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# Knowledge, Learning and Transdisciplinary Communication in the Evolution of the Contemporary World

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## ABSTRACT

In this paper we would like to explore the concept of transdisciplinarity in relation to the changes that have taken place in science, philosophy and the arts in the twentieth century which have influenced the individual and social behaviour of the whole of humanity.

The living environments of the planet have been transformed, the multiple dynamics within the whole biosphere and biosphere and its ecosystems, stimulating their transformation through accelerated transitional phases.

Today, many ecosystems and many of their transitional dynamics are in crisis, and the entire ecosystem-biosphere is in biosphere, while the evolutionary prerogatives of the living world itself are being replaced by the artificial world of the most advanced digital technologies.

This impending crisis can be contained and mitigated in order to return to the living world the prerogatives that are its own and that allow it to continue and sustain the processes of evolutionary transition, escaping the power of the now dominant artificial world.

In this sense, all the practices of transdisciplinary learning and communication, chorally experienced through knowledge and social participation in the transformations of anthropized environments and natural environments, constitute a stimulating reference for re-founding on concrete grounds a contemporary Ecology of the Ternary Systems Human/Society/Environment and for highlighting the problems that arise in facing the epochal crisis of our living world. All of this can be concretely evidenced by many different experiences already underway or possible in contemporary reality from which emerge both extraordinary evolutionary potentials and serious contradictions and difficulties, as we can summarise through the examples we present.

Let us now begin the complex unfolding of the themes announced here in theatrical order and manner.

**Keywords**: Philosophy of Knowledge, Philosophy of Information, Adequate Knowledge, Mutual Friendly Learning, Ecosystemic Dynamics, Game, Play, Artificial Intelligence .

## 1. THE PROLOGUE

Changes in the living environments of the contemporary world affect both Natural Ecosystems and the Ternary Human/Society/Environmental Ecosystems.

All of them, as disordered and complex systems, are constantly evolving in our biosphere from its origins to the present. Nature and humanity have created an inextricable web of resonances, relationships, but also dissonances, crises and catastrophes. The transformations and evolutionary dynamics of the living world are articulated in this web, maintaining ever-changing dynamic equilibria.

Even in the midst of these extreme contrasts, Humanity and Nature have continuously and dynamically achieved new levels of complexity, always shaping different Environments of Life, operating everywhere on the Planet in both still natural environments and in human environments, creating or modifying the original environmental conditions of the Ecosystem-Planet.

In addition to these cyclical and incessant dynamics, common to all complex-disordered Systems, human and natural Ecosystems have developed increasingly complex modes of Learning, Experience, Mutual Exchange and Knowledge that have led them to co-evolve and transform to the present day.

Despite the crises known to date, these Systems have retained within them the prerogatives and dynamic potentialities that allow Life to unfold freely and autonomously in the extraordinary interweaving of Nature, Culture, Experience and Information from which Knowledge is born and renewed, enabling Living Systems to resist threats and avoid destruction.

This kind of Knowledge is reminiscent of the concept of Adequate Knowledge that Baruch Spinoza elaborated in the

17th century and which we now recognize as common to all living systems.

Today, the crises that have affected all the planet's ecosystems from time to time are now turning into a real and definitive Crisis of the entire Biosphere.

And this is happening because these crises

- HIT the heart of Living Beings' own dynamics, replacing them with invasive technological and informational mechanics
- SUPPRESS their capacity for self-production of Knowledge and self-control of their own becoming
- and finally
- SUBJECT the spontaneous Knowledge produced within ecosystems to the increasingly extreme – Digital Technological Powers.

At the present time there is a threat of a General Ecosystemic Crisis and with it a more General Crisis of Knowledge which could trigger a Global Crisis, such a crisis that neither Nature nor Humanity could face without risking extinction.

The extreme crisis can be avoided by stimulating living systems to create new balances and unexpected evolutionary conditions in contemporary realities, interacting with the artificial world according to the dynamics of nature and life

But in order to realize and practice such reactions, it is necessary to dig into the origins of this degeneration to escape the dominance of the Digital World, to become part of the evolutionary processes and dynamics of Life again.

