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Transdisciplinarity— Theory and Practice

edited by

Basarab Nicolescu



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Contents

Foreword	ix
Alfonso Montuori (USA)	
1 <i>In Vitro</i> and <i>In Vivo</i> Knowledge—Methodology of Transdisciplinarity	1
Basarab Nicolescu (France)	
2 The Reform of Thought, Transdisciplinarity, and the Reform of the University	23
Edgar Morin (France)	
3 Transdisciplinarity and the Plight of Education	33
Giuseppe Del Re (Italy)	
4 Transdisciplinarity, a Path Toward Peace: An Impossible Interview with a Poet	43
Antonella Verdiani (Italy)	
5 The Hidden Hand Between Poetry and Science	53
Michel Camus (France)	
6 Levels of Being and Reality—Ancient Indian Perspective	67
Kesiraju Venkata Raju (India)	
7 Where Are You Based?	77
Jan Visser (USA)	
8 Towards an All-Embracing Optimism in the Realm of Being and Doing	85
Maria de Mello (Brazil)	
9 Transdisciplinarity and a More Meaningful Past	99
Donald A. Yerxa (USA)	

10	Perception of Time and Continuity of Development in Transdisciplinary Perspective of Cultural Heritage <i>Paulius Kulikauskas</i> (Lithuania)	105
11	Prolegomena for a Transdisciplinary Approach to Esotericism <i>Karen-Claire Voss</i> (Scotland and Turkey)	115
12	Transnational Society as a Reasonable Utopia <i>Paul Ghils</i> (Belgium)	127
13	On the Transmutation of "Violence" into Creative Energy <i>Jean-François Malherbe</i> and <i>Claude Libersan</i> (Canada)	137
14	Ethics and the Interplay Between the Logic of the Excluded Middle and the Logic of the Included Middle <i>Diane Laflamme</i> (Canada)	147
15	The Logic of Transdisciplinarity <i>Joseph E. Brenner</i> (Switzerland)	155
16	Transdisciplinary Approach in Therapy <i>Roberto Crema</i> (Brazil)	165
17	Transdisciplinarity: A New Approach to Metadynamics and Consciousness <i>Marc-Williams Debono</i> (France)	173
18	Scientific Research, Fragmentation, and Self-Awareness <i>Richard Welter</i> (France)	183
19	The Social Construction of Biotechnology: A Transdisciplinary Approach <i>E. Haribabu</i> (India)	191
20	Transdisciplinary Potentials of Information <i>Marilena Lunca</i> (Holland)	201
21	Transdisciplinary Interface in Cyberspace <i>René Berger</i> (Switzerland)	213
22	On Connection and Community: Transdisciplinarity and the Arts <i>Rosemary Ross Johnston</i> (Australia)	223
23	Design Studies: A Transdisciplinary Perspective <i>François-Xavier Nzi iyo Nsenga</i> (Rwanda and Canada)	237
24	Is Transdisciplinarity a New Learning Paradigm for the Digital Age? <i>Ron Burnett</i> (Canada)	245
	About the Authors	253
	Appendix 1. Short Chronology of Transdisciplinarity	261

Appendix 2. Venice Declaration—Final Communiqué of the Symposium	265
Appendix 3. The Charter of Transdisciplinarity	269
Appendix 4. Declaration and Recommendations of the International Congress "Which University for Tomorrow: Towards a Transdisciplinary Evolution of the University" Locarno, Switzerland (April 30 – May 2, 1997)	275
Author Index	283
Subject Index	287

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Foreword: Transdisciplinarity

Alfonso Montuori

Why transdisciplinarity? The term initially seems so abstract, so academic, so divorced from the realities of everyday life. Is it just another intellectual fad, a new buzzword perhaps, destined to soon disappear and be replaced by the next "hot" subject? In this fascinating volume, the contributors make it very clear that far from being a faddish and superficial phenomenon, transdisciplinarity is potentially the foundation for a new, and much needed approach to inquiry.

WHAT IS TRANSDISCIPLINARITY?

Transdisciplinarity is not *multidisciplinarity*, Nicolescu usefully elucidates. It's not approaching a problem from the perspective or lens of a number of different disciplines. Nor is it *interdisciplinarity*, which involves using the methods of one discipline to inform another. Transdisciplinarity is perhaps above all a new way of thinking about, and engaging in, inquiry.

The project of transdisciplinarity is an emancipatory one. It provides us with a way of thinking and a way of organizing knowledge and informing action that can assist us in tackling the complexity of the world, while at the same time inviting us to come to grips with the role of the inquirer in the process of inquiry. Transdisciplinarity recognizes that we are living in a complex, uncertain, and pluralistic world, and begins to provide us with the tools needed to confront a world that is different than the one hypothesized by Aristotle and Descartes, two of the founders of the present approaches to inquiry in western thought. And because transