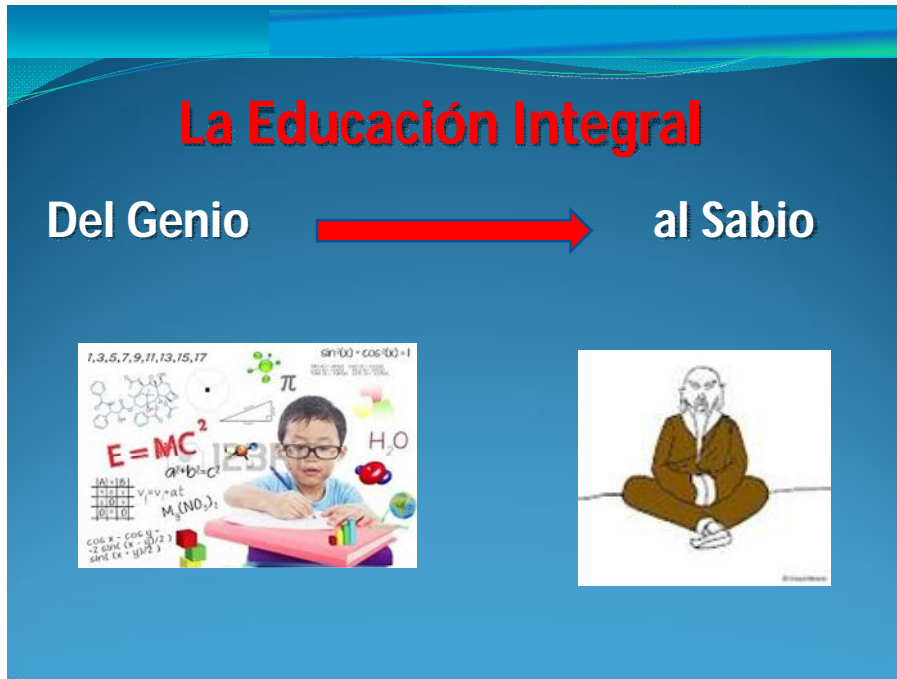
- All kinds of music, song, listen consciously to music (sonidosophy), orchestras, choirs, organic music
- All kinds of dance: rounds, traditional dances, modern dance, circular dance, bodily expression, bio movement, bio dance.
- Mandalas, fractal mandalas, cetaceans codes, crop circles
- Art- teaching; all the arts and Utility arts
- Ceramics
- Ancestral symbols, codes and drawings
- Bio-stories, myths and legends of one octave higher than consciousness
- Techniques of harmonization for children and youths, Relaxation, respiration, visualizations.
- Techniques for *rooting* that provide stability. These are specific techniques so that children establish themselves and acquire contact with *The Earth*.
- Exercises with the five external senses.
- *Brain Gym*® o Educational Kinesiology of Dr. Paul Dennison. These are simple physical exercises that stimulate the synchronized use of both brain halves, cerebral verticality and relaxation among others.
- Cooking
- Knitting and weaving
- Being in contact with nature, trips to the countryside, to the seaside, to rivers and woods.
- Sports and martial arts, Archery
- Keeping a garden, keeping plants, vegetable patches, greenhouses, taking care of pets.
- juggling
- other

In the area of preventive health and health, the following tools are very helpful

- All the massage and auto-massage techniques. Massages for children and babies.
- Shiatsu, digit puncture, reflexology, holistic reflexology
- Cranio-sacral Therapy
- Flower Therapy
- Aromatherapy
- Phytotherapy
- Gem therapy
- Reiki
- Somatic-Emotional Liberation or SEL, this is a therapeutic process that helps the mind and the body to rid itself from past traumas associated with negative reactions.
- REM, de *Rapid Eye Movements*

Conclusion

And before anything else to remember that the new education is... to be ENJOYED
And that an integral education will allow us to go from "genius" to "wise", as a person and as humanity as a whole.



Sí, nuestros hijos/as, nietos y nietas y estudiantes necesitan otra educación

Los niños/as de ahora no se pueden educar con la educación de ayer, necesitan una propuesta actualizada, informada, integral, capaz de proyectar activa y felizmente el futuro.

Only happy children will build a new society and will take care of the Planet

Our duty, commitment and promise are to provide the children with the education they need, that society needs and that Planet Earth needs.

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Biography



Noemi Paymal. Anthropologist of French nationality, currently residing in Bolivia, Noemi Paymal is a researcher, communicator, writer and gives conferences and promotor of Pedagoogía 3000 and emAne, the worldwide link for a new education. She has worked in more than 44 different countries in Latin America and the world in the field of applied anthropology and alternative education. She is the author and co-author of several books on applied anthropology and education. She is the President of the Association 3000 in Bolivia, Vice-president of the Foundation /Cooperation emAne International in Chile and Vice-president of the Association Wiñay Qhana Wawa in Bolivia.

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Chapter 4

Learning how to feel-think

Lic. Andrea Soledad Coria, Biologist
Argentina



Summary

From moments before conception during gestation of a new Human Being all parents ask themselves what the best way to educate their children is. After all we consider family to be the first cell from which *all possibilities* are acquired, from where all the potential that makes us who we are can emerge and is closest to our purest essence.

Taking into account that we are referring to educating we are talking about *shaping* something that has no shape yet, it is important to highlight some considerations when we accompany our young ones.

These considerations have to do with the conscious preparation to becoming a parent, through learning and recognizing body and feeling of presence, through numerous alternative practices that help us in our search for our own "selves". The search for who we are continues during our entire lifetimes but it is more intense during pregnancy and education of our children.

This is why I would like to emphasize this rather simple question: How many of us are truly aware of our bodies? And the link that exists between our brain and our heart?

We can all wash, feed, tonify and even beautify our bodies but: *"How many of us have developed the conscience what this beautiful gift is that our body encloses?"*

Within our bodies there are countless atoms, molecules, macromolecules that make up what later we call cell (the first consciousness we have lodged in our body).

Yes, the *cell* is the first emotional, energetic, psychological, chemical, physical and physiological developed unit that makes up who we are. This singularity that mirrors all the potentialities that culminate in the development of an individual on a micro cosmos level.

A cell is able to perceive the inner and outer environment, metabolize, assimilate and carry out numerous transformations and reactions, not only of a chemical, physical and electromagnetic nature but is also able to transform conscious from reality.

In the 70's Dr. Bruce H. Lipton, published an interesting article that showed the importance of the outer environment for a correct cellular development. It is from there that our tissues emerge and it also has a constellation (macrocosmos), an atom (microcosmos) or a community, they unite in a common goal: "*evolution*".

Billions of these interconnected networks make up superior beings (organs, apparatus, systems, neural networks) and all are part of real complex nuclei. But what is *CONSCIENCE*?

For thousands of years various ethnicities have tried to define, perceive and translate it to their daily sphere, some great names resound still today as an echo of having achieved and lived just that (Lao Tsé, Buddha, The Vedas, Chamanes, the Tibetan Lamas, numerous scientific teams, among others).

But, even today, many of us cannot easily reach contact with our conscience, not because we are not able to but rather because we have been taught to perceive the world differently. *Thinking* is a *way to perceive reality*, and that is where the importance of recognizing one's nature, flows, effects and causes that shape our reality and ties, comes from. Trying to recognize through empirical confirmations, those that come from the field of *our perceptions*. This is of vital importance to be able to place a certain connection with the smallest for their vacuity of any judgement or valorization, they perceive us just the way we are.

Conscience could be connected to the cells, that is to say that this state of unity allows them to be integrated amongst themselves maintaining this sense of balance and coherence. Forming a higher organism would not be possible without the flow of proliferation, differentiation and death. This is the basis of evolution, both on individual as on ecological level, in micro and macro cosmos. All things in nature go through these cycles of differentiation (type), proliferation (multiplication) and death.

In this chapter I will show some of the recently published Advances in the areas of neuroscience, Cellular Biology and Bio-energies that could accompany raising awareness of adults and favor the assertive accompaniment of children of today.

In order to learn how to feel-think it is important to recognize ourselves, we will talk about the structural-energetic development of the nervous system and the importance of the care during the

upbringing and accompaniment of our children. We will also talk about how the nervous system “feels”, the compassion mechanism, the importance of gratification, the positive parental links with the physical-energetic-emotional body and the development of empathy, trying to unite the coherence between heart and brain.

On this voyage I would like to take a walk and observe how earth, water, plants and other living beings, stars and other actors in our universe, living and latent, come about. Breathe in life deeply and perceive how we are managers of our children in perfect balance with all the forces that make us be in this moment.

Thanks:

I want to thank and dedicate this chapter to my parents and siblings for supporting me in every internal and external search of mine from their point. To my son Augustin who does not allow the light in my girl-eyes to go out in his loving and full companionship. To all the high classes of study Universidades Nacionales de San Luis and Córdoba that formed me and brought me closer to loving Neuro science. To Noemí Paymal for being the mentor of this dream to which I was invited to participate, trying to bring adults ever closer to the light and purity of our children of today, yesterday and ever. For a better, more Humane world. Thanks to each and every one that I haven't mentioned but you are in my heart

Introduction

Dear parents, grandparents and people who accompany the children of today. Before beginning this trip together I think it is important to emphasize again the importance of childhood and accompanying our children in this moment in history. It has been discovered that this is the period of highest energetic, emotional, physiological and cerebral development. During childhood and the parental relationship life's most important learning happens, in all fields. From the coherence that exists between the brain and the heart that regulates all what we feel, think and how we act in relation to the experiences that we transmit up to the construction of pillars for the future physical, intellectual, energetic, psychological, spiritual and social development of a Human Being.

Development and cerebral plasticity

Before sharing some of the advances in Neuro science, Cellular Biology and Bioenergy to Learn how to Feel Think we place on of the stars in this chapter, the human brain and the role of the nervous system.

One of the main characteristics of the nervous system is its Plasticity (or “flexibility”), that is to say its ability to develop and change in response to stimuli of the environment of life.

This enables the Human Being to constantly learn in a complex manner, and at the same time being adaptable to different situations in life. But also, very vulnerable to negative experiences. Even in

the process of self-knowledge we continue elaborating what we have learned from every experience we have been through.

The Development of the Brain depends on an interaction between genetic factors and stimuli from the environment. Humans are born with less innate material (instincts) and therefore the majority of our behavioral depends on what we learn after birth.

Our learning is hugely influenced by the experiences that fall onto our lot, and this promotes the development of Neuro-plasticity. The period of the highest Neuro-plasticity is Childhood, between the ages of 0 and 3. But it doesn't stop until completing the complete cycle of development not only structurally but also behaviorally. From there the importance of adults recognizing themselves as agents who are responsible for the education of the Being of our children.

The neurotransmitter hormones

The development of the brain is determined by the active participation of hormones, neurotransmitters, growth factors, processing systems, systems of transport and highly regulated intra cellular signalization on which at present a lot of research is being done to shed light on their synthesis mechanisms, liberation, action and regulation.

Positive experiences of care and stimulation favor the secretion of Neurotrophin which are a family of growth factors for sensorial and sympathy neurons that act on the Central Nervous system and the Peripheral Nervous System and were discovered by Rita Levi-Montalcini in 1950.

They contribute to the neuron development and the establishing of neuronal sinapsis, which are specialized intercellular unions between neurons.

In these contacts the transmission of the nervous impulses takes place. These begin with a chemical discharge that starts up an electrical current in the membrane of the pre-synaptic cell (emission cell); once this nervous impulse reaches the extreme of the axon (the connection with the other cell) the neuron secretes a type of protein (neurotransmitter) that is deposited in the synaptic space (the space between this transmitter neuron and the post-synaptic neuron aka the receptor). These secreted proteins or neurotransmitters (noradrenaline and acetylcholin) are responsible for exciting or inhibiting the action of the other neuron.

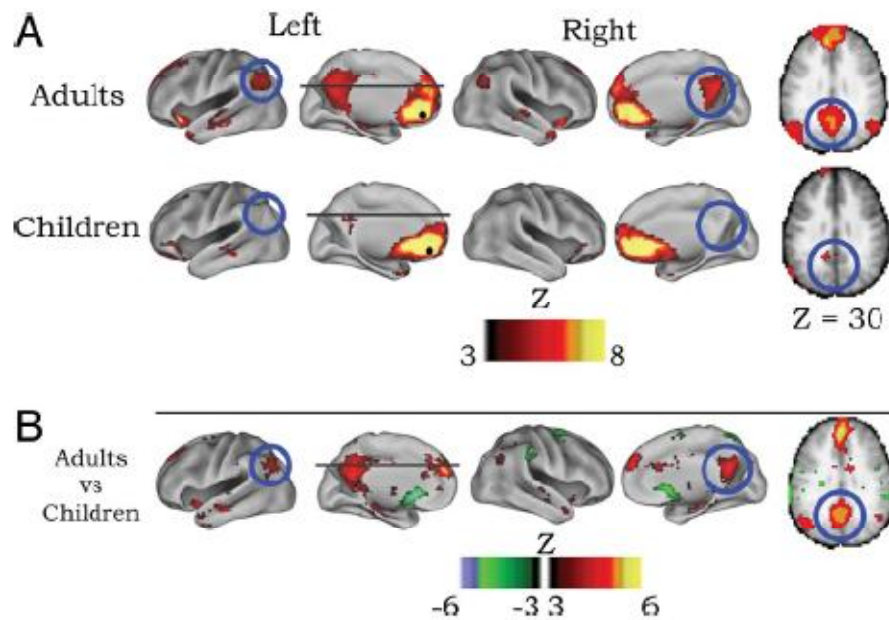
Also, experiences of lack of care and sustained stress stimulate an overproduction of Cortisol (stress hormone) among others, causing a deterioration of the neural development, especially in areas related to emotional development.

The child brain

Even if the structural development of a child's brain is different from that of an adult up to the age of seven, this does not take away that it is functionally active on the same scale as any adult. The difference lies in that a child organizes all the information in structures that are close in the brain, and an adult does the same in structures that are further apart, organized according to their function.

