

# Educating for the Future in the Age of Obsolescence

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## Abstract

We are dealing with a new hypertechnological era, a phase of radical global mutation that forces us to *reformulate our thoughts* on categories, codes, languages, instruments, identity, subjectivity, cultural norms and models, (open) communities, relational and communicative areas, environment and ecosystems. Our extraordinary scientific discoveries and technological innovations not only open dizzily onto as yet unimaginable horizons and scenarios, but show, ever more clearly, the urgency of radically rethinking education, teaching and training, underlining the substantial inadequacy of our schools and universities in dealing with this hypercomplexity, in dealing with the indeterminateness and ambivalence of the ongoing metamorphosis, in dealing with the radical interdependence and interconnection of all processes and dynamics; in dealing with the global extension of all political, social and cultural processes. In the Hyperconnected Society, *rethinking education* is not linked only to technological innovation and to its disruptive velocity; it is not simply a matter of extending or adjusting the traditional educational methods and processes to deal with the digital revolution and with the *paradigm shift* it has determined. It is not simply a matter of updating contents. The idea that education and educational processes are questions of a purely technical and/or technological nature, solely a problem of skills and know-how and nothing more, is the “great mistake” we are making. It is necessary to *rethink education radically* because the extraordinary scientific discoveries and the dynamics of the new technologies have completely overturned the complex interaction between biological and cultural evolution, doing away with the *borders* between the natural and the artificial, leading us not towards simplification, but in quite the opposite direction.

**Keywords** - *paradigm shift; complexity & hypercomplexity; rethinking education; tyranny of concreteness; false dichotomies; hybrid figures.*

## I. THE TYRANNY OF CONCRETENESS

In the field of social research, many academicians, like the writer of this article, give lectures from time to time in classes organized for managers, executives, public administrators, institutional figures, scholastic directors and teachers. Taking into account the subtle differences and peculiarities for each case, one cannot help remarking that all of these professional figures appear to have one thing in common. Along with their curiosity for new potentials, trends and updates, nearly all of them seem to be obsessed with “concreteness”, for the “how to do its”, limiting their interest exclusively to “the solutions”. There are also, of course, exceptions to this phenomenon, but exceptions they nevertheless remain; in general, the requests are for “concreteness” and “facts”, as though continually repeating these demands could in some way prove reassuring. Yet at a certain point, it begins to dawn on them – on us -- that there is a strategic value to analysis

and praxis, whatever the field: to thought, to thinking, to theory and theories, to a different way of looking at reality. To a different approach to the issues, and in general, to the unpredictability of social and human relations, to the complex and systemic relationship between people. Even so, we seem not to have grasped the concept that if we continue to carry on as we always have, using the same procedures, laboring under the illusion of achieving total predictability and control, it will never be possible to bring about any kind of change, and coping with risk, uncertainty and vulnerability will become ever more difficult. What, then, has become of the famous paradigm shift, of the new ecosystem, of open systems and online entrepreneurship, of sustainability, of the digital revolution?

The Oxford English Dictionary defines the word “concrete” in the following manner:

Existing in a material or physical form; not abstract.

- Specific; definite.

*‘concrete objects like stones’ - ‘I haven't got any concrete proof’*

- (of a noun) denoting a material object as opposed to an abstract quality, state, or action.

*‘I've always liked to work with concrete material because dance is very ephemeral’.*

Along with the ubiquitous pressure to be concrete, there is, unsurprisingly, a corresponding devaluation today regarding “theory”. The very idea of “theory” seems to make many of us uneasy, because it appears to represent something useless, a waste of time (and money). One has but to follow the contemporary maze of reassuring slogans, mainstream labels, platitudes and clichés, to understand that theory is perceived as something that appeals only to those who have nothing better to do, nothing practical or useful -- or even worse, for those without “know-how”, meaning with no “solutions” in their pocket. Not to mention the term “theoretical”, which has almost become an insult, a term which is used to discredit scholars, citizens, people who are deemed incapable of coming up with rapid solutions to every problem.

But what exactly do we mean by theory? Once again, we can consult the Oxford English Dictionary, which provides this definition:

A supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.

*'Darwin's theory of evolution'*

- A set of principles on which the practice of an activity is based.

*'a theory of education' - mass noun 'music theory'*

- An idea used to account for a situation or justify a course of action.

*'my theory would be that the place has been seriously mismanaged'*

- *Mathematics*: a collection of propositions to illustrate the principles of a subject.

Essentially, hence, "theory" is that complex (and non-linear) dimension that makes it possible to formulate a symbolic and conceptual representation of the evidence and emerging data. As the author of *The Quark and the Jaguar*, M. Gell-Man, puts it, we can consider the interconnected phenomena of our world separately, but it will make all the difference if we can see them together generally. Many facts will then become something more than single details. By seeing the patterns and structures, we can make more sense of the data and learn them more easily, and it will be possible to describe them synthetically, to create a scheme for remembering them, in other words, a theory.

And yet, as said above, theory is scarcely considered in today's society, not quite cast aside, but judged as futile, misleading, dispersive, in an age where the hegemonic narratives and opinions are convinced that the data can tell us everything, that reality itself is made up of data, which are the "facts of life", *real* reality, in other words, a measurable reality, made up of empirical, quantitative, statistical big data, such self-evident evidence that no observation, recognition or causal nexus is needed, no correlation between levels of connection. A kind of reality, it is to be feared, that is not capable of distinguishing between complicated and complex systems (Dominici P., 1995-2019). Similar to the demand for concreteness, the phrases which are heard most often are "no more theories, give us the facts", with an insatiable request for hyper-specialized figures, super-trained technicians and experts, gurus and managers, capable of action (or rather, of execution); as though praxis, know-how and performance were not always based and oriented conceptually and theoretically.

Admittedly, the above-mentioned rationales are not difficult to comprehend: data, facts and concreteness are of course of great importance: no one today, not even artists or "intellectuals", can afford not to be "concrete". Moreover, it has become more and more obvious that there is no genre of social, organizational or systemic praxis or action, there is no sector of production -- even the most creative, there is no area of our existence itself, of our (so-called) life-worlds, no field of knowledge, from education to work to training, that is not managed, controlled or oriented through an

exclusive, almost compulsive search for concreteness and usefulness.

It comes as no surprise, therefore, that the most typical request made in professional courses in every field regards the need to be exclusively "concrete" and to perform or take interest only in what is so considered. Precisely in this intricate phase of civilization, however, with its *irreversible paradigm shift* and its *anthropological transformation* (Dominici, 1996), this obsession has become extremely limiting: it is especially counter-productive in the fields of teaching, training and research, where it permeates our educational system, the system whose purpose is to shape and educate future generations.

## II.COMING OF AGE IN THE AGE OF OBSOLESCENCE (IN PRAISE OF REBELLION)

Speaking of future generations, according to the World Economic Forum, 65% of the children currently in elementary school will have jobs in the future which not only do not yet exist, but which we cannot even imagine, considering how fast work is changing in our world today. In these days, in which skill and knowledge become obsolete in the blink of an eye, what can young people train for?

The deepest and most significant reflection to make on this question is that young people should first and foremost seek, discover and live out their desires. Educators, students, managers and experts alike need to find the courage to go beyond that deceptive idea/vision that pushes us to always look for something useful in what we do, even regarding our personal growth and intellectual maturation. These passions, in fact, must be discovered, stimulated, awakened, encouraged and brought out through a (complex) educational pathway that should begin during the first years of school, a pathway capable of holding together reason and imagination, thoughts and emotions, which are too often removed from the educational and formative itineraries.

The neuroscientist Lamberto Maffei, in his recent book *Elegy of Rebellion*, elucidates why critical thinking must be taught from the early years of childhood on: "The first years of life are characterized by a long and critical period of great brain plasticity, a period in which this organ is extremely sensitive to experiences and makes changes based on these, learning from the environment. Subsequently, a slow stabilization of neural circuits and a progressive decrease of the number of synaptic contacts ensue. The more stabilized circuits tend to repeat the same functions, meaning that the brain...responds with similar behavior to certain exogenous or endogenous stimuli. Routines are generated in this manner and the brain increasingly begins to resemble a machine, whose functions, including behavior, have become 'partially mechanized' and thus predictable" (Maffei L., 2016, pp.32-33). What this implies, arguably, is that by impoverishing the variety of our thoughts by

preventing exploration, experimentation and error in early years, we are physically – plastically – reducing the (future) capacities of our children’s brains to undertake new itineraries, to discover alternative trajectories, to explore new dimensions of thought and imagination.

We need to stake our bets on those formative pathways designed for an increasingly interdependent and multidisciplinary outlook, which will enable us to leave behind the age-old logics of separation and false dichotomies (Dominici P., 1996-2019), including the well-known concept of the “two cultures” (humanities and the sciences). What we consider today to be the limits of the fields of knowledge, to be the borders between knowledge and skills, between rationality and creativity, can and must become openings, passageways, pathways, opportunities. Because it is the complexity of the ongoing changes, its ambivalence, velocity and unpredictability – a complexity that is increasingly marked by the co-existence of order and chaos – to have shown us, in no uncertain terms, the inadequacy of the current educational and formative processes, as well as the inconsistency of reductionist explanations and of traditional linear interpretative models. These are profound criticalities and anomalies which, alongside with our (ontological) incompleteness, have accelerated the obsolescence of knowledge and skills even more sharply.

### III. BEYOND FALSE DICHOTOMIES: INNOVATING MEANS DESTABILIZING

Today, the social and cultural future (which, as we have always said, is the “true” innovation), belongs to those who will succeed in healing the fracture between the human and the technological, to those who will succeed in redefining and rethinking the complex relationships between the natural and the artificial, to those who will manage to bring knowledge and skills together (not to separate them), to those who will, furthermore, know how to unite and merge the two cultures (scientific and humanistic), both in terms of education and formative training and in defining profiles and professional competences. In this sense, the urgency that can be felt is to leave behind what I have called the “false dichotomies”: theory vs. practice/research; knowledge vs. competences; hard skills vs. soft skills, art vs. science, thought vs. action, creativity vs. rationality, specialization vs. interdisciplinarity, scientific fields vs. the humanities; and so on. The ‘traditional’ borders between studies in the scientific fields and in the humanities have, in fact, been completely done away with, owing to the extraordinary scientific discoveries and the continual accelerations brought about by technological innovation, which renders even more unavoidable the urgency of an education that teaches complexity and critical thinking (logic).

However, a deep-rooted resistance to such a radical change of perspective (models, procedures, routines and instruments) hails above all from the very “sites”

where knowledge is produced and processed, and is linked to motivations of various kinds: dominating logics, feudal social models, cultural issues, the primacy of politics in every dimension, amoral familism, organizational culture, climates of opinion, and so forth. Essentially because, in every field of individual and collective practice, innovation means questioning consolidated fields of knowledge and methods, upsetting individual and collective imagination, unbalancing equilibriums, *breaking the chains of tradition (ibidem)*, abandoning certainty to move towards uncertainty, with considerably greater risks (opportunities), real and perceived. In other words, rendering systems and their spaces for communication and relationships more vulnerable, at least temporarily. The definition I have always used is the following: “Innovating means destabilizing” (Dominici P., 1996, 2005, 2014).

### IV. OBJECTS AS SYSTEMS

Taking special care, with regard to topics concerning school and university, to resist the continuous temptations, the short-cuts, the easy solutions, the reassuringly well-beaten paths that often conceal mere vested interests in power or in economic factors, the ideological views, which incessant promotion and event marketing have done so much to render visible, acceptable and approvable. First of all, however, it is necessary to teach analytical and critical thinking to people, enabling them to use their own heads (and to question themselves and others around them), instead of simply accepting the standard answers / solutions, and to see “objects” as “systems”, rather than vice-versa (Dominici P., 1995-2019). Above all, in dealing with the above issues, one must take care not to give in to the temptations of simplistic solutions, of deterministic explanations or of easy reductionism. We have an urgent need of explanations and analyses based on data and research, but we also have a tremendous need for a critical theoretical approach to complexity, which will allow us to save ourselves from the quicksand of *mono-causal determinism*, and also (on a less worrisome level), from a *prosaic acritical neophilia* that has led us to convince ourselves, in recent years, that all that is new is fantastic.

Going back to our initial argument that the obsession with concreteness has become a veritable dictatorship, what is paradoxical is that the very same proponents of concreteness and facts are now loudly proclaiming the importance of thought, of critical and systemic thinking, of creativity, of imagination, of “creative thinking” (which, in every country, must unfailingly be expressed in English), even of the importance of philosophy, until recently battered and mistreated along with other important disciplines, and not only within educational institutions. It seems that no one, at this moment, would dream of denying the importance of interdisciplinarity, transdisciplinarity, empathy and unpredictability, of innovation, change, and above all, of complexity (which has suddenly become *the talk of*

*the town*). After years of pursuing concreteness at all costs, decision-makers, opinion leaders and intellectual front men are shouting from the rooftops what I and others like myself have been repeating for years: that know-how and competences will not suffice; that education plays a vital and strategic role in this hypercomplex and hyper-connected civilization, that technology itself cannot guarantee a symmetrical and inclusive society, that it is the person who should be placed at the core of society. While, in one respect, this is undoubtedly positive (it's one of the ways that cultural climates can change), the slogans that are being used run the risk of trivializing, of creating a public discourse to shape the agendas of public opinion according to the usual driving logics of polarization, leaving little or no space for in-depth analyses or critical evaluation of the positions being taken. The worst consequence is that in this manner, it all becomes formula, norms, mainstream, thus losing any drop of disruptive potential and any possibility of creating an authentic discontinuity with the hegemonic models and with "how it has always been".

#### V. EDUCATION – TEACHING ERROR, DOUBT & UNCERTAINTY IN THE ERA OF ANTHROPOLOGICAL TRANSFORMATION

Furthermore, beyond the above-mentioned rhetorical or hegemonic narratives, whose function may well be limited to maintaining a positive image or reputation as an innovator or as an efficient and innovative organization, what comes through is how little awareness there truly is on the strategic relevance of thought and of thought systems, on conjecture, on imagination, on how complexity pervades all questions in all fields, *of the importance of error and of the opportunity -- the vital need -- to be free to make errors*, of all this being complex rather than complicated (*ibidem*). Many are those who, having habitually chosen "concrete" approaches and methods, are now claiming that they have always expounded, written and published articles on critical thinking and on the need for an alternative view of reality. Theirs is a kind of cannibal conformism that gobbles up ideas and projects, without seeking to genuinely share or spread knowledge or skills, setting up barricades to block or slow down the way to a social and cultural innovation genuinely capable of making systems, groups and organizations truly dynamic.

In reality, therefore, what I have defined as an obsession for concreteness, indeed, as the tyranny of concreteness, is condemning us to never making any real changes (at best, what is made are adjustments), to never managing to create any real innovation (only façades), to continuing, who can say for how long, to adapt passively to the ongoing extraordinary technological transformation, which is first and foremost an anthropological transformation of identity, of life experiences, of epistemologies.

Part of this transformation regards velocity: the new digital speed, in its complex interaction with the human

factor and with the system of social relations, preserves the original ambivalence inherent to any factor of mutation and to every social and cultural process; an ambivalence that, aside from representing an extraordinary opportunity, also highlights our limits and inefficiencies – on personal, organizational and social levels – but above all, that leaves us too little time for reflection and for critical analyses of what is happening, and more in general, of a (hyper)complexity that lays bare the radical inadequacy of our paradigms, our interpretative models, our cultural traditions, and even more, of our modern instruments for management and control. (*ibidem*)

For some time now, we have been losing our ability to look at/observe the set, the system, the whole, the global totality and the system of relations and/or interactions that these feature; in other words, we have difficulty recognizing bonds, correlations, causal nexus: precisely because we have been taught and trained (in the best of cases) to describe and record regularities, to see the "hows" and not the "whys"; we have been educated to look for (?) and be satisfied with simple or pre-coded answers (in any case, obtained in a brief amount of time), to look for – as I am always saying -- simple solutions to (hyper)complex problems. This perspective, aside from being nearsighted and misleading, reveals itself to be even more paradoxical exactly because what we live in (= what we know) is the era of global interconnection, in which all processes are interdependent and linked to one another (and will become increasingly so): we must cope with dimensions and levels of interaction and retroaction – on subjective, relational, systemic, organizational, social levels – that highlight, as if more evidence were needed – the urgency of rethinking our paradigms from a systemic, (hyper)complex perspective."

Instead, we are teaching our students – or rather *training* them - *to be mere executors of functions and rules* (Dominici 1995 and further works), who are not even capable of reflecting on their nature, on what governs these functions and rules, not to mention pondering "why". Furthermore, what is even more worrying is that we are increasingly staking everything on the construction of a kind of thought directed exclusively at concreteness; a thought or thoughts, which at the very best, equates itself to calculations and to reaching results. This nearly hegemonic approach directly regards – and impacts – issues directly related to learning. Students and educators alike have been caught up in these false perceptions. Furthermore, the technological revolution has defined a new rapport between individuals and the norm, between theory and praxis, giving them, in some way, the illusion of being absolute monarchs and masters of their own choices, with the risk of not holding interactions, social interdependencies and the community they belong to in sufficient consideration.

#### VI. OUR INADEQUACIES AND THE ILLUSION OF CONTROL: THE CULTURAL FACTOR

Once again, I strongly insist: we must radically correct the structural inadequacies and the appalling nearsightedness that have always characterized schools and universities, (which must be thought of “together”, in order to deal with the age-old question of teaching the teachers), which are the only “true” institutions/”places” in charge of defining and constructing the conditions of social emancipation. What must be promoted is the kind of education that is capable of analytically addressing complexity and responsibility (from the early years of school on), but also and above all, what must be encouraged, not just proclaimed in institutional documents, are critical thinking, complexity, and *interdisciplinarity* and *transdisciplinarity*. The benefits would, furthermore, significantly influence the didactic pathways themselves, and thus, evidently, the (continuous) teaching of our future teachers. Preparing ourselves to accept and become accustomed to the idea that the outcomes of these vitally important strategic choices are always, in any case, long-term and will only be “seen” many years into the future. An as yet unimaginable future, as we have said above, for which the only preparation is the teaching the value of doubt, uncertainty and error, in the framework of a *systemic vision of ecosystems and of life itself* (Wiener N., 1948, 1950; Arendt H., 1958; Ashby W.R., 1956; Simon H.A., 1962; von Bertalanffy L., 1968; Bateson G., 1972; Morin E., 1974, 1993, 1994, 1977-2004; Holland, 1975; Capra F., 1975, 1996; Musgrave A. – Lakatos I., 1976; von Foerster H., 1981; Bocchi G. - Ceruti M., 1985; Maturana H.R.–Varela F.J., 1980, 1985; Ceruti M., 1986, 1995; Gleick J., 1987; Gallino L., 1992; Kauffman, S. 1993; Gell-Mann M., 1994; Prigogine I., 1997; Diamond J., 1997, 2005; Emery F.E., 2001; Morin E. 2001-2008; Barabasi, A.L., 2002; Israel G., 2005; Gandolfi A., 2008; Dominici P., 1996-2019; Taleb N.N., 2013; Longo G., 2014).

We still have not realized how complex complexity is; indeed we do not yet know how to recognize complexity, hypercomplexity, variability, the emergent, the constant and dynamic instability of all that is relational, social, human, vital. Complex dimensions, what is more, that interact with the new technological praxes and with social systems that are threatened more and more by the neural networks of Artificial Intelligence and by automated systems; caught up in a cultural bog of backwardness which hinders the teaching and the co-construction of a different “gaze” and of a systemic viewpoint together, a backwardness from which we continue to perceive, recognize, design and manage organizations as though they were machines (complicated systems) rather than living systems (complex). Once again, with little awareness that “*innovating means destabilizing*”, and with even less awareness that “*thought is action*”. Thought vs. action is yet another of the “false dichotomies” that so much have done to damage the minds of the young generations.

The *tyranny of concreteness* springs from an obsession that is throttling our capacities to *inhabit complexity*, to

inhabit the future, forcing us once again to take refuge in an incomplete and false security (insecurity?), owing to our incapacity or in any case our lack of courage to stray from the (thousand-fold) well-trodden paths. It is forcing us to hide behind prejudices, platitudes and clichés from all haunts, to make choices and follow behavioral patterns that “have always worked” (?), harking after the same “tangible results” and solutions: *simple* solutions for *complex* problems, preferring labels and etiquette to ethics. In other words, it is holding us back from even attempting the change which all hail from inside their safe cubby-holes of custom. It is paradoxical that those who speak the loudest actuate the least, especially in higher education. While demanding concreteness and usefulness, they present themselves as experts in creativity, innovation and complexity, as though these concepts/approaches required no particular knowledge, competence, preparation, experience. Beyond the slogans and lip service, therefore, within schools, universities, institutions and organizations, what continues to be sought and activated is above all order, control, stability, security, conservation, not only for the purpose of maintaining power and relative advantages. Attention, however! Not against concreteness, not against *facts* and *data* does this article wish to stand; let it be clear that the criticisms we have expressed herein are reflections against the current *obsession* with concreteness, against the modern-day *tyranny of concreteness* which crystallizes into a *reductionist and simplistic approach to problems, uncertainty, unpredictability, variability*, thus becoming an obstacle to authentic social, political, cultural or organizational change. Against the tyranny of a “culture of standardization”, founded on the deceptive and misleading idea that knowledge must be useful, quantifiable, measurable. A culture constructed with the building blocks of rationality and control, themselves fraught through and through with the same ambivalence and ambiguity typical of all social and cultural processes. A culture of concreteness based on the illusion (and the mistaken ambition) of being able to eliminate error and unpredictability from social and organizational systems.

On the contrary, it is essential for us to become fully aware that the profound changes implicated by innovation regard our way of seeing, observing and of understanding phenomena, processes, objects, the “things”, which must become a systemic perspective. Innovating also implies the courage to destabilize something which – to all appearances – is permanently well-balanced and well-rooted, stable, regular, orderly, and in some ways, ideal. Innovation invariably involves a crucial challenge – even a dare – which means leaving behind certainties, consolidated visions and ritualized behavior, and above all ridding ourselves of the idea that things should be done in a certain way because it has always worked up to now. Historically (with, admittedly, some exceptions) those in power, who have decision-making responsibilities, even within “simple” organizations, are rarely interested in genuine

innovation, precisely because the dynamics of innovative processes inevitably impact the situations, along with the context of reference, rendering them less stable and controllable. It is, in any case, the cultural factor that determines both the static and the dynamic aspects of social systems and complex organizations, because, as I have often said, the processes of innovation walk on human legs.

## VII. HYBRID FIGURES AND THE GREAT MISTAKE

The *great mistake* being made by the technological civilization today is precisely that of believing that the kind of education and/or training that is necessary today is purely technical and/or technological, which instead is the exact opposite of what we so desperately need.

Only when we have come to be fully aware, and we have clearly recognized our “great mistake”, (Dominici, 1996-2018), which marks the (withheld) dialogue between knowledge and skills, and is also profoundly marking public life and democracy, will we succeed in redirecting our present course of navigation, which leads us to adapt to change but not to understand how to manage and modify it. Beyond the many paradoxes of the mutations currently underway, the “great mistake” of and in hypertechnological and hypercomplex civilizations is to keep thinking of education and of educational processes (which also

refer to training) as a question of a purely technical nature, solely a problem of “skills” and “know-how” and nothing more; a problem – a series of problems -- which must be dealt with by staking everything on speed and simulations. Hence continuing to reproduce, not to correct, the dramatic separation between studies in the humanities and in scientific fields; (time and time again, we will keep on claiming that first one, then the other, is more important), dooming ourselves to gradually losing sight of the whole, the complex, the global, to losing sight of the “other from ourselves.”.

The best itineraries, consequently (best and not “ideal”), will be those pursuing interdisciplinarity and multidisciplinary. In other words, those best equipped to prepare people to *inhabit the current and future complexity*, those who will be able to shape critical and elastic minds at every level: *hybrid figures* (Dominici P., 1996-2019) open to the contamination among fields of knowledge and skills. Hybrid figures, who must not be mistaken for the growing number of “experts on everything”, but are rather highly trained professional figures whose have mastered a systemic approach, who are capable, even from within their fields of specialization, of considering and evaluating the complex and ambivalent dimensions of reality, recognizing their connections and open architecture(s). Figures and profiles that will be constantly capable of perceiving the limits and borders of every form and nature as opportunities for growth and experimentation.

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