In this way we could create new Ecosystemic Interactions, and re-establish appropriate Communications between Nature/Culture/Information/Experience, and Digital Technological World to redirect contemporary Reality towards more complex evolutionary dynamics.

But in order to realize and practice such interactions, it is necessary to dig into the origins of this degeneration and escape the dominance of the Digital World and become part of the evolutionary processes and dynamics of Life again.

In this way we could stimulate new ecosystemic dynamics and re-establish proper communication between Nature/Culture/Information/Experience and the Digital Technological World to relate to contemporary Reality according to more complex evolutionary dynamics as a new kind of 'Adequate Knowledge'.

And now...the Curtain opens.

## 2. FIRST ACT

***Scene 1*** **Western world - 20th century**

Around the middle of the 20th century between Philosophy of Nature and Philosophy of Science, the Philosophy of Knowledge and Philosophy of Information were structured

- Within a decade the following come to light
- The Theory of Games and Economic Behavior (1944)
- The Society for General Systems Research (L. von Bertalanffy, et al., 1944, preludes the General Systems Theory, which would reach its inter-disciplinary fruition in the following years (L. von Bertalanffy, 1960s-68s)
- Artificial Intelligence (A. Turing 1956)
- Second-Order Cybernetics (attracting and incorporating technical-scientific and mathematical-computational disciplines

At the same time

- Philosophy of Knowledge were being structured on new approaches to the complexity of our world from different fields of research
- -Acknowledgement of complexity in Physics as real object of study (opening the door to the Disordered Systems Research -Rome, 1950, 2021)
- Recognition of Evolutionary Interactions as 'producers' of Learning/Knowledge in every living system, stimulating the extension of Ecology of Nature towards the Ecology of Mind (1950- 1970,Bateson, Deleuze)
- -Recognizing the Play (L. Carrol, 1865, G. Bateson, 1956, the dynamic and unpredictable without predetermined rules, without winners and losers – as the opposite to Game (Zero-Sum, winner//loser)


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New Horizons are opened for the Philosophy of Knowledge (G. Deleuze, between 1950-1995) with the recognition acknowledgement of the Human Ecology as complex and inclusive approach to the post- war reality, as practicable as the Man and Biosphere Project (MAB UNESCO, '60s), successfully developed as "ecology of mind" by G. Bateson, from the '30s to the '80s.

The two philosophies -which embrace the complexity of living reality in relation to the sciences and arts that approach and describe it through their respective languages- relate to technologies in very different ways, and gradually divide their paths. We can thus see that Philosophy of Information and

Philosophy of Knowledge have been structured and distinguished into two strands:

- in the first, the Philosophy of Information has developed frenetically and successfully along with Information Technologies and Artificial Intelligence, adopting their modes and languages;

- in the second, the Philosophy of Knowledge, has considered the dynamics of living systems as intrinsic to the Ecology of Knowledge, and the Relations between Mind and Nature, by developing criteria and approaches appropriate to their becoming. (Deleuze, F. Guattari, 1970s-90s; G. Bateson, 1970s-80s).

***Scene 2*** **- The world between the 20th and the 21st century..**

We are now in the digital age. The mechanisms of artificial intelligence seem to lead humanity into illusions of omnipotence and digital equality. The flows and cycles of nature could be imprisoned in the rigid networks of cybernetic models and their tendencies described in a manner subordinate to their languages.

Second-order cybernetics has been successfully developed to include Nature in its domain, "simulating ecological processes, predicting ecosystem dynamics, and informing natural ecosystem management and conservation strategies through its mathematical and computational methods" (anonymous expert, 2014)

## 3. INTERMEZZO

Throughout the ages, humanity has transformed Natural Ecosystems into Ternary structures in which Individuals, Human Societies and Nature interact, creating new Ecosystems in which nature/culture and technologies are always deeply intertwined, generating - at the same time - new Crises and new levels of Knowledge/Experience that continuously and equally permeate People, Nature and Living Communities as parts of such Ternary Ecosystems.