This alludes to the cognitive-emotional development that happens all along the development and growth. The Fair-group and their collaborators captured these images by Magnetic Resonance Imaging (MRI) during a study with 210 people between the ages of 0 and 31 in a state of rest. (Image taken from Fair and collaborators, 2007)

Structure of the neo cortex



- The frontal brain
- The middle brain or mesencephalus
- The posterior brain.

The frontal brain is the most complex and voluminous part of the human brain. It is made up of the Telencephalon- the area with all the folds and grooves that is typically shown in images about the brain as well as underlying structures. The Telencephalon contains information that, in essence, makes us who we are; intelligence, memory, personality, emotion, speech and the ability to feel and move. Specific areas of the telencephalon take charge of different types of information. They are called lobes, frontal, temporal and occipital.

The telencephalon is divided in two halves, the right and left hemisphere, which are connected by the central part by means of nervous fibres (the callous body) which allows them to interchange information. Even if at first sight the two halves might appear to mirror images, many scientists believe that they have different functions. The left hemisphere is considered the logical, analytical and objective half whereas the right half is considered more intuitive, creative and subjective. That means when we make a cost-gain balance we use the left hemisphere, whereas when we listen to music we use the right half. It is believed that in some people the left hemisphere is dominant, in others the right hemisphere and in other people neither hemisphere is dominant but both halves are used equally.

The most external layer of the telencephalon is called the cortex or cerebral cortex (also known as "grey matter"). The information gathered by the 5 senses reaches the cerebral cortex through the spinal cord. Then this information is sent to other parts of the nervous system for its further processing. For example, when we touch a hot oven, this information is not only processed by the nervous system so we move our hands, but it also goes to other parts of the brain to help us remember we shouldn't touch a hot oven again in the future.

In the internal part of the forebrain we find the thalamus, the hypothalamus and the hypophysis. The thalamus becomes a "relay station", charged with sending the messages that come from the sensory organs, such as the eyes, the ears or the fingers, to the cortex. The hypothalamus controls the pulse, thirst, hunger, sleep patterns and other bodily processes that happen automatically in the body. It also controls the hypophysis, a gland that makes hormones which control growth, metabolism, digestion, sexual maturity and response to stress.

The middle brain or mesencephalon is located under the central part of the forebrain. It acts as a "master of ceremony", coordinating all the messages that arrive in the brain from the spinal cord and those that part from it.

The posterior brain or rhombencephalon is located under the posterior part of the telencephalon and includes the cerebellum, the bridge and the medulla oblongata. The cerebellum, also called "the small brain" regulates balance, movement and coordination.

The bridge and the medulla oblongata, together with the middle brain, are also known as the "cerebral trunk". The cerebral trunk, together with the middle brain sends and coordinates all the messages from the brain. It also controls many of the automatic bodily functions, such as breathing, heart rhythm, blood pressure, swallow reflex, digestion and blinking.

Basic functioning of the nervous system

The basic working of the nervous systems depends largely on the multitude of small cells called neurons that work together with the tissue that supports the brain. The brain has millions of these cells which are specialized in many different types of functions. For example, the sensorial neurons capture the information of the eyes, the ears, the nose, tongue and skin and send it to the brain. Motor neurons receive information from the brain and indicate to the different parts of the body when they have to move. All neurons of the body transmit information between themselves and through complex electrochemical processes, establishing connections between themselves that influence the way we think, learn, move and behave.

The limbic system

The limbic system is a system made up of various cerebral structures that manage physiological responses before emotional stimuli. It is related to memory, attention, sexual instinct, emotions (for example pleasure, fear, aggression among other) personality and behavior. It is made up of part of the thalamus, hypothalamus, hippocampus, cerebral amygdala, septum and mesencephalon. The limbic system interacts extremely fast (and it seems without the need for superior cerebral structures.) with the endocrine system (hormones) and the autonomous nervous system (heart rhythm, among others)

In various schools of psychology during the 20th century the limbic system was considered to correspond to the location of the so-called "subconscious" whereas the more modern filogenetic areas of the cortex or cerebral cortex were related to "consciousness", even if such a localization is partially true, the activities of human thought almost always imply to all the activity of the central nervous system, even if surely the most elaborate process (the intellectual-cognitive-reflex) can only be done in the cortical areas of the most modern cortical areas located in the frontal and prefrontal zone whereas emotions and instincts (almost always transformed, mainly through the neo cortical areas in pulses in the human being) have a seat in the main area of processing in the limbic system.

The insulating cortex

Many researches have mentioned the Insular and the Cingulate Cortex as responsible in many of the emotional responses, conscious responses and assimilation of experiences in the central nervous system.

The insular cortex or simply Insular (from the Latin *insula*) is a structure of the human brain. It is found deep in the lateral surface of the brain, it is not visible on the outside of the brain because it is covered by many cortical structures.

The insular cortex, and in particular its most forward part, is related to the limbic system.

The Insular is becoming the focus of attention because of its function in subjective emotional experiences and its representation in the body. Antonio Damasio has suggested that this region couples visceral emotional states that are associated with emotional experience, giving space to feelings of conscience. In essence this is a neurobiological formulation of the ideas of William James, who was the first to propose that subjective emotional experiences (feelings) emerge from the interpretation of the physical states that are elicited by emotional happenings. This is an example of formed thought.

The cingulate belt or cingulate corte is also a circumvolution or gyrus in the middle area of the brain which has determining functions in the cerebral activity of the limbic system; it is found on the edge or limbo of the cerebral cortex. This envelops the callous body which is the nexus between the two brain halves communicating the lateral portions (temporals) and frontal portions (cerebral cortex).

The cingulate belt is considered an integral part of the limbic system and it is found to be involved in the formation of emotions, processing basic data related to behavior, learning and memory.

Neural bases for Empathy

Empathy is the ability to share feelings with others, it is fundamental for our emotional and social lives. It is a crucial component of the human emotional experience and social interaction. The

ability to share our emotional state with those close to us and complete strangers allows us to predict and understand their feelings, motivations and actions.

In particular, the Anterior Insula (AI) and the middle-anterior Cingulate Cortex and dorsal-anterior (ACC/MCC) play important central roles in shared responses such as disgust, pleasure, physical and emotional pain and other social emotions such as shame and admiration.

(Fig 1. Images taken from , MRI by Bernhardt, B and Singer, T; 2012)



In spite of a long tradition of investigation in contemporary philosophy and psychology, empathy does not have a universally accepted definition and the various phenomena that are even today are being investigated (Batson 2009).

Empathy differs from the phenomenon of sharing such as mimicking and emotional contagion. Neither contagion nor mimicking requires a distinction on what is the origin of the affective experience. It is within the observer or is triggered by another person. Emotional contagion or mimicking, e.g. seeing a friend in distress, someone can be worried or even a response of self reference or aversion in the observer. (Eisenberg and Fabes 1990). In contrast, during empathic responses such as sympathy, compassion, suffering that involve a motivation to alleviate suffering but these feelings are not necessarily shared.

Whereas empathising with a person who is sad from the being, feeling compassion or sympathy sometimes results in a feeling of love or care for that person and a motivation to alleviate suffering. This motivation can later transform in a pro-social behavior.

Empathy in the brain

In the article shared by Preston and de Wall in the year 2002 they suggest that the observation and imagination of others in an emotional state automatically activated a corresponding representation

in the observer which is associated to autonomous and somatic responses which are not purely cortical (logical, associated with the intellect).

In its own right the Discovery of the mirror neurons, a type of neurons that are found in the premotor and parietal cortexes of monkeys during execution and observation of actions, clarified the neural mechanisms for shared representations.

These years numerous studies have been done predominantly based on MRI, which have investigated responses of empathic brains for a great variety of states including fear, disgust, pain, anxiety, annoyance, sadness, neutrality, affection, pleasure, reward and other emotions such as social exclusion, shame, among others.

Together with the shared empathy networks, both the mirror neurons as the mentalization networks represent those that capture the attention the most among the social neuro sciences to explain how human beings can successfully understand actions, intentions, beliefs and feelings of others. (Keysers and Gazzola, 2007).

What are mirror neurons? What is mentalization?

In the 1990's Italian researchers made an unexpected discovery. They had implanted electrodes in a number of macaque monkeys in order to study animal brain activity during different motor actions, such as holding food. One day, while the researcher was eating his own food, he saw that the neurons of the monkeys began to show discharges in the premotor cortex, the same area that showed activity when the animals were doing the same movement. How could this be happening when the monkeys were alone and watching him in his actions?

During the following decades this triggered the discovery of *mirror neurons*, a special kind of neuron cells that trigger not only when an individual is doing an action but also when an individual observes someone doing the same action, notably modifying the vision of our brain and of ourselves, in particular our social brains. (G. di Pellegrino and company, 1992)

Before the discovery of the mirror neurons, scientists generally believed that our brains used logical processes to interpret and predict the processes that generate the actions of other people. Over the last years many have sustained that not only we understand others through thinking but by feeling. Through the mirror neurons we not only simulate the actions of others but also the intentions and emotions behind these actions.

When we see someone smile, for example, our mirror neurons for smiles are also triggered, creating the sensation in our own mind the feeling associated with smiling. In this process there is no lack of thinking what the intention of the other person is when they smile. The experience of the meaning arrives immediately and effortlessly.

The research in the field of mirror neurons is helping scientists to reinterpret new findings towards the comprehension of social interactions. These studies are bringing;

- New discoveries about how and why we develop empathy for others.
- More knowledge about autism, schizophrenia and other brain disorders characterized by deficient social interactions.
- A new theory about the evolution of language
- New therapies that accompany people who have suffered infarcts so that they can recover their mobility

Mirror neurons also allow us to decodify not only movements and intentions but also to receive and interpret facial expressions of other people.

These feats suggest that this system plays a central role in our ability to *empathize* and socialize with others. In itself it has been shown that people with autism possess a dysfunctional mirror neuron system. The graver on the autism spectrum, the least active this mirror neuron system is. Studies have shown that children within the autism spectrum have difficulties understanding the intentions of others based on the actions they observe. When they need to decide in relation to the actions of others, they focus on the meaning of the objects in the context and where the action takes place. (Bookheimer and Iacoboni, 2006)

There is a lot more to be discovered about the communication system that apparently precedes verbal language, since it has been demonstrated that this system of communication by means of gestures, facial and intentional, precedes the more developed forms of communication which are acquired whilst growing and empathizing with others. (Susan Perry, 2008 BrainFacts.org for the Society for Neuroscience (SfN))

It is of fundamental importance to know the workings of these neuronal systems within our brain to deeper understand the learning processes in our children, their times and maturation processes. Setting coherent behavioral benchmarks starting from ourselves the adults who accompany the children, looking consciously to re-enforce positive behavior in ourselves so that through these mirror neuronal networks they receive the best of what we have to offer.

Mentalisation: in psychology means the ability to understand the mental state of one's self and of others which comes from understanding behavior. This can be seen as a form of imaginative mental activity, which allows us to interpret human behavior in terms of intentional mental states (for example needs, desires, feelings, beliefs, objectives, purposes and reasons) David Wallin has used the term mentalization as the "thought about thought".

Since Descartes the Theory of the Mind has been elaborated with contributions from different streams of philosophy, psycho-analysis, psychopathology and biology that have emerged from the 1960's.

Mentalization has been used extensively to carry out research about upbringing, parent training even for clinical interventions with parents, infants and small children.

This has strong implications in the Theory of Affection, as well as in the development of one's self. The affective history of any individual determines the strength of the ability of mentalizing (understanding one's own and someone else's mental state) of individuals. Individuals that have been accompanied primarily with a healthy affection and a feeling of trust have more complex and sophisticated abilities of understanding. As a consequence these children have a higher ability to represent states in themselves and others. Early exposition of children to mentalization can contribute to protecting the individual from psychological adversities. This theory still needs more empirical support.

Through this trajectory we have seen the importance that the Insula and the Cingulate Belt have in a multitude of sensorial, affective, cognitive and motivational processes. The suggested model by the Craig group, the insular cortex plays a principal role in representing and integrating the internal emotional states; on the other hand the Anterior Cingulate Belt makes up the motivational counterpart and is related to actions. (Craig 2009).

The Anterior Insula and the Anterior Cingulate Belt contain a type of axi-shaped cells, the Von Economo neurons, discovered in the beginning of the 20th century. Its great size and relatively simple dendritic morphology makes them appropriate for fast communication between these sectors, allowing the swift integration of the affected global states, motivation, control and behavior in the contexts of dynamic situations. These are found in great quantities in adults but not in children (Allman et al. 2010), and play an important role in empathy, social consciousness and self-control.

Many studies have shown that empathic responses can be affected by alexithimia, which is a subclinical phenomenon related to the difficulties in identification and description of feelings and the distinction of feelings originating from bodily sensations (Nemiah JC. 1977). These are found in only about 10% of the population, but its prevalence is higher in children with disorders within the Spectrum of Autism (DSA), in whom the working of the mentioned cerebral areas has been discovered as being altered.

