Tafter Journal
Esperienze e strumenti per cultura e territorio

A Babel for Children

Introduction

Reflect on theme of arts and culture's determinants on the person's development means first to put a natural premise that inheres the art and science dialectic.
The debate between the two cultures, disclosed in meetings in Vienna more than a century ago after the clean cut posed by Descartes, attempted a common language centered around the unconscious processes and engaged interlocutors of scientific medicine, psychology, psychoanalysis and history of art. It has been enriched in the 30's by the first insights of cognitive psychology and the Gestalt on visual perception.
For nearly two decades, cognitive psychology, closely related to biology, and the research on the neuroscience field focus the viewer and his perceptual, emotional and empathic answers to art.

The symbol, which the semiotician Eco describes how devoid emotional values, becomes a corollary of the current speech aesthetic experience. Art is not only informative and representative, but it is actively expressive. It doesn't just produce utterances: art moves us.
Today we see more clearly emotional-relational dynamic that develops between the perceiver and the perceived, and we can describe it through the neuronal , biological, developmental and social processes activated by" aesthetic encounter "(Zaidel, 2013, 2013).
If Clive Bell gives in different sources such as visual art, music and even mathematics, account to the experience of beauty – " I wonder, sometimes, whether the appreciators of art and of mathematical solutions are not even more closely allied"(Zeki, 2013) – it will be perhaps easier to understand the need to fill the gap between art and objective sciences that to describe its phenomenology use mathematical models, and agree that no single approach is sufficient to fully understand the dynamics of human experience.
The multidisciplinary states so not only as a critique to dichotomy between the two cultures, but especially as a "third culture", that advocated by Snow (1963) and then by Brockman (1995), which proves to be certain more sensitive to the complexity, oriented towards reciprocal relationships between the different disciplines and the plurality of explaining codes, attempting to find new paths.

It is new epistemology that springs escaping the error of Descartes and that could be called "participatory": based on the consilience of the knowledge, it tries to open a discussion between different areas of knowledge, making itself the interpreter of the meeting with the otherness, what art "moves".
"I represent the vast enclosure of science as a large tract of land full of dark or illuminated spots. The purpose of our efforts must be to extend the boundaries of illuminated places, or to multiply the centers of light on the ground. The first task is precisely to the creative genius, the other to acumen that perfects." Denis Diderot

Growing Rich or Poor

The evolution of the individual is a dynamic inseparable concept from interaction subject-environment. And if the continuous exchange of information and adaptation is crucial kernel from which developmental scholars explain the development of the person in all aspects of knowledge and action on the world, we

wonder, then, what environment and what interaction are more effective and meaningful and if art, in its many forms, can play the role of an ideal partner in this dialogue.

It seems that recent scientific evidences give a great account and sum reason to criticism moved by Dewey to the estrangement of art from real everyday life. If for the philosopher educator aesthetic experience becomes crucial trial of our social life and if the individual draws in it the reasons for expansion and enrichment of the self and the environment, today the neuroscience not only confirms It but it offers us a greater view of awareness and useful ideas of reflection and, why not, of action too.

By neuroaesthetics and psychoneuroimmunology originate more relevant contributions to our discussion. Where the first looks to find the neural basis for the use and the creation of art works, the second deals with the broader relationship organism-environment and tries to explain how psychological, biological, cultural, social and ecological systems interact simultaneously influencing the development of the person.

The first environment determines the trajectories of development and tracks the premises from which each individual will build their own mode to “reach out to the world”, how he will learn to respond and adjust the experience that comes from the outside. Challenging statement, but we try to explain in detail the meaning.

The first experiences, which already begin when we are in the womb, shape the individual great biological systems of relationship and physiological regulation , and first among them the stress system [1] , which leaves footprints that will tend to persist even in the later stages of life (Bilbo S. D., Schwarz J. M., 2009; Caporali et al, 2014). Stressful situations experienced by the mother affect the trajectories of development of specific brain structures and the axis of stress, which will be programmed to that effect (Champagne F. A., Meaney M. J.,2006).

This programming will give to the individual his biological specificity, which will translate in its individual reactivity to environmental stimuli and thus it will affect its behavior. Not only that, also it will mediate the transmission of these effects through the generations. The cause is not genetic, but epigenetic: the first environment determines stable modifications in the expression of genes (Meaney M. J., 2010).

But it is still the environment to act as a major factor in the modulation of these effects in sensitive periods to the experience. Several lines of research have been developed in relation to an enriched environment of stimuli. Using this phrase means an environment that encourages social interaction, offering useful and appropriate cognitive and emotional, sensory and motor stimulus. An enriched environment is therefore an environment enhanced of motivations and incentives.

Experimental studies show that environmental enrichment in the prenatal life exercises beneficial effects on behavioral (improves motor, cognitive and emotional performance and reduces reactivity to stress)(Bakos et al, 2004; Li et al, 2007; Mychasiuk et al, 2012; Welberg et al, 2006), morphological (enhances overall brain plasticity) (Baroncelli et al, 2010; Berardi et al, 2015) and molecular parameters (changes in expression gene and in the modulation of neurotrophic factors and neurotransmitter systems)(Angelucci et al, 2009; Arai et al, 2011; Branchi et al, 2006, 2011;). The children who received adequate maternal care by mothers “enriched” during pregnancy shows significantly lower stress levels in later life compared to children who received maternal care by mothers in standard conditions, and the development of nervous functions is accelerated. Moreover the enrichment in the gestation period reverses the effects of maternal stress and positively influences the attitude of care towards children and so it will model the trajectories of development (Champagne F. A., Meaney M. J.,2007).

Exposure of pregnant women to an enriched environment thus prepares the fetus to effective interaction with the environment, and it improves his skills and adaptive behavior.
Visit a museum, enjoy works in an art gallery, listen to a concert, attend the screening of a film or a theater, and even stroll between architectural beauties of a historic center, could be part of a program of enriched environment? Scientific evidence comfort us in responding positively (Avila et al, 2014; Cameron et al, 2013; Davis et al, 2014; Swindells et al, 2013; Wall et al, 2009).

When we see for example a painting which strikes us for its beauty, we are engaged in not only cognitive but also emotive processing. The art object moves because it evokes resonances of sensor-motor and affective nature in whoever relates with it. Through the activation of the mirror neuron system and feed-forward network and biological modulators of emotion and empathy, it becomes a pole of inter-subjective relationship, then social. So after a first stage which could be called activation, characterized by the excitement of experiencing the work of art, a second phase replace characterized by feelings and emotions that we call aesthetic pleasure (Leder H, Nadal M. 2014).

The emotional information that comes from the encounter with art work becomes part of that network of biological communication, neuro-endocrine and immune, which affects the whole person. The whole body “thinks”, “feels” and “tries emotions”. The aesthetic response, the result of this network, acquires a performative and innovative value because it allows and facilitates a favorable connection between the individual and the environment.
And if experiencing art and beauty is the environmental premise to our look out on life, we can say more and say that it will act as a sort of positive “imprinting” in how we will build our subjective and individual mode of “reach out to the world”.

Becoming Intentional Subjects of Culture

So, which possible path for the newborn baby? He is already equipped with his personal baggage, not only genetic but also shaped by what he has “shared” with his mother prenatally. What experienced by the mother has a strong impact on the individual’s ability to regulate his own experience, mainly oriented to seek involvement with the environment that surrounds him, to negotiate enthusiasms and fears and to learn things of world through a process of shared awareness.

But if the path was modulated by maternal stress in the direction of a stress system hyperactivation, the child will show an increased emotional reactivity, he will be less exploratory about the surrounding environment and overall he will have a more fearful way of contact with things and people (Champagne F. A., Meaney M. J., 2006, 2007). He will be predisposed, as a result of an excessive activity of amygdale (Debiec J., Sullivan R. M., 2014), to live any experience with an attitude of increased alertness and bashful openness towards world. He, specially attentive to the signals coming from the body, will look around not fully enjoying the beauty around him and will hardly hold back, in a significant way for his growth, the details of the experience.

Current lectures about neuroesthetics lead us to a useful reflection about this topic.

Many authors, in different disciplines, discussed about the dichotomous nature of artistic representation and its role in exercising a strong aesthetic impact. And it is something that is explored with interest under the light of recent empirical data (Pepperell, 2015).

Of an artistic object we perceive a degree of dissonance resulting from three different awareness: the first concerns the discrepancy between the material of which it is composed and what it represents; the second refers to the discrepancy between the way things are represented and how we might expect to observe them in reality; the third, finally, concerns the different and conflicting meanings that can be attributed contextually to the work. All of these different levels of awareness converge in our aesthetic response, conditioning it. The greater the degree of perception of this dissonance, the stronger the experience. It's the state of arousal caused by that perception to contribute to the aesthetic impact and what is subjectively experienced as positive or identified with an appreciation of beauty it depends on the resolution of such a state.
It would seem that having experienced art for long is a basic requirement. Experts in fact can tolerate images or objects that appear difficult, stressful and confounding, therefore they can experience low levels of arousal and yet live a strong cognitive and emotional involvement with the artwork (Leder et al, 2014).

The ability to appreciate aspects of the discrepancy in the artistic object is gradually acquired in early childhood and it is stable at two years old if the child has been early and long exposed to such stimuli and overall to an enriched environment (Preissler, M. A., and Bloom, P 2007).
Such discrepancy obviously belongs not only to properly artistic objects but to all elements present in reality: things, gestures, facial expressions and behaviors of other people.

The child "enriched" in womb from mother's experiences will be open to understand and recognize the dichotomous nature of artworks as well as of all that surrounds him. Imprinting received predisposes him to explore the world and to enter into communication with the objects present in it, both physical and social. It's within this primary dialogue with the environment that we can identify the birth of the culture in the individual, meaning the ability to produce intentional acts aimed to the use and exchange of knowledge about the world. As the child acquires the ability to take part in a cooperative control of the environment, he continues indefinitely its psychological growth and its cultural development.

Museum Turns in Nursery: Italian Experiences

The research for new interactions between art and science aspects of perception and emotion continues to illuminate both fields and enriches our discussion on the development of the person. From this model arise new dialogic interactions that exert cumulative effects on the enlargement of light centers.
It's the case of the cultural business which are inserted in dialogue as sensitive partners and translate the dialogue itself in innovative projects.

Following the idea of Antonio Martino, gynecologist and collector, and of Miriam Mirolla, art psychologist, the project "Giving birth with Art or the art of giving birth" has shaped. A cycle of six informative meetings interdisciplinary were created at the MAXXI in Rome in autumn 2014 to talk about the beauty of birth. Intended for the female gender, pregnant women, new mothers in childbirth and lactation, partners, couples and anyone who wanted to explore themes of the origin, the meetings have explored the creative act of life through synergistic dialogue between art and science. The project had then subsequent editions at the GALLERIE D'ITALIA in Milan and the MADRE of Naples.

At the NATIONAL PICTURE-GALLERY of Bologna instead in recent years an interactive workshop has been launched aimed to future mothers, "Encountering in Art". It 's a route on listening to works of art pertaining on Nativity theme, which through empathic resonance evoked by the work puts the woman in contact with multiple and conflicting emotional states experienced at this particular moment.

Promoted by FOUNDATION MEDICINE AT MEASURE OF WOMAN and by PALAZZO MADAMA in Turin, in collaboration with the hospital ST. ANNE, it is a project “Born with culture”. Acknowledging fully the latest discoveries of neuroscience on the effective combination of culture and health, a program of museum reception was created for children 0-3 years old and to accompanying in parental role. The Cultural Passport delivered to every new born baby in St. Anne came of its close links with the cultural heritage and recognition in the earliest stages of life, of his right to art and culture enshrined in the UN Convention on the Rights of the Child. The project joined several cities and health institutions and museums (Siena, Lecce, Brescia with the FONDAZIONE BRESCIA MUSEI, Rivoli with the CASTELLO DI RIVOLI Museum of Contemporary Art, Naples MADRE Museum of Contemporary Art Donnaregina and the Hospital of SUN).

What art moves in the child, so the action of such initiatives in the culture. Creativity, planning and innovation drive, similar to the biological, a cultural epigenesis, finally overcoming the biological reductionism which we would likely turn to explain the evolutionary dialogue subject environment. Our natural character and our cultural character manifest themselves in a similar manner, and the second is not reduced to the first. It is, as stated by Chaugeaux (2013), “destination: nature and culture, life and history cooperate together to give to the man the place which corresponds to him and which changes over the time”.

Endnotes

[1]: Stress is a phenomenon that is part of the broader relationship between body and the surrounding environment. As such it should not be understood in the negative with which generally we refer to, nor can be synonymous with disease. But it indicates a particular mode of interaction that stresses in the individual certain physiological and behavioral responses, the result of a network of communication between the nervous, endocrine and immune systems.

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