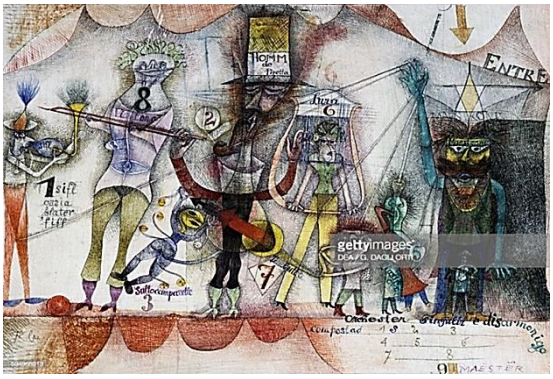


***Fig.1 P.Klee opens the curtain on this unexpected, dissonant Orchestra***

In coherence with these conditions, flows and cycles of trans-communication have been necessarily established among all participants in relation to specific life contexts, leading to increasingly complex and intertwined social/communitarian lev

To ge part of contemporary ternary and natural ecosystems, giving rise to unprecedented living environments that are at once natural, technological, cultural and digital.

In them, the digital component of information acts on the others with rhythms and modes that are alien to the dynamics of living systems.

It is now necessary to interrupt this perverse mechanism in order to prevent the destruction of the entire Biosphere Ecosystem.
To address this crisis it is crucial to reopen the flows of communication -Natural, Scientific, Artistic and Philosophical - between People, Societies/Life Environments by recombining them in a variety of Community Learning configuration.

As musical scores for a complex Orchestra in which listening and learning from each other involve Professionals and Audiences alike, in a creative and attractive PLAY of self-reflection and shared learning that is appreciated by all involved.

## 4. SECOND ACT

***Scene 1***

The Transdisciplinary Communication and Community Learning Processes - thus produced - permeate the Living Environment, Human Societies and Scientific Communities equally, respecting the differences and characteristics of each participant within a complex formation of Adequate Knowledge of the whole Ecosystem, which can only be realised through Transdisciplinary Communication and Community Learning.

**Fig.2 Paul Klee.** ***Main and Secondary pathways***

All this because these processes belong equally to the Living Environment, Human Societies and Scientific Communities, respecting the differences and characteristics of each participant involved**.**

***Scene 2*** **A new situation**:

In this situation the Philosophy of Knowledge becomes the fundamental reference for accompanying and supporting complex and disordered systems in coherence with the course of their autonomous evolutionary processes. This removes them from the domain of the digital world, linked to the tools of information technology,

which however remain fundamental for describing and interpreting the sequence of their transformations and the tendency of the corresponding transitional phases.

***and***

-Within the Ternary Systems related to contemporary living environments, the "two Philosophies" (Information and Knowledge) could interact positively.

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New and more advanced learning/knowledge dynamics based on the interrelationships between scientific and social communities and the "next generation living environments" could thus develop, opening up horizons for transdisciplinary research-action in a renewed Community PLAY.

***Scene 3*** **New dynamics and flows**

In this way, Natural/Artificial/Digital Living Environments could reach unexpected cyclical transitions - stationary equilibria - new

configurations and form novel and increasingly complex Ecological Structures, from the micro to the largest dimension of Ecosystems, and new Horizons could open up on the heterogeneous realities of the contemporary world.


**Fig.3**

***Pictorial representation of the dynamics of flow in the process of a European Social Landscaping Action Landscaping process RURALMED, 2006***
(by R.Micarelli)

Here we can discover, recognize and empower a wide range of Structures of self-organization and tenacious resistance to alien domination.

**In the industrialized world** we find a variety of natural/artificial/digital living environments of transdisciplinary ecological research -Actions, such as

- Natural oases, surrounded by artificial Habitats
- Metropolitan living environments in which micro-ecosystems of the highest generation can be reconstruct
- Social oases of cultural self-management and neighbourhood micro-economies
- Small marginalized towns at risk of depopulation or tourist over-exploitation
- Agro-urban structures of solidarity production
- Large areas of social and environmental degradation
- Structured digital social networks as stimulating environments for learning groups and action research between different communities and between real groups.
- -Research Community Action Research, between real living environments, virtual digital environments and groups of participants (inhabitants, visitors, researchers, economic operators, producers, etc.

*and*

- **In inhabited Natural Living Environments** we encounter small communities rooted in their original living environment, self-managed as eco-communities. Sometimes these communities come into contact with external research groups and computerised Information Technology Equipment, directly experiencing the new generation of Living Environments without submitting to them.

In these Environments new and more advanced Knowledge and community learning dynamics, based on transdisciplinary relations between Scientific and Social Communities and next-generation living environments, could be concretely developed as new Ternary Eco-Systems, becoming stimulating factors for regaining new evolutionary autonomies and as monitoring tools to counteract dominant external forces.

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It is in these natural and cultural human entities, which we believed to be extinct, isolated and suffocated by the reality of the Technological World, and excluded from ecological relations and exchanges with similar realities, that we could root our renewed ecological and community solidarity, through the inspirations of the Giants who have developed the Philosophy of Knowledge and Nature from the last century to contemporary reality.

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It is on their collective powers and creative capacities that we can stake our ecological future.

We would like to thank all those who have contributed their scientific competence, skills, experience and enthusiastic participation in various processes of action research, friendly mutual learning/working between people, their living environments, in the labyrinths of evolutionary paths of our contemporary becoming.

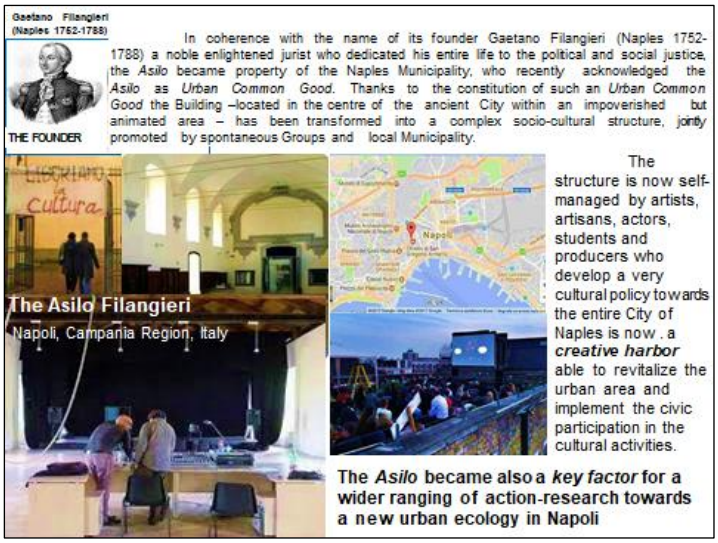


***Fig. 4 Asilo Filangieri - Napoli***


**Fig.5** ***Florentine Metropolitan Area Collective Garden.***

Figures 4 and 5 *present two realities in which the Research Actions that led to the formation of Eco-Systems Man/Society/Living, Cultural and Citizen Environment in Naples, Rural Urban and Welcoming in the Florence-Prato Plain Metropolitan Area were developed.*
*The two experiences evolved over the last decade and today can testify to the successes, difficulties and their potential for dissemination , towards models of collective use of the respective Living Environments recognized as contemporary Common Goods*


**Fig. 6** *Here are the Giants who nurtured the humus on which the Relationships and Research-Actions that led to the formation of Man/Society/Living Environment Ternary Eco-Systems in some significant realities of the contemporary world are developed*
*Cleveland (U.SA.) where the voids of the large decommissioned industrial settlement-unemployment, abandonment of production, settlements, and production, residential and service areas.*
*In Cleveland several Social Groups and non-profit associations have created a new city, and new ways to experiencing -food production, housing, work opportunities and Community life,*
*Kibera Slums-Nairobi where for many years activities have been developing to recognise and self-promote the Slums have been developed for many years, recreating modes of survival, social life, work. And communication, transforming parts of the Slums into uncodifiable urban contexts of great vitality*
*New Orleans, where after the catastrophe of Hurricane Katrina, the Jazz City responded by using music as a propulsion for a collective rebirth of the affected Community.*

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