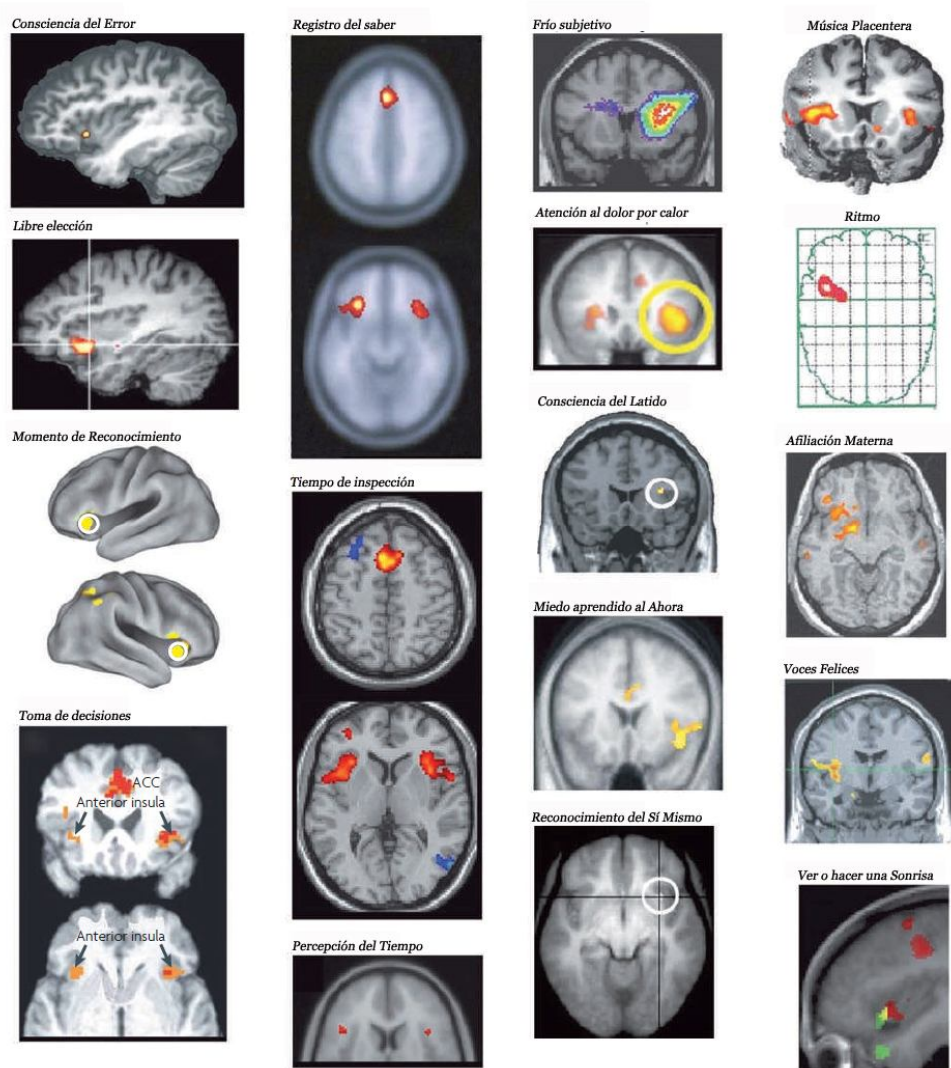


Image taken by Craig A. D (2009) on the participation of the Insula in various images captured by (MRI).

Contextual appreciation

This evidence suggests there is affective plasticity and long term alterations of the cerebral systems in situations that involve empathy and related positive effects such as compassion. For example, two recent studies done by members of the Lutz group and colleagues have shown an increase in the activation function of the Insula and the networks of mentalization associated to compassion in advanced meditators in relation to novice mediators. (Lutz et al. 2008, 2009).

The Leiberg group showed in 2011 that one day of training in compassion can increase social help behavior, in áreas associated with positive affects such as the medial Insula, the frontal orbital cortecc, putamen and the ventral tegmental zone. Doing these trainings associated with compassion can increase *resilience* to adverse events, possibly through positively regulating affections, rewards and appreciation. (Klimecki et al. 2011).

Introducing ourselves every time deeper into the alterations in the plasticity of the neuronal networks that underlie empathy and social cognition in general can shed greater light on more mechanisms of the various pathologies associated to the deficiency in empathy and social cognition, behavioral disorders, DSA and Alexitimia.

These studies can give us more information about the abnormal predisposition without empathy, as the neuronal plasticity can modify itself and the influence of deficient empathy to do with aggression, impulsive or egotistical behavior.

In spite of the abundance that exists from previous research that are being done by behavioral psychologists, biologists, anthropologists, doctors and other specialists on the ontogeny of empathy in children, the field of social neuroscience is very recent when it comes to cerebral changes on development level and the relation of these changes towards moral reasoning and prosocial behavior.

Neurotransmitters and Hormones: Allies in the link between parents and children

Human beings are not only thinking beings but also feeling beings and therefore on the road to learning more about the workings and the nature of our emotions, it is important to recognize the connection with our interior and learn to re-know ourselves.

Dr. Juan Hitzig, an Argentinean doctor in gerontology, suggests an emotional alphabet to promote a full life. He argues that when one smiles the brain assumes that they are happy and generates a series of responses that favour the intensity of this response. And furthermore it is contagious to who observes and empathizes. These responses exceed adults, because many of us have observed the identification that children have with positive emotions that they receive from their immediate surroundings.

Thought is defined as an energetic event that happens in an intangible reality by the coordinated actions of our nervous system with the energetic but that rapidly changes into emotion (from the Greek, *emotion*, movement), a movement that is generated by a complete neurochemical and hormonal machinery that when it is negative makes our physical body collapse in the shape of discomfort, disease and even death.

Another definition of the same is that which places thought as the activity and creation of the mind; all that is brought forth from existence to the activity of the intellect. The term is commonly used as a generic form that defines all the products that the mind can generate including rational activities of the intellect of the abstractions of imagination; all that is of a mental nature is considered thought, whether they are abstract, creative, artistic among others.

RRRRRRR and cortisol, the stress hormone

Over the years Dr. Hitzig has developed an emotional alphabet that basically summarizes as such:
The R-behaviors, such as:

- Resentment;
- Rage;
- Reproach;
- Rancor;
- Refusal;
- Resistance;
- Repressionamongothers

These are generated by cortisol, a potent stress hormone whose prolonged presence in the blood is lethal for the arterial cells because it increases the risk of having cardio-cerebral-vascular diseases.

These R-behaviors generate D-attitudes: Depression; Desanimo; Desperation; Desolation.

SSSSSSSSS and Serotonin, the tranquility hormone

On the other hand the S behaviors are:

- Serenity;
- Silence;
- Sabidury, wisdom;
- Savour;
- Sleep;
- Smile;
- Sociality;
- Sedation and many more

They are generated by Serotonin, a hormone that promotes tranquility, good rest, improves the quality of life, keeps diseases at a distance and delays the cellular aging.

S behavior leads to A-attitudes: Animo; Apreciation; Amor (love); Amistad (friendship); Acercamiento (closeness).

This way we are understanding that "having bad blood" as they say in Argentina, is no more than an excess of cortisol and a lack of serotonin in the blood, attests Dr. Hitzig.

For this reason I would like all adults who are Reading this to take a few seconds to evaluate in which way they perceive their present, the link with children and themselves.

In the work ofMadelonand his colleagues that was published a couple of years ago the importance of oxitin was proven. Oxitin is a hormone produced by the hypophysis. It is also called informally by

some to be the “love molecule” or the “aphrodisiac molecule”, which is related to the sexual patterns and the maternal and paternal conduct, acting also as a neurotransmitter in the brain.

In women oxytocin is also released in great quantities through the distention of the uterine cervix and vagina during natural childbirth, and also as a response to the stimulation of the nipple by the suction of the baby, facilitating therefore childbirth and lactation.

It is also thought that its function is associated with contact and orgasm. In the brain it seems to be involved in recognizing and establishing social relationships and could be involved in the formation of trust relations and generosity among people. An example of this is that researchers have discovered that the oxytocin hormone could play a relevant role in the appearance of autism. A study of 1998 found significantly lower levels of oxytocin in blood plasma from autistic children. A 2003 study found a decrease in the spectrum of autistic repetitive behavior when oxytocin was administered intra-venously.

Increase in trust and reduction of social fear. In a game of risky investments the subjects of the experiment who received oxytocin nasally showed “the highest level of confidence”, twice more frequently than the control group.

Feeling with a grateful heart

Throughout history and in various cultures, religions and spiritual traditions the heart has been related to spiritual influences, intuition and emotional experiences, particularly in respect to the emotions of other people, positive emotions such as love, care, compassion and gratitude. Present evidence proves that the heart plays a fundamental role in the generation of the emotional experience, suggesting that there is a coordinated action between the heart and the brain.

Over the last years models that include the conjunct action of heart and brain, the nervous system and the hormonal system have been put forward as fundamental components of the dynamic and interactive network from which the emotional experience emerges.

The most common definitions of gratitude include “...the act to esteem the qualities of things according to their real value”; recognition; care or enjoyment (of someone or someone); “put in value”. Cooper and Whitney defined gratitude as how to “value, the act of recognizing the best in people around us, perceiving those things that give life (health, vitality, excellence) to living systems. Padden defined it as follows; gratitude is being grateful and expressing admiration, approval or appreciation.

In the model proposed by Childre et al two types of emotions are distinguished: those that reflect order and neurophysiological systems and those that reflect projections of future order.

With each heartbeat the heart does not only pump blood but it also continuously transmit dynamic patterns of electromagnetic information, pressure, neurological and hormonal information

throughout the body. When the body finds itself at basal levels, the cardiac input is considered as a check point for blood pressure, the breathing average and also for systems of the autonomous system.(Langhorst P et al, 1983)

Cardiac-coherence

When graphics are drawn of heart rhythms when arhythmias are present, these arhythmias are very much the same as when there is an incoherence in the heart rhythms produced by strong feelings of anxiety in healthy individuals. To the contrary, coherent heart rhythms, the ones associated with positive and sincere emotions, are similar to the majority of the brains and evoke feelings of well being and security.

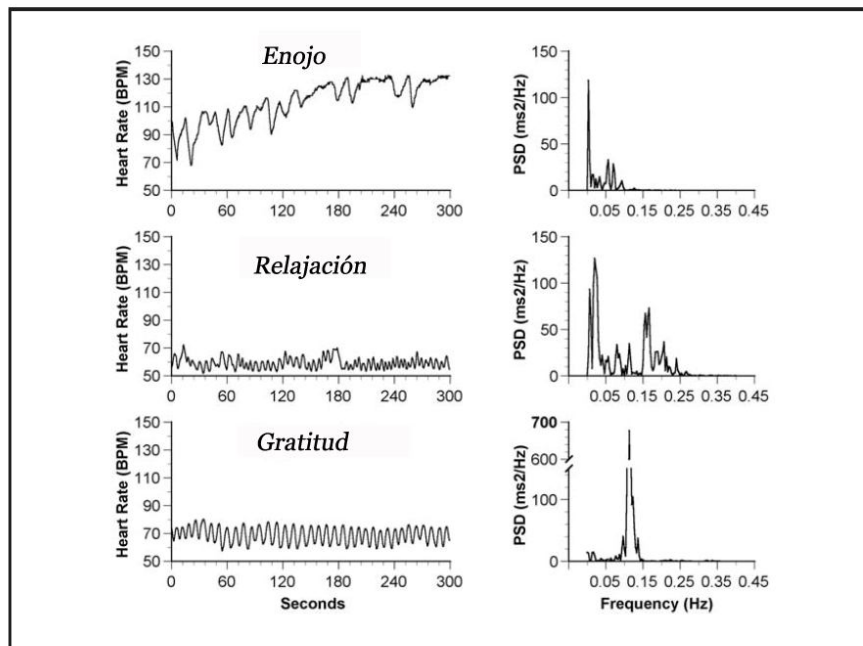


Image taken from Childre 2002, the patterns of cardiac rhythm during psychophysiological states. Annoyance is characterized by the low frequency, disorderly heart rhythms and increase in the average heart rhythm. This is associated with the activation of the sympathetic nervous system. Relaxation results in a high frequency, low amplitude rhythm, which in this case augments the parasympathetic activity. In contrast gratitude is associated to some ordered waves demonstrating the pattern of cardiac coherence.

The term coherence has many related definitions, of all that are applicable to the study of emotional psychology, is the quality of being logically integrated, consistent and intelligible. From this point of view thoughts and emotional states can be considered as coherent or incoherent.

From a physiological point of view this coherence describes the order and stability in the rhythmic activity generated by a unique oscillating system. For example, between breathing and the rhythm of the heart oscillating on the same frequency. The methodology to quantify coherence has been amply published (Tiller et al, 1996).

The phenomenon of coherence can also be measured and associated together with the natural synchronization of alpha brain waves measured by Electro Encephalogram and heartbeats. These observations confirm that the feats around what increases the activity of the left hemisphere is associated with euphoria and happiness and increased activity in the right hemisphere is associated to depression and negative affections.

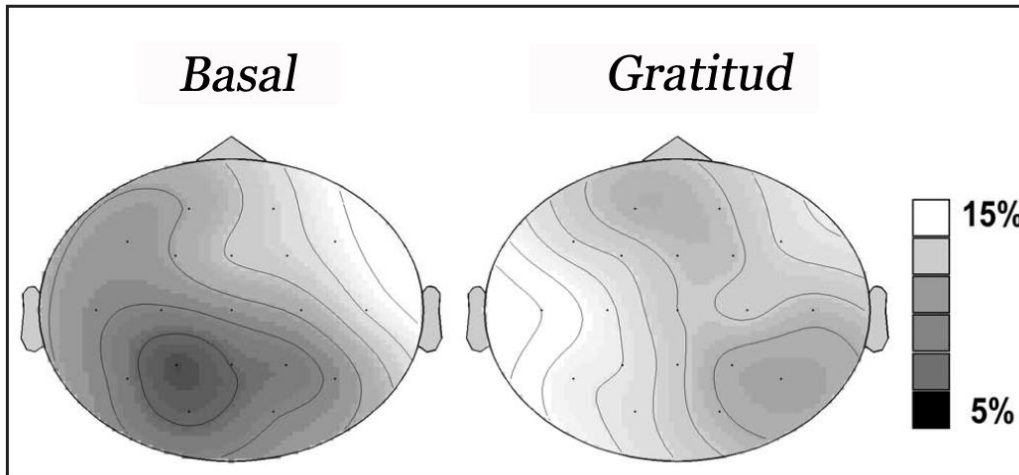


Image taken by Childre 2002, where the synchronized alpha brain activity with the heart cycle is shown, of a group of 30 people. The brighter colors show a higher grade of heart-brainsynchronization, which is at its highest during gratitude.

Breathe and relax! Why heart rhythm can hinder your brain

All these observations directly support that afferent the cardiac pattern can inhibit or facilitate the cortical function of the brain, which was documented by Lacey et al. This has a direct relation to the motor skills sustained attention and assertive decision making.

It needs to be clarified that even if coherence is a natural state, sustained episodes are not that frequent. The same can generate and feedback both in the heart as in the brain through a conscious management of positive emotions and their daily strengthening. This way it is possible to make the state of coherence something durable, even during complex situations.

Tools for promoting positive emotions and the physiological coherence

Here I would like to share as last stop on our voyage though learning how to feel-think the two practical tools as presented by the scientists of HeartMath which can be divided into two basic categories; techniques to focus on positive emotions and on the other side techniques to restructure emotions.

The technique of the frozen sequences is the first and is designed to allow individuals to access coherence in real time while the episode of stress is being experienced, instead of wanting to recover after the fact. It is an extremely useful resource not to hurt our children in our eruptions of anxiety, annoyance, frustration that are produced by not being able to handle various situations inherent to growing up or accompanying children.

In only five simple steps we can dispose to re-establish the coherence between brain and heart:

- 1) Pick a time when you can fully disconnect from your thoughts and feelings, especially from the most stressful.
- 2) Focus on the area around the heart, now feel your breath entering the heart and exiting from your Solar Plexus. Practice breathing this way to simplify this technique.
- 3) Make a sincere effort to activate positive thoughts (evoking people as well as pleasant places, including our children in situations when they filled us with love and joy)
- 4) Ask yourself what the most effective action would be, the attitude or action that would balance and de-stress will be your system.
- 5) And lastly recognize what the perception or sensation is and maintain it as long as possible (perceptions of the heart are sometimes very subtle. They gently suggest effective solutions that will be the best for you, your children or people involved)

For the following proposal I share the practice to restructure your emotions, generally the two are done together and before the previous in order to obtain the most benefit. The technique of “in-yourself”- ment with our heart is based on sustaining positive emotions and physiological coherence for long periods. If you want you can have appropriate music, the kind that brings emotional balance and strengthens the positive physiological effect of the techniques.

The basic steps of this technique are;

- 1) Pay attention to the area around the heart
- 2) Breathe in from the heart and exhale from the Solar Plexus
- 3) Activate a genuine feeling of gratitude, care and love while doing this practice, enveloping yourself and others in these feelings
- 4) When you find yourself thinking, return the attention to breathing from the Solar Plexus and reconnect the feelings of care and love anew. (Once finished, maintain these feelings of gratitude and care as long as you can, this will significantly reduce stress or anxiety).

Conclusion

During the last years there have been ever more data that re enforce the selection of positive emotions to augment the coherent functioning of all the systems that accompanies in the development of human beings.

This knowledge are supporting those feelings or intuitions that many of us maintained for many years, getting closer to a leap in conscience when linking ourselves between adults and children optimizing wellbeing, simplicity, cognitive ability strengthening, maintaining constructive and meaningful relationships based on love, care and mutual respect. That they redound in an increase in vitality, health and levels of conscience.

Conscience will be clearer defined in the measure in which we understand more about the working of our brain and body as a unity, so that only one definition is possible, that consciousness is that knowledge that we know we exist, the feeling of I Am, which needs to be experimented by the own existence as a feeling being, before it can be registered profoundly as something that enters or leaves the environment that surrounds us.

In this chapter I propose a way of life that strengthens the coherent connection between the brain and the heart, brought to daily practice in the accompaniment and upbringing of our children or the children of today, generating ties based on trust, wisdom and natural development of the small big beings that today go with us on this evolutionary leap.

Neurosciences, just like many other sciences today begin to feel part as active agents of the divulgation of research that bring us closer to ways of relating in first place with ourselves and later with our immediate environment.

Managing our thoughts and emotions consciously in order to build the tomorrow we want together with our children, allowing them to conserve the conscience of who they are, why they are here and where they are going, together with a physiological, psychological, energetic, emotional and spiritual development is that we can give way to a new humanity that already EXISTS within us.

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Biography



Andrea Soledad Coria, Graduate in Molecular Biology in the Universidad Nacional de San Luis (UNSL), Argentina. Finalizing her doctorate in Neurosciences in the Universidad Nacional de Córdoba (UNC), Argentina. Born in Villa Mercedes, San Luis, Argentina, she is the eldest of three children (Sole, Belu y Facu), daughter of Sonia Concepción Domínguez and Manuel Rodolfo Coria, to whom she is very grateful for their unconditional support and love. She is mother to a son, Agustin who is five, who accompanies the girl within me and fills my days with love and dreams. He teaches me there is no bigger PhD than LOVE and SERVICE on Earth. She loves science with a conscience and Nature as a source of inspiration and connection with the Being. She is also a Holistic of Ancestral Healing, therapist, coordinator of the Women's circles "Luna Blanca, Luna Roja", Coordinator of the GRUPO ATMAN ex Proyecto Alma Pura in search of a more Humane School in the ROYECTO ALMA Córdoba, generating tools to connect the mind with the heart in the schools of Córdoba.

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Chapter5

A world without fear

Fernando José Díaz Glauser, Homeopath
Colombia

... fear leads to rage, rage to hate and hate to suffering.
Master Yoda, Star Wars, Episode 1

Love and fear

When I was asked to write about how to help our children to live well and healthy, the first thing that sprang to mind is harmonizing fear, according to the physicist Gregg Braden one of the basic emotions of the human being, together with Love. Either we vibrate in Love or in Fear, the other emotions spring from these two. Fear and pain in a balanced state protect us, warn us when we need to avoid doing something dangerous and when you have to go see a doctor, but all excesses or defects bring unbalance and damage.

Diseases and emotions

As Homeopathic and Floral Medicine therapist I have to know my patients very well and I always find a very precise pattern among the diseases and unsolved emotional conflicts, such as for example the diseases of the upper airways (head colds, rhinitis, sinusitis etc.) and conflicts of living together, arthritis and depreciation, hepatitis and indignation and so many books and studies of the psycho-somatic medicine prove it daily. When a child suffers from Asthma, its respiratory difficulty was only due to the fear that the family unity might break when hearing the discussions and arguments of its parents. Disease has always had an origin and excepting those of an earthly origin we always find an abrupt unsolved emotional conflict lived in silence such as in catastrophic diseases such as cancer. To cure and solve any problem we need to solve the cause of the problem, the consequences are merely symptoms.

Healing symptoms or causes of disease?

For this reason classical medicine, even if of immense worth in emergencies, surgeries and intensive care units, is a failure in chronic diseases, because it ignores the cause of the disease and lacks healing tools since its pharmacy only contains medicine to fight symptoms and not the disease. It lacks medicine against arthritis for example, and has only pharmaceuticals that suppress the pain and the inflammation for a couple of hours but can cause other diseases or damaging collateral effects- Even in infectious diseases almost nothing is ever solved by killing

bacteria with antibiotics if we cannot recover the immune system of the patient. The infection will come back ever more resistant to ant-micro biotic treatment.

Living in the “now”

In order to live well and healthy I recommend living in the NOW, which is the only time that exists. The past is already gone and emotions like sadness, rancor, pride and guilt which can make us sick have already gone. The future, where fear and worry reside does not exist and will never exist because when it comes it will be the present. However we live in fear, the communication industry warns us that there are terrorists, rapists, epidemics, accidents, thieves. When I watch a complete newscast I suffer from insomnia, TV series fill us with fear of abandonment, Hollywood tells us that all these evils exist and meantime other merchants sell us security. When I fall into these states of fear, I thank Divinity that here, NOW and at this moment I am alive, my family is well, I am in good health, have money, food and a roof over my head and so I reprogram myself bit by bit to live in the present with gratitude.

Homeopathy and Floral Medicine

So-called “alternative” medical systems such as Homeopathy and Floral Medicine are healing medicines and recognized in many parts of the World. Homeopathy is the official medicine in India and is part of the social security system in countries such as Brazil and The UK. They are healing because they consider the human being in its entirety, from their organic suffering to their emotional pain. They are able to heal allergies and cholera or fear, lack toxicity and side effects, these medicines balance the immune system and as a consequence bring humanity to a higher level of health and help us to reach the highest goals of our existence. They heal because they are based on the laws of Quantum Mechanics and not Newton’s physics, because within the atom is where all the magic of the Universe comes from.

New genetic programming in the children of today

There is no doubt that since the end of the Second World War children have been living with a new genetic programming, with new knowledge and wisdom, more sensitivity, they are little masters, old souls some say, and in order to help them to live well there are other recommendations that make many authors and researchers “alternative”, such as for example in Germany where many families have decided to minimize or avoid vaccinations and many doctors recommend doing this, based on serious studies, often ridiculed by the medical industry and official medicine. The same happens with Fluor, a poison present in toothpastes and whose use should be avoided. Nowadays there are many dentists that recommend minimalizing or even completely avoiding its use.

Nutrition

Modern nutrition produces fat but malnourished children. Refined sugar is a stimulant with the power of caffeine, and is an ingredient of black drinks such as Coca Cola and Pepsi, which a child should never drink. This sugar deposits in the spaces between the cells slowing down metabolism, just like the majority of preservatives and colouring agents that are ingredients in what we eat and drink daily. A cereal boiled in water is very nutritious and different from a cereal which is fried at temperatures which kill vitamins. Any fried, baked and above all microwave heated food has lost almost all its nutritional potential.

Milk was designed by nature, and Nature never makes mistakes, for lactating creatures and cow's milk was designed for calves, never for humans. Traditional Chinese Medicine only allows consumption of unpasteurized cow's milk, since that with this process milk loses all its vitamins and lactase, above all in charge of the absorption of calcium and other nutrients in the intestines, and so any powdered or pasteurized milk is hardly or not at all nutritious.

Another myth is that protein from an animal corps is the only one that is any use, all essential amino acids to build whatever protein can be found available in the Vegetal Kingdom. These vegetal proteins are much easier to digest and metabolize with less energy expenditure. It is said that in a conventional diet more than half the calories are used for digesting food of animal origin and mixtures of incompatible foods in the same meal, such as meat and bread of a hamburger. Of course, junk food only fills but does not "feed". In conclusion we eat on average only about 20% of fruit and vegetables and 80% food of little nutritional value. It should be the other way round.

Only with Love

And to close I will repeat what I heard during the first psychiatric consultation I assisted as a medical student. It was about a "problem" child, restless and with attention deficit.

The child came to the session with its nanny and the professor said: "when you have a child like this surely the parents need treatment". We, the parents, are those who "contaminate" our children with our lacks and insecurities. Only with Love, the emotion contrary or complementary to Fear we can make our children live well and reach the highest level of their existence like Master Samuel Hahnemann, father of Homeopathy, said.

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Biography



Born in Bogotá, Colombia, and has been living in La Paz, Bolivia for 13 years. General Practitioner in the College Mayor de Nuestra Señora del Rosario, after nine years of practice of official medicine and dissatisfied with a medical system of great value in medical emergencies, but incapable of healing chronic diseases he decided to learn Floral Medicine and afterwards Orthodox Hahnemannian Homeopathy at the Instituto Colombiano de Homeopatía Luis G. Páez which had been practicing for 15 years and had been teaching doctors since the year 2004. From the year 2008 onwards he had the blessing of getting to know ancestral wisdom, thanks to the opportunity of living with the Kogi brothers for some months in the Sierra Nevada de Santa Marta, Colombia, he was made aware of the ancestral knowledge of indigenous people both in Colombia and Bolivia.

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Chapter 6

The Original Bio-Quantico: genetic changes that demand a new education

Marcel Vega, Original Bio-Quantum
Spain

1. Original Bio Quantum and new education

Original Bio Quantum (O.B.Q.) is a discipline of collaboration with children to train them practically in managing their skills and attitudes. O.B.Q. is the consequence of applying the principles of advanced Quantum Physics in Medicine.

O.B.Q. is the result of a rigorous investigation in Chinese bio-energetics and ayurvedic medicine, and in present day cutting edge occidental energetic medicine, which lead to discovering quantic levels in the human body. For this reason O.B.Q. integrates occidental scientific related discoveries to the bio-energetic composition of the human brain.

The efficiency of O.B.Q. is the result of its system of investigation. This system imposes that it is the empirical facts that need to guide the researcher. The discovery of the Quantum Body orients us not only in the direction of optimizing known and unknown skills in children but also when there are dysfunctions in both health and learning, in the separation of the genetic and the psychological. Often when O.B.Q. harmonizes the genetic many matters of learning and psychology improve notably.

Benefits of O.B.Q.

Pedagogues, who receive some sessions of O.B.Q. change their methodology, feel that they are answering their real questions; the teacher activates their intelligences, their own spaces to self-experiment and know themselves etc.

Children who receive O.B.Q. sessions surprise their parents and teachers not only for their advances in study but also for their assessments of various situations, by their changes in relationships and improvements in health.

Deeper levels of the atoms and quarks that are related to the genetic code

O.B.Q., discovering the wonderful symmetries of the Quantum Body (QB) – that are reached at various and deeper levels than the atoms and quarks of our organism- has been able to access to modifications in the genetic code that nowadays appear in an ever increasing number of newborn

babies. These genetic variations can be confirmed, for now, in the quantic aspects of the genetic code. These novelties show an analogue coherence with the composition and the movement of the present 23 pairs of chromosomes in their Quantum dimension, only that it is different in some essential parts. Who knows we are on the brink of the new pair 24? Is this could be proven in the coming decades two important theories would be confirmed:

A.- the one by the scientist Rupert Sheldrake, who being an eminence in Biology argues that the guiding information of the genetic process is not in the molecules, not in the proteins, but in some subtle invisible Morphism Fields that direct the information of our physical foundations by resonance. These fields are found in the immediate surroundings of our organism. In O.B.Q we use them to regenerate our human body. It is not possible to observe them by the technology we normally use in medicine.

B.- The theory of the French anthropologist and inspirational force behind Pedagoogía 3000 Noemi Paymal,- thanks to her you have this book in your hands- who for more than 14 years has been divulging in many countries across the globe that a new education is necessary because children now show different characteristics to those of previous times.

In O.B.Q. we see two levels different from previous times; around 29% of the children of today show in relation to their parents a health state of the 23rd chromosome, with a relative improvement of 78%. The other level in difference is in proving that between 4 and 6 of each 100 children are born with a difference in the Quantic Field of their genetic code, in a particular area. This area –in a series of chromosomes- will be what corresponds to the 24th chromosome pair... if such a pair existed in our genetic code. Those children that are tested positive in more than 24% of the Quantic formation than what the future 24th pair of chromosomes could be 24 show special qualities.

Both theories show connections in that it is through the Morphism Fields that we can investigate evolution...and that only those who dare completing and looking further than the official paradigm go towards understanding the truth.

2.- Original Bio-Quantum and present day education

Present day education leaves the interior human being to one side.

Every year there are more educated human beings and wars continue...

Every year there are more doctors and more diseases...

And every year there are more scientists and the planet becomes less habitable...

In our O.B.Q.consultations we show that as the vision of life of a scientist, an architect, a doctor, an engineer, a psychiatrist, a carpenter etc. is almost identical to a pedagogue.

This is so because the self-experimentation with our body and its possibilities is minimal, almost zero, in present day education.

On the other hand, when we train health professionals in our courses, professionals from various disciplines in medicine, we see that the approach to the patient or the collaborator is very similar between an allopath doctor and the majority of complementary or natural medicines.

The thing is that the programs to prepare a scientist, a doctor or a pedagogue are, basically, identical. It consists of studying and repeating a manual. What use is a pedagogue who does not know the value of helping others to obtain something or does not know how to cultivate team spirit? How, by studying manuals, can a pedagogue transmit something intangible? How is he or she going to waken the feeling of worth and respect for society, life and nature?

Basic education should achieve:

- Awakening the love of nature and its beings in children because they give us life.
- Experimenting in children that their interior is more real than anything that exists
- Proving that without others we cannot achieve anything.

And urge a Superior education that trains each professional – beyond the mnemonic and mental- for their specific goal in the future, with spaces where to learn dependence of nature.

For all this we see in our daily consultations that, doctors as well as psychiatrists and complementary professionals and the various collectives of citizens lack the basic notions about:

- How to increase their own health and
- How to, autonomously, improve their relations with others and with themselves

The old paradigms

The only thing that mattered to past education was that students managed the surfaces of their lives.

Education emerges from the First Industrial Revolution (17th and 18th centuries) and its objective was to conquer new markets, colonize other countries, increase economic power of some over others. This Industrial Education emphasizes the mental development to conquer; a) the external of the human being, that is to say, appropriate themselves of nature and its beings, b) and to all that falls outside of this paradigm.

Industrial Education does not see the need that children cultivate good relationships among themselves and with themselves. To them it was not important how to generate healthy solid and long lasting ties with their friends, parents, the other sex etc. Therefore, from this paradigm, how as adults can we achieve relational stability and security, or even world peace?

O.B.Q. provides demonstrations of the reality that can give direction on value of the subjects that are taught nowadays. The base of the education needs those subjects that will remedy the present state of division of the world and deterioration of the planet.

3. Health and present day school

When a human being loses their health, or their job or love for the other person, life becomes unbearable. Every day millions of people go through one of these tragedies. For the Present Day School –that should prepare in order to give a competent response to the fundamental questions in life – this is not important.

Present day school is materialistic and states that in order to be successful in life we need to be able to memorize and repeat information. It does not teach how to cultivate dignified relationships, optimize our internal resources and increase our health. Present Day School does not teach us how to prevent, to discover what it is that makes you happy. You come out of Present Day School functioning like an industrial product, not like one who learnt how to be the protagonist in your life. You will come out prepared so that others lead in your life and you see this as the way it should be.

Industrial Education trains you so that every year you are able to manage a higher quantity of information; it prepares you to function like a machine, a robot, a computer. It prepares you as if you didn't have a heart not intelligence. It convinces you that your classmates are numbers, competitors that you need to beat before they win and you lose.

Present Day School urgently needs to prepare children for the present they have; a present that is much more motivating if they explore their inner Universe.

To learn how to prevent, to discover how to optimize vitality, generate ties, incorporate value of and for others; these are fundamental subjects that Present Day School needs to cultivate in order to function in life responding to each situation as life requires.

The scientific method searches and is based on comfort, wellbeing. In it, who transmits and who receives can only connect through the mental. By not cultivating or awakening the total state of alert through a "relative discomfort" it promotes that we value machines and proteases more, dulling our bodies and its multiple possibilities; leading us to the present paradox: there are more doctors than ever before and more patients than ever before, there are more scientists than ever before and Earth is sick.

We need a new school

Health and science is the consequence to answer in an able way to what is happening.

School opens us to social language; it gives us the bases to understand the movements of "the body that makes up society". We need for the school to open us up to body language that it gives us the bases to understand feelings, emotions, thought; that we experiment and learn to respond to the movement of the "body that we are as an individual". We need to experiment with

hygiene - both intimate and general- in nutrition, in exercising, in biorhythms, in the needs of the body in each of the seasons, with energy etc.

School needs to train itself so that children leave it knowing how to communicate with the social body, both family and personal.

The pedagogue needs to experiment in a particular way with his or her life in order to orient children.

4. What can you expect from Original Bio Quantum?

With O.B.Q. you can experiment realities that exist and that you need to know in order to reach where you will get the answers to your questions. With it you will learn how to contact, to experiment empirically, parts of ourselves that exist even if we don't see them. With it you will prepare for that which the school did not cultivate and you need.

O.B.Q. prepares you so that your work as optimizer of the health of others or as agent in personal and social change elevates your vitality while you exercise it. It will get you going to that your steps walk the path that you need.

O.B.Q. helps you to see other options in what you are doing and gives you a healing system that integrates:

- a) energetic medicines, both age old and modern
- b) treatment of the genetic
- c) suitable movement of the quantic dimension
- d) organization and regeneration of our physical state
- e) experimenting with the spiritual

O.B.Q. does not liberate you from what you need to live. It will help you to find the way to take it with preparation, to generate a culture of life that you can transmit to your descendants, to understand life as an experience. It will bring you closer to your real you. It will give you tools for "being" and "respecting".

Thanks to the investigative methods of O.B.Q. we are in the five continents proving its regenerative elements and those possibilities to heal that are compatible with what each human being needs. As a capacitor you have on your work table possibilities from your healing predecessors on five continents and as a subject you will receive help from transcontinental healing.

O.B.Q. has a tool that optimizes your creativity, increases your conscience that you have on aspects of yourself, activates and orients your resources, elevates your energy in the frontal cortex deciding with more clarity and speed. With O.B.Q. you will face pending situations with valor, you will become sensitive to the body and its many qualities, awaken your preventive capacities, access an integrative and inclusive vision of the process through which we reach health

whilst healing your mental discomforts. With O.B.Q you will understand symbolic value and generate healthy ties. With O.B.Q. you discover we have more ways than the five senses to approach reality.

5. Instruments of Bio Quantum

O.B.Q. is the result of the discovery of the Quantum Dimension by the human being. The Quantum Dimension of the human being cannot be treated by the occidental allopathic medicine, nor by age old energetic medicines.

During the process of investigation and research for treatment for the quantum dimension we experimented with medicinal plants, essences, minerals, homeopathy, pharmaceuticals, osteopathy, sacra-cranial, acupuncture, Ayurveda: we looked into the energetic possibilities of the Occidental cutting edge of medicine based on Kodak filters such as Holo-energetic and its photonic optimizations and Hologram energy: We also investigated with technologies such as the Quantum Scio, the Quantec etc... and the quantic dimension did not show healthy variations. Healing the Quantum dimension only proved successful by means of quantic sources not developed by humans, quantum sources in nature.

Original Bio Quantum (O.B.Q) found an effective protocol that comes from the specific situation of each level of the QB and the way it recovers its harmony. During an O.B.Q. session the QB recovers all the shapes it was lacking for its complete flourishing, directing the human being towards that what needs to heal and live. Said protocol used Kodak filters for some understandings but it is thanks to the bio-information that the QB harmonizes and completes itself.

Bio-information is special photos of invisible forces that support and vitalize nature. The human being and nature are made up of dimensions that O.B.Q. investigates to find answers to the mystery of our lives.

During the conferences and training courses in O.B.Q. for health professionals of the various medicines we showed in a video in 3D the whole of the geometric shapes that we call the Quantic Body (QB). This collection of multi-pyramidal shapes is empirically observed and goes beyond the human conscience, it is not a product of human intelligence and it only harmonizes with that which is of its own condition.

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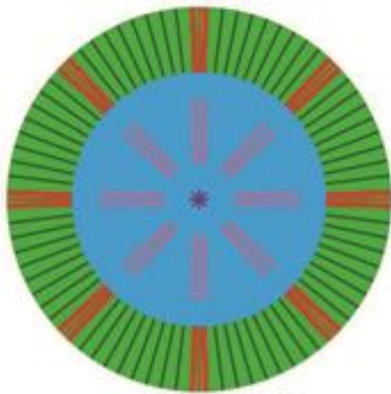
Biography



Marcel Vega, Original Bio Quantum, is a psycho-therapist and coach. He has a Diploma in Human Resources and Marketing. In 2008 he discovered some Objective Geometric Shapes in the Quantum dimension of the human being "The Quantic Body". He promotes a natural system to complement these Geometric Shapes and obtains genetic healing and surprising transformations in individuals. They are Objective Shapes because anyone with certain training can see them. More than 30 years at the service of People. He is also trained in Osteopathy, Acupuncture, Nutrition and Diet, Naturotherapy, Medicinal Aura, Reflexology. Holo-energetic Methodology, Hologram Energetics, Psychodrama, Master in PNK etc. His exact professional title is ORIGINAL BIOQUANTUM.

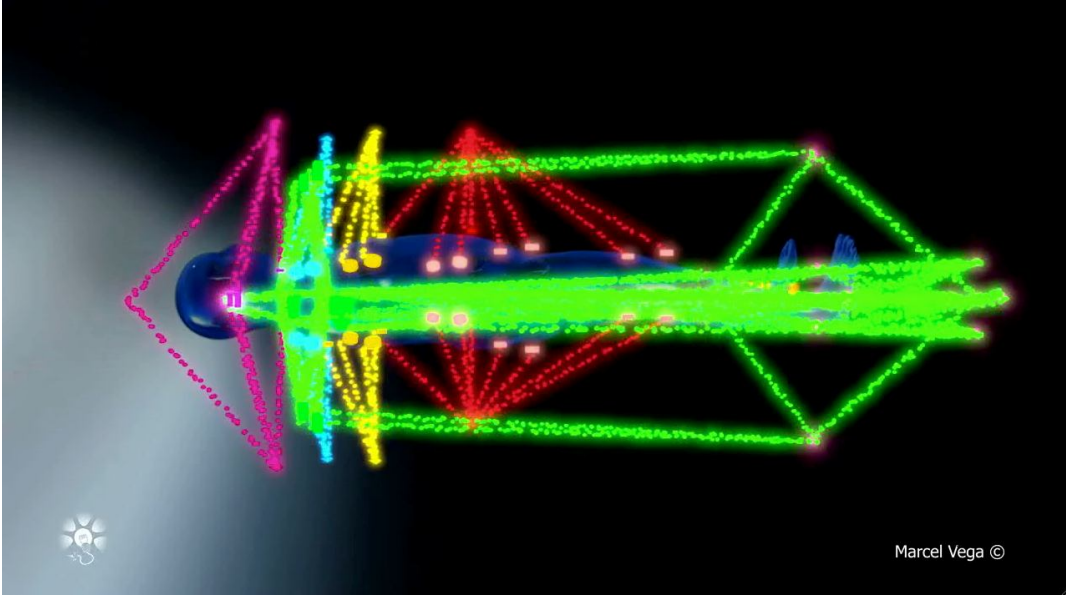
www.marcelvega.com

Designs of the two aspects of the Quantum Body:



Marcel Vega®

Paramorfogramme



Quantum Body

Chapter 8

From the *Anoetic* Experience to the *Autonoetic* Conscience

Noemi Paymal
Anthropologist

Evolution is the infinite movement when there is the incessant transformation of the Universe and all its components, from the eternal origins and along the infinity of time.

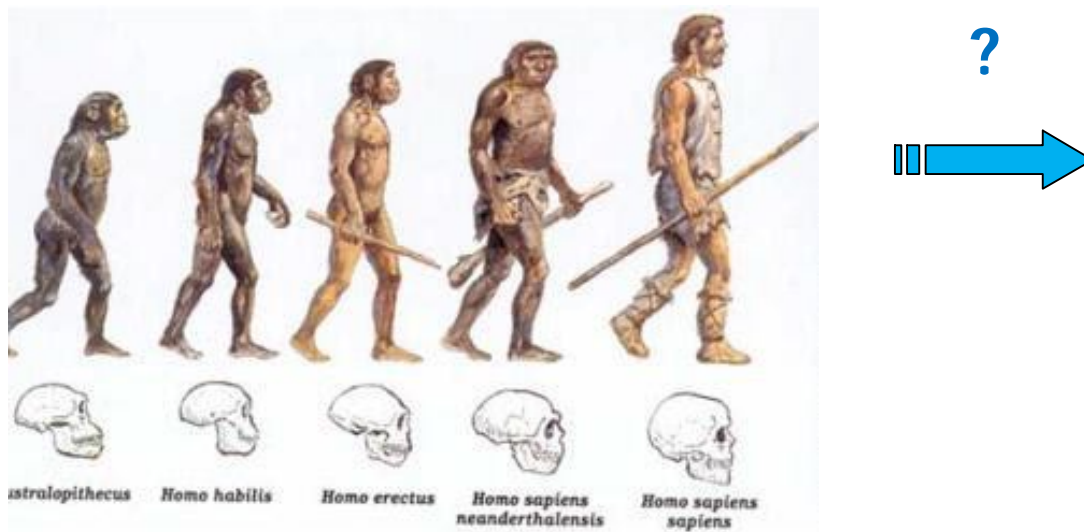
Elisée Reclus

The following article presents the changes in the human being of today, seen through the prism of anthropology, neurology and the general evolution of humanity. It wants to explore the changes in children of today; and as a consequence, this implies the education we need to give them. It is a wonderful field to explore which deserves, from my point of view, the utmost attention of the scientific community. I would like to invite those who undertake thorough investigations to explain the great changes humanity is going through, making a projection into tomorrow and what it would entail in for a future society.

In continuation we will present the following:

1. Evolution and *noos*
2. Neurology and present day education
3. The multi-centered brain (CIAAR)
4. Secular evolution
5. Recommendations for present and future education

1. Evolution and *noos*



History of mankind (1) goes back more than 7 million years, a date that corresponds to the dating of the remains of the Toumaï man in Africa (2). We still miss important information on how exactly this happened and what the next step and finality is.

Here is a brief overview of our evolution

Toumaï	7'000.000 years
Australopithecus	4'000.000 a 2'000.000 years (Africa)
<i>Homo habilis</i>	1'900.000 a 1'600.000 years (Africa)
<i>Homo erectus</i>	1'000.000 a 300.000 years (Asia)
<i>Homo neanderthalensis</i>	230.000 a 48.000 years (Europe and East Asia)
Cro-Magnon, <i>Homo sapiens</i> del Paleolítico superior	40 000 y 10 000 years (Europe)
<i>Homo sapiens</i>	100.000 / 45.000 years to present (all over the planet)
<i>Homo ...</i>	?

How is this evolution going to continue over the next millennia?

From the *Anoetic* experience to the *Auto-noetic* conscience

The leitmotiv of this article is based on the essay of Marie Vandekerckhove, Luis Carlos Bulnes and Jaak Panksepp "*From anoetic affective experience to noetic Knowledge and auto-noetic awareness*" (3).

According to the mentioned authors:

- The *anoetic* experience represents the first level, basically motor and metabolism, in charge of basic emotions, homeostasis and handling of the five senses.

- The *noetic* conscience is based on the limbic brain and part of the cerebral cortex. It corresponds to the Emotional, Affective and Cognitive Intelligence.
- The *autonoetic* conscience is linked to, among other, to the activity of the frontal lobe and on a more elevated level of conscience.

They explain: "The following steps of *Encefalization* of the brain are directed to a form of higher level of conscience of *knowing*, based on the semantic memory and episodal systems, which is encapsulated in the concept of *autoetic* conscience of Endel Tulving, which gives access to the processes of higher construction of meaning, reflected best in the Arts, literature and other cultural processes which continue to be fairly unknown on neural level" (4).

Secular tendency Circuit

Nogués, Ramón María. *Cerebro y Trascendencia*. 2013

<p>Reptilian brain And limbic system SURVIVAL Survival circuit</p> <ul style="list-style-type: none"> • Make decisions to survive • Aliments • Territory • Reproduction <p>It is efficient and spend little y energy</p>	<p>Limbic system And neo-cortex TRASCENDENCE</p> <ul style="list-style-type: none"> • Newer circuit <p>Less efficient and spend more energy</p> <p><i>Note: But nowadays, it seems that the children use this circuit more efficiently spending less energy compared to adult.</i></p>
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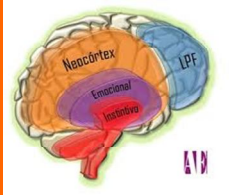


Illustration: Frame of the circuits; Survival versus Transcendence

The human being has a brain and a mind with some capacities that go far beyond the stereotypes of survival. In his book "Brain and transcendence", by Ramón María Nogués(5), professor emeritus in Biological Anthropology of the *Universidad Autónoma* de Barcelona, Doctor in Biology and Piarist Priest, denotes with the term "transcendence" this type of activities that are not aimed at survival; the search for beauty, interest in ethics or the development of symbolic actions. Transcendence is not only religious according to the author, but it is pervasive in all of human life and runs through esthetics, religion, nationalism, amorous passion, words and symbols.

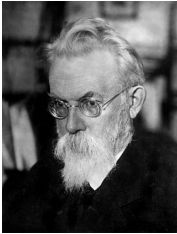
According to Ramón María Nogués, we can observe two cerebral circuits:

1. The combination of the Reptilian and limbic brain, in charge of taking decisions for survival, feeding, territory and reproduction. It is an efficient combination and uses little energy.

2. The combination of the limbic and neo-cortex brain, in charge of more transcendental areas. They are relatively new circuits which are less efficient and use more energy.

However it seems that the children of today, generally, this system is more efficient and uses less energy than before, which would explain the gap between adults and children.

Noosphere



Vladimir Ivanovich Vernadsky (1863-1945) elaborated the theory of the *noosphere*, intelligence or superior mind and the *sphere*, which is the group of intelligent beings. The theory of the *Noosphere* was later picked up by the philosopher, paleontologist, Jesuit monk Pierre Teilhard de Chardin (1881-1955). Teilhard de Chardin explains the *noosphere* as a virtual space where Psyche is born (noogenesis), a place where all the phenomena (pathological and normal) of thought and intelligence take place.

Noeticus, the amplified mind

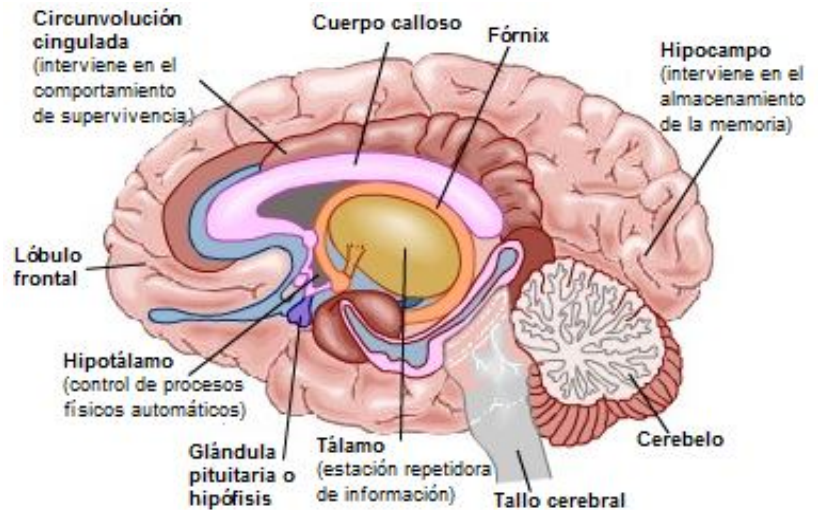
The word *noeticus* comes from the Greek verb *noew* (infinitive, *noein*; the noun is *noos* or *nous*), which means "to view discerning", where the verb "to think" derives from. Among Greek philosophers it was common to use this verb with a meaning close to "intuit", in the sense of "to see intelligibly" or "to see with thought".

Noetic science explores the inner world of the mind (conscience, soul and spirit) and how it relates to the physical universe. *Noetic* is the branch of philosophy that studies the thought, especially, the objective and the understandable. It is usually used in relation to Aristotle, whose *noetica* was his doctrine, the doctrine of intelligence.

There is a deeper translation of *noos*, which is "internal knowledge", "intuitive conscience with direct access", "Pure intelligence coming from the One", "Superior Mind" which would correspond to the round of conscience which was present in those times. From there the name *Homo noeticus* (6), for the present and future of the human evolutionary state.

2. Neurology and present day education

Nowadays (2015) we see a tendency in the children of today to present a natural development of said characteristics (see chapter 3, physiological, psycho-emotional and neurological changes in children of today) In effect, health and educational professionals and report (in over 50% of children born after 2010) an innate tendency generalized as:



- Having a good lateral brain, using very easily their right hemisphere. Many kindergarten teachers or primary school teachers indicate a propensity to ambidextrousness. Some pediatricians report more plasticity in the thalamus, hypothalamus and callous body.
- Using a good part of the Multiple Intelligence easily and simultaneously
- Entering in Hemi-Sync© (synchronization of the two brain halves) and being in *alfa* waves naturally.
- Activating and using their fourth brain naturally.
- Using lateral thinking with ease

In continuation we will glance over each of these characteristics.

2.1 Cerebral Laterality

Children and youths of the third millennium generally present the faculty to manage both hemispheres of their brains in a balanced, harmonic, natural and conflict-free way, above all if their education has started well. That is to say that they naturally manage the characteristics described in the right hand column of the following table.

Left Brain Half

1. Rational, Cartesian, logical connections and its effects.
2. Analytical and calculating

Right Brain Half

1. Associative and holistic ways of learning. The seat of creativity, imagination, artistic and music related.
2. Feelings, affection, intuition, sixth sense.
3. Non-verbal, images, body expression, tact,

- | | |
|---|--|
| | energetic. |
| 3. Verbal: words, speeches, grammar. | 4. Holistic, lateral thinking. |
| 4. Linear, sequential. | |
| 5. Only one thing at a time, step by step. | 5. Multi-tasking, ease of doing more than one thing at a time |
| | 6. Recognizes authority only if this is consensual. |
| 6. Order. La authority and security. | |
| 7. Particular as opposed to general. | 7. General as opposed to particular. |
| 8. Moderate speed of thought, which, generally, does not lead up to immediate action. | 8. Fast, <i>flash</i> , thinking which leads, in general to, immediate action. |

It is recommended that Education systematically introduces exercises that strengthen the right brain half from an early age on, above all between the ages between 0 and 3 years of age as explained by Dr. Shichida (7) as well as with exercises that develop the Emotional Intelligence (see suggestions at the end of the article).

2.2 Multiple Intelligences

In continuation we will present a summary of the various Multiple Intelligences, knowing that the tendency of the children of today is to use all of these almost simultaneously:

1. Linguistic or Verbal-linguistic Intelligence
2. Visual-space Intelligence
3. Corporal Kinesthetic Intelligence
4. Musical Intelligence
5. Inter-personal Intelligence
6. Inter Personal Intelligence
7. Naturist Intelligence
8. Transcendent or Spiritual Intelligence

To which the following are to be added (Paymal, 2008:134ss) (8)

9. Energetic or intuitive Intelligence
10. Emotional Intelligence
11. Practical Intelligence
12. Co-creating Intelligence

And also:

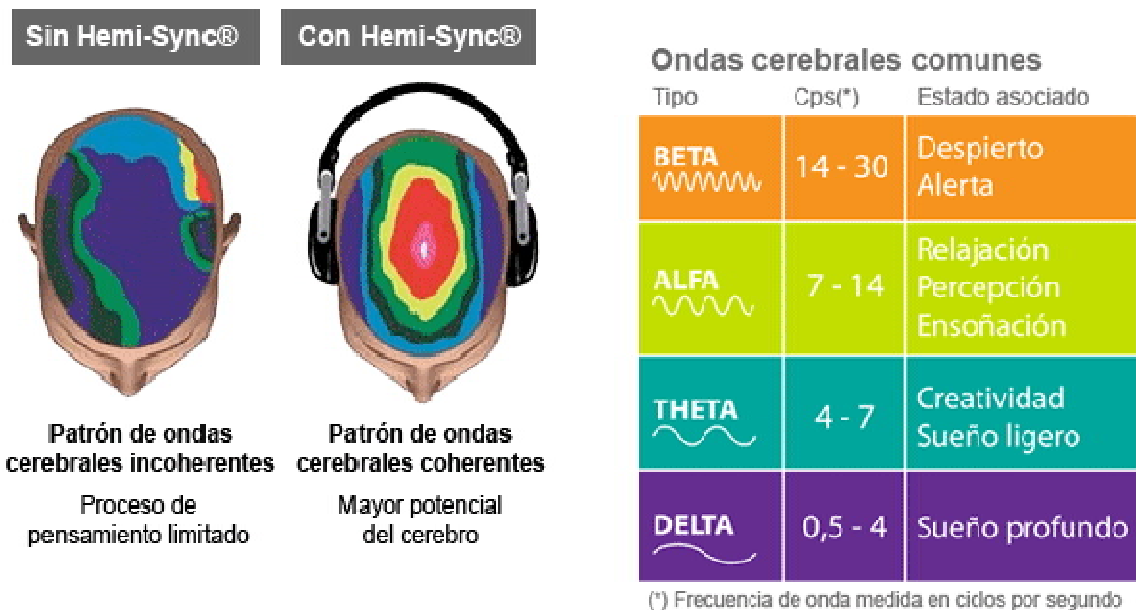
13. Digital Intelligence
14. Lateral Intelligence

15. Tactical Intelligence
16. Associative Intelligence
17. Healing Intelligence
18. Love Intelligence
19. Humor Intelligence
20. Financial Intelligence
21. Intelligence of Emergency
22. Play Intelligence
23. Pedagogical Intelligence

It is recommended that Education introduces systematical exercises that strengthen the use of the Multiple Intelligences (See the book of Pedagogooogia 3000, 2008:134-143 and 193-195) (8), as well as for capturing information, its processing, as its devolution. See suggestions at the end of the article.

2.3 Hemi-Sync® and the Alfa waves

The Hemi- Sync® theory (synchronizing of the two brain halves) of Dr. Robert Monroe, affirms that the harmonic synchronization of the left and right brain halves can allow the activation of the pituitary body and the pineal gland, among other glands... "In such a way that the subject enters in a kind of altered state of conscience (ASC, *Altered States of Consciousness*), in which certain skills are naturally activated".



Pedagogical methods such as those of Dr. Shichida (7) and of Dr. Glenn Doman (9) show that children (especially small children) will easily enter a state of synchronization of the brain halves (Hemi-Sync®) and in Alfa waves, which opens up almost infinite educational possibilities.

2.4 The fourth brain or activation of the frontal lobe

The concept of the fourth brain was introduced by Michelle Fourtune (French pedagogical investigator) (10) and Dr. Castañón de Bolivia (10bis), as well as groups of neurological investigators in the United States, among others.

The frontal lobe is one of the four lobes of the cerebral cortex and is made up of a big area which is located in the frontal part of the brain, right behind the forehead. It is responsible for complex cognitive complexes, the so-called executive functions. The researchers Jesús C. Guillén writes that “ the frontal lobes allow the functions of mental operations directed towards an end that allows conduct control, that is to say, it facilitates our ability to choose, plan and make conscious and voluntary decisions”.

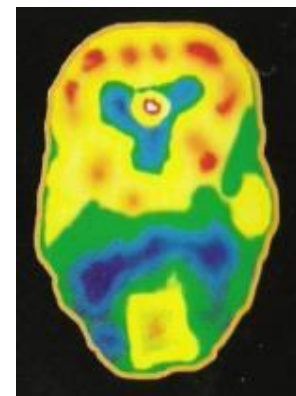


Representation of the four brain lobes: frontal (red), temporal (blue), parietal (Green) and occipital (yellow).

According to Elkhonon Goldberg (11), the frontal lobe is that which directs the brain as a conductor directs an orchestra; it coordinates and directs the other neural structures of the brain in a coordinated action. The memory of work, language, movement or self-consciousness depends on the frontal lobe, just as originality and creativity. It plays an important role in the executive functions through the integration of information, allowing choosing objectives and the organization of the plans of actions to realize them. This fourth brain is strongly centered in the integration of rationality as emotionality, achieving the emergence of idealist and altruistic activities.

The main characteristics of the fourth brain are:

- Foments self-awareness
- Increments originality and creativity
- Provides executive functions through the integration of information, election of objectives with a holistic vision.
- Prepare a future holistic and efficient action
- It adapts better, it is not blocked at the moment of action.
- It is altruistic and appreciates higher values of difference, it wants to help and share.
- It is linked to the limbic brain (empathy)



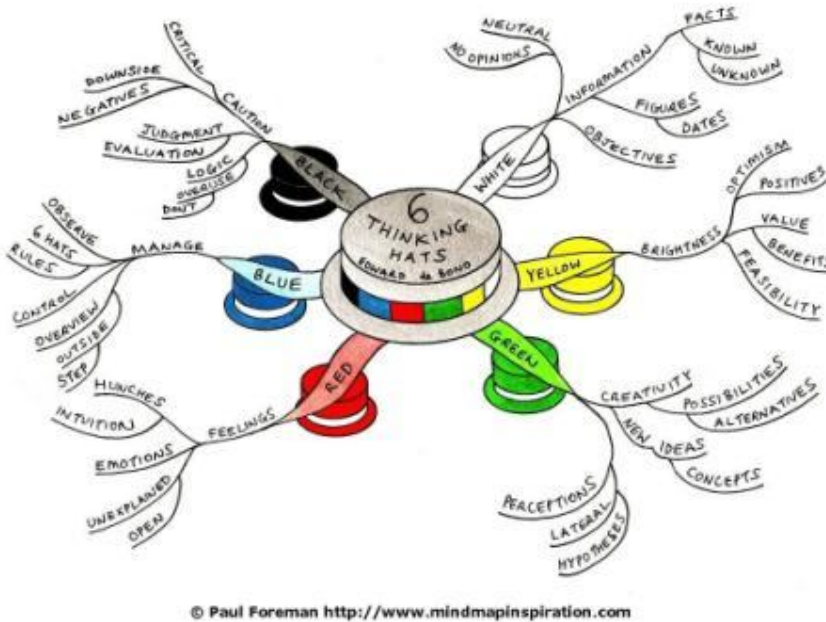
The fourth brain corresponds to the darker spots (red in the color photo) at the front of the brain, that is to say to the activation of the frontal lobes.

It can transcend emotions and “lineal” concepts to reach integrating “holistic” rationality.

Dr. Castañón, Bolivia explains. “The activity of the frontal lobe characterizes excellently the intelligence faculty of man. When you elaborate your best projects give your word to an important decision, you are activating this exceptional faculty at a high level” (10).

A tendency is seen that children and youths easily use their fourth brain (if their education does not impede or represses them emotionally).

2.4 Lateral thinking



An amplified faculty of lateral thought is often seen in the children of today. Suggested by Edward De Bono (12) in the 1970's, lateral thinking has the following characteristics:

- Easily understands the various facets of a problem
- Looks for alternative ways (see the solution as a, b, c, d, f, ... n, z)
- knows how to establish strategies

According to the professors and psychologists of our exploratory study (Bolivia, Chile and México, 2006 to 2013), said characteristics are common in children and youths of today and require a “multi-level” and “multi-faceted” education (see suggestions at the end of the article).

3. The Multi-centered Brain (CIAAR)

CIAAR: Integrated, Amplified, Activated and Rooted Brain

This multi-centered brain – term coined by Dr. Greisy Rodríguez, Venezuelan medic, pediatrician, educator and investigator (2012) – opens enormous possibilities for science, anthropology and educational sciences. It explores the possibility of a fantastic leap for development of human conscience that involves us, our children, our society and our Planet in a self-re-recognizing of high conscience and altruism.

We will now see what the following consist of:

- The Integrated brain
- The Integrated Amplified brain
- The Integrated, Amplified Activated brain
- The Integrated, Amplified, Activated and Rooted brain
- The hypothesis of the holographic brain of Karl Pribram
- The theories of hyper communication and hyper conductor DNA.

3.1 The Integrated Brain complex

The Integrated Brain is the conjunction of the left and right brain halves, communications and harmony, in synchronization, augmenting thus considerably the speed of processing. It includes a good functioning of the callous body. It connects the left brain half with the right half, it activates the right brain half, accompanied by a superior activation of the thalamus, hypothalamus, pineal gland, pituitary gland, frontal lobe, and there is also a higher development of the limbic brain and of Emotional Intelligence.



Illustration: The integrated brain, connection of the two halves and activation of the brain in general

Speed of processing of the right and left brain halves

According to the researchers Rob Williams and Emilio Carrillo (13), our left hemisphere has a processing speed of between 40 and 2000 bytes per second. The right hemisphere has a much higher speed, approximately between 1 and 4 million bytes per second- When the two hemispheres are equally activated and function in harmony, they reach speeds of 40 million bytes per second.

Proceso de los hemisferios cerebrales

Bits por segundos

Hemisferio izquierdo	Hemisferio derecho
2000 bits / seg.	1 a 10 millones de bits / seg.
40 millones de bits por seg.	

Fuente: Rob Williams, Emilio Carrillo

PEDAGOGIA 3000

Source: Rob Williams and Emilio Carrillo

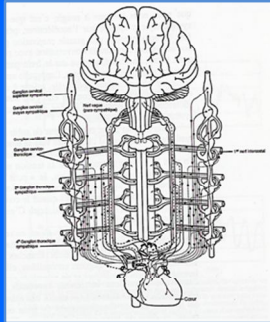
These data indicate that the present day human being under uses their cerebral potential and that through an adequate education we could recover what belongs to us.

3.2 The complex of the Integrated Amplified Brain

The Amplified Integrated Brain is the sum of Brain and Heart. That is to say that it is about connecting the Integrated Brain with the Heart, or to ensure that it is called the mind/heart connection. Some teachers and wise men of the indigenous people call it *the road to the heart*, a condition sine qua non for our awakening and to reach the *autoetnic* conscience.

The Brain/Heart connection was described by the French psychiatrist David Servan Schreiber (14). The heart and the brain are connected by the limbic and para-limbic system and are closely connected in their functioning. Dr. Servan Schreiber calls the state of Chaos and the state of Coherence and showed its intimate connection by means of computers.

Cerebro integrado ampliado

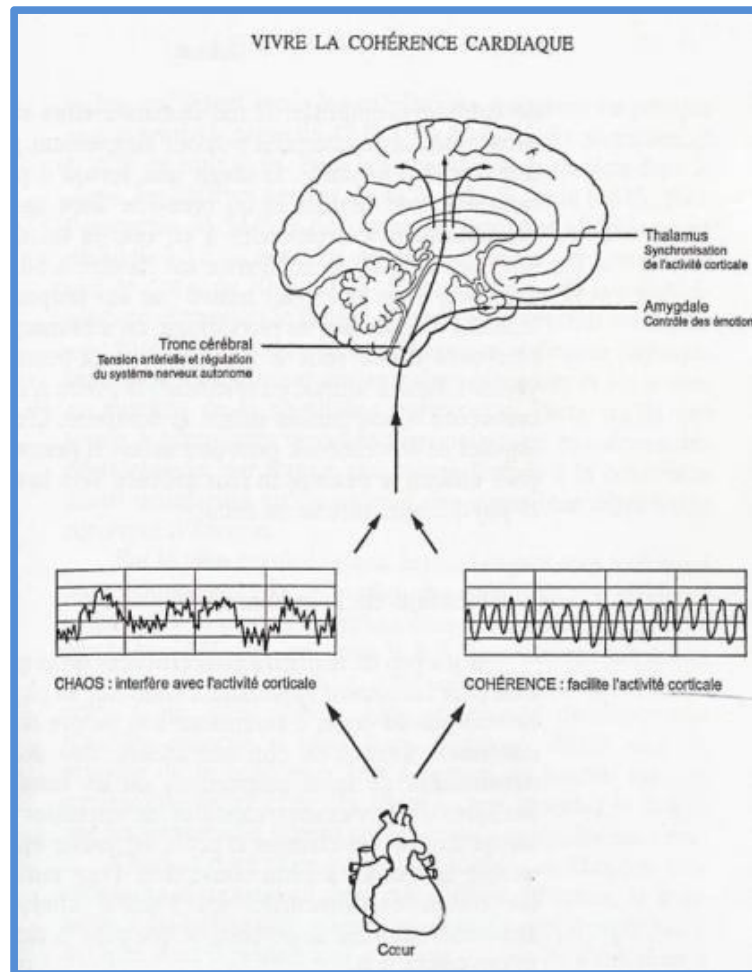


Connection between the brain and the heart through the sympathetic and para-sympathetic system
(Courtesy of Dr. Servan Schreiber)

Now people speak of the little heart of the brain. In fact the embryo brain develops before the brain. So who gives orders to whom? Furthermore the heart possesses a much bigger electromagnetic field than the brain, as we will see later on.

Illustration of the Cardiac Coherence

(Courtesy of Dr. Servan Schreiber)



Cardiac coherence according to Dr. Servan Schreiber and Rollin McCraty of HeartMath (15) is demonstrated by computers: if the heart is agitated, the brain cannot function correctly. This is the State of Chaos in the previous illustration.

If the heart is calm and respiration is tranquil, there is more activity in the neo-cortex; this state is the State of Coherence of the previous illustration.

It has also been demonstrated that emotions do not only influence the brain but that they are codified and can augment or diminish the electromagnetic field of human beings and positively or negatively influence their environment.

3.3 The Integrated Amplified Activated Brain

The Integrated Amplified Activated Brain consists in activating the electromagnetic field of the whole complex when it is harmonized.

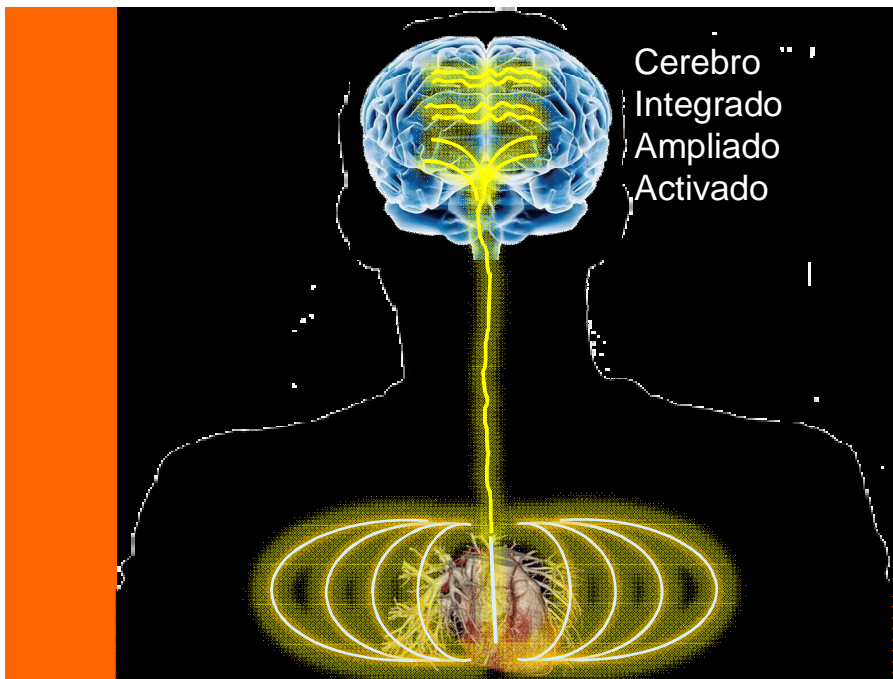


Illustration of the Integrated Amplified Brain (Courtesy of Dr. Greisy Rodríguez)

In its turn the Integrated Amplified Activated Brain allows for empathy on a higher level, it is in tune with Schumann's Earth Frequency and communicates with the other living human beings. It re-establishes the faculty of hyper communication (Intuitive Intelligence and Transcendental Intelligence).

According to Dr. Rodríguez from Venezuela: "The epiphysis (pineal), the hypophysis (pituitary), the thyroids and the thymus (in children) are the glands with the most electromagnetic receptivity." They work like

“wave receptors”, they receive measurable frequencies and transmit it as information to the brain, which transforms them into electrical impulses which sets off a specific bio-chemical reaction with the consequent release of neurotransmitters and hormones. This release depends on the state of mind (stress less state), emotional stability and to some measure alimentation” (2012:cp).

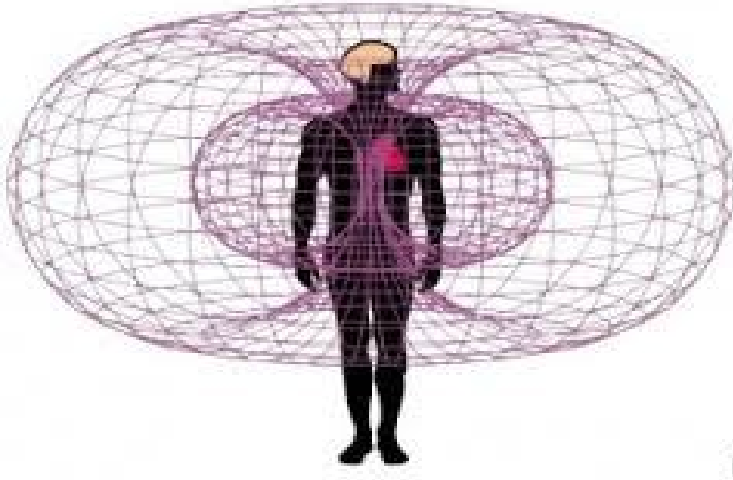


Illustration of the electromagnetic field of the Integrated Amplified Activated Brain (16).

This electromagnetic field could be a lot larger in some people who are “awake” and in some children. (It can reach a diameter of 50 meters or more).

More about the electro-magnetic component of the human being

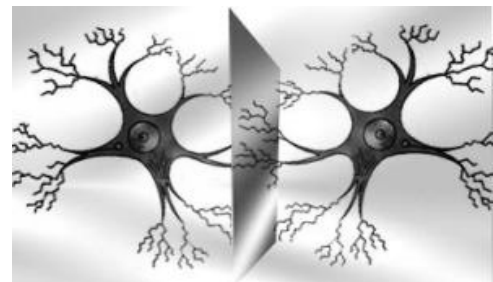
According to Gregg Braden and Rollin McCraty (17):

- The electrical component of the heart is **60 times** bigger in amplitude than the electrical component of the brain, and penetrates every cell of the body.
- The magnetic component of the body is about **5000 times** stronger than the magnetic field of the brain and can be detected at several feet of distance from the body with sensitive magneto meters.

Proportion	Brain	Heart
Electrical Component	1	60 to 100 times more
Magnetic Component	1	5000 times more

Comparison of the electromagnetic field of the brain and the heart

Furthermore, one needs to consider the possible role that the mirror neurons, which allow a rapid propagation of the activation and transmission of the integrated amplified brain. The constant activation of cerebral neurons called “mirror neurons” contributes to the great empathy some children of today display; these neurons of the cerebral cortex allow “feeling” actions, thoughts and feelings of others.



The Italian scientist Giacomo Rizzalotti sheds new light on the cognitive-social neuroscience explaining: “We are social creatures. Our survival depends on understanding actions, intentions and emotions of others. Mirror neurons allow us to understand the mind of others, not only through a conceptual reasoning but through direct simulation. *Feeling*, not thinking”.

If we relate these affirmations of G. Rizzalotti with the higher activity of the right brain half, of the emotional brain, from the frontal lobe or the thymus of the children and youths of today, we can explain, with foundations, their higher level of empathy and social-ecological sensibility, says Dr. Rodríguez.

According to said investigator, this integration would explain:

- The simultaneous Multiple Intelligence in children and youths
- Their higher sensorial perception
- Their imagination and creativity
- Their artistic abilities
- Their facility for learning different languages.
- Their flexibility and amplitude in bodily movement
- Their high level of empathy. (Rodríguez, 2012: Article on the Internet).

For this reason it is important to take care at educational level to take care of the emotional environment and their nutrition, so that they do not lose their electromagnetic sensibility that provides among others a higher level of intuition, empathy, sensibility, creativity, perception of meta-languages, direct capitulation of mega-data, as well as innate capacities for conflict resolution (an even more prevention of same), as well as innate social and ecological skills.

And so education allows that the human being recovers its potential and dormant faculties.

3.4 Integrated, Amplified, Activated and Rooted Brain

It means that, for the electromagnetic activation to happen harmoniously, it is necessary to have a good “anchoring” to the ground (in other words it is about the correct and stable activation of the root chakra) accompanied by stable and healthy emotions. Rooting exercises such as sports, contact with earth (gardening, ceramics...), building adobe house, rhythmical dancing and taking care of their alimentation are recommended. Drinking much clean water also helps.

3.5 The holographic brain of Karl Pribram

Lalshley discovered that “while the intensity of the memory was in proportion with the brain mass, no type of extirpation in any zone of the brain could interrupt the memory completely”. This leads to the postulation that “the intensity of the memory depends on the total mass of the brain, but memory is

registered omnipresent throughout the brain". Karl Pribram perfected the theory in the 1970's, comparing it to holography (18).

When a hologram is made, the information of the object is stored in all places of the plate. When the hologram is fragmented, the smaller parts would still contain a perspective of the whole. The only way to eliminate the image completely is to get rid of the entire hologram.

Pribram notes that:

"Holographic memories" show:

- A great capacity of parallel processing
- A directing of content towards fast recognition
- an associative storage in the perceptive complex
- an associative storing in the perceptive complex
- and the associative memory

The holographic hypothesis therefore serves not only as a guide for the neuro-psychological experience but also as a possible tool for the understanding of the mechanisms implied in behavioral problems derived from the study of the memory and perception". And, as Ferguson noted, "the theory of Pribram has received growing support and has not been seriously challenged". (Information compiled by Dr. Félix E. F. Larocca, psychologist from the Dominican Republic)

In summary, Pribram notes that "holographic memory shows a great capacity, processing parallel, guiding the content towards a fast recognition, associative storage for perceptive complex and associative memory.

3.6 The theories of hyper communication and hyper conductor DNA

Only 10% of our DNA is used for building proteins. It is this conjunction of DNA which results of interest for Western researches and is being examined and categorized. The remaining 90% is considered "*trash DNA*". However, Russian investigators are convinced that "nature isn't stupid", and linguists and geneticists unite in an adventure to explore this 90% "*trash DNA*".

According to the Russian molecular biologist Pjotr Garjajev (Peter Gariaiev) (19) and his colleagues: "Our DNA is not only responsible for the construction of our body, but also as communication and data storage that reacts to words and sounds. Russian linguists found that the genetic code, above all in the apparently useless 90%, follows the same rules as all our human languages".

The fundamental idea in summary was that: "the living chromosomes act like soliton-holographic computers using endogenous laser radiation of the DNA". (Soliton waves: waves that can store information during a long time and that are able to propagate without deforming, including without physical support).

They say that: "Chromosomal DNA has attributes of waves that take us to an unknown dimension. DNA works like an antenna for "hyper communication", where the information is passed inter-dimensionally.

More and more children are born with these incredible abilities and it becomes clearer and clearer that this has to do with the change in DNA”.

4. Secular evolution

What will the development of the cerebral capacity of the human being be like in the future?

	<i>Homo sapiens</i>		<i>TransitionHomo</i>	<i>ConsciousandautoeticHomo</i> Fase I	Fase II	Fase III
IQ	Presentaverage 8%	Advancedorgenius 12%	between 10 and 20% ?	59%?	80%?	100%?
EQ	6%	15%	20 to 30?	69%?	90%?	100%?

Table: Hypothesis of the development of the cerebral capacity of the human being and its evolution

IQ: Intelligence Coefficient

EQ: Emotional Coefficient

How will the rising of the Intelligence Coefficient take place?

How will the frontal lobe evolve? What will its implication be on a social level, educational level, Arts?

Can the human being reach to 100 % of its capacity?

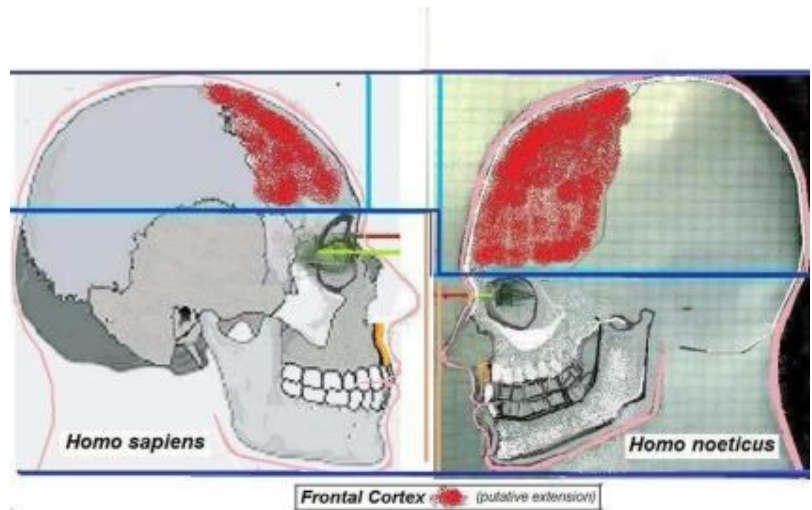


Illustration of the hypothetical evolution of the frontal lobe (20)

5. Recommendations for present day and future education

Practical suggestions for the development of the right brain half

So that these innate gifts of the right brain half are not lost it is recommendable to provide your children and students the following.

- A basic teaching based on Visual-space and Kinesthetic education, more than Linguistic-verbal Intelligence (Note that present day education does the exact opposite).

- Incentivize any activity linked to creativity, self-investigation, imagination, arts, dance and music.
- Allow them to do more than one activity at a time.
- An education based on stable and loving accompaniment, not in rigid and arbitrary limits (*Do it because!*)
- Exercises that develop flash thinking; that is to say, extremely fast (e.g. the methods of Shichida, Glen Domman, Noe Esperón, etc.).
- Exercises that develop intuition. This does not mean “let them do whatever they want”, but accompanying them loving, giving them more responsibilities and trust in themselves (more or less the opposite to the way in which we were educated during our infancy and youth, which we also need to “heal), and at the same time showing a genuine interest in what they do, think and say.

Suggestions for the development of the fourth brain

- According to neurological studies in the United States (21), the frontal lobe is developed by laughter, good humor and positivism.
- Provide an education based on projects, expositions and concrete and altruistic actions and projects inserted in a “real context”.
- Incentivize extreme sports and actions that imply “taking risks” to learn not to fear and to be able to manage any situation with calm and ability.
- The 4th brain is activated also with service and altruist actions. It is recommended all activity that border empathy (to others, to all forms of life, to Nature and the Planet in general).

General Recommendations

- Provide an affective and respectful environment to children, where emotional expression is recognized, listened to and honored.
- Give them a balanced diet, but without forcing them to eat.
- Give them a lot of water of good quality. These children tend to consume great quantities of water in relation to their age.

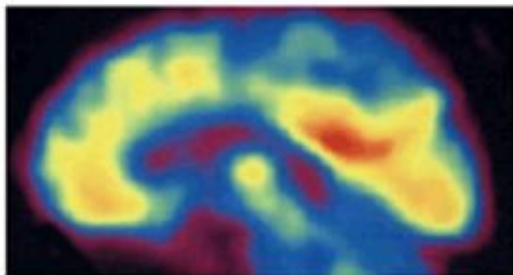
Pedagogical recommendations

- Provide them with non-boring, creative tasks and allow them actions and being protagonist. This development of the frontal lobe frees up dopamine. Doing something new and *motivating* frees this serotonin.
- Promote all Arts because this development of the right half of the brain and provides creativity, lateral thinking, resolution of problems and multifaceted vision of things.
- Favor physical activities and movement. This frees up endorphins and therefore wellbeing and efficiently combats hyper activity and Attention Deficit.
- Favor ecological activities and rooting exercises. This gives them stability, healing and *centering*.

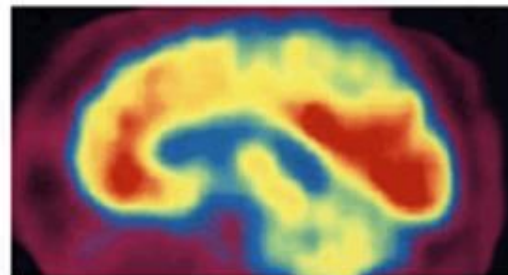
- Allow the student to teach themselves and be the protagonist in their education. The ideal would be that students “give” themselves to classes, do expositions, practical tasks and applied workshops (useful ones, this generates self-esteem and personal satisfaction).
- Homework should be based in Multiple Intelligence, in case this type of task is needed. Homework should be agreeable, fun, based on investigation and exposition (otherwise they are counterproductive and should be abolished).

And the Golden Rule: Let them have fun! Children as well as parents and children!
Remember; “If it isn’t fun, it is not sustainable”

Various experiments have shown that the frontal lobe is more activated when the task is new, highly motivational and fun as shown in the following illustration.



(a) Activación discreta del cerebro en un tarea con escasa motivación



(b) Fuerte activación del cerebro con la misma tarea y elevada motivación



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Scan of the activation of the brain (a) with a task with a low level of motivation (b) the same task with higher motivation (22)

In case (b), activity with a high motivation, it is observed that not only the area of the brain that is related to the task is activated is much more (spot on the right), but also the frontal lobes are clearly activated (spot on the left), as well as the brain as a whole augments its activity.

Conclusion. It’s urgent!

Whatever the medical and anthropological supports are, we do know that it is urgent and imperative to give our children and grandchildren a more ample education which is more integral, more humane, more interesting, contextualized, articulated, useful and loving that:

- It prepares them (and us) really to co-construct the future and to take care of the Planet.
- And it allows happy, full and *autonoetic* conscious beings to flourish

- If we follow the theory "From the *Anoetic* experience to the *Autonoetic* conscience", bit by bit, children of today and tomorrow "transit" naturally, for the same laws of Evolution, towards a more amplified *Autonoetic* conscience? With more facilities than their progenitors?

If a new pattern of *homo* is being installed, with a more ample, flexible and empathic intelligence; we see a gradual but deep transformation in our society, science, politics, arts and care of the Planet, that positively affects all the areas of human development. Many sociologists and anthropologists not only mention said changes, but they affirm that they are accelerating. I personally believe deeply that our society needs them and it's time for them to happen. I thank all the leaders in all those changes and the children of today and of the future...

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Biography



Noemi Paymal. Anthropologist of French nationality, currently residing in Bolivia, Noemi Paymal is a researcher, communicator, writer and gives conferences and promoter of Pedagoogia 3000 and emAne, the worldwide link for a new education.

She has worked in more than 44 different countries in Latin America and the world in the field of applied anthropology and alternative education. She is the author and co-author of several books on applied anthropology and education. She is the President of the Association 3000 in Bolivia, Vice-president of the Foundation /Cooperation emAne International in Chile and Vice-president of the Association Wiñay Qhana Wawa in Bolivia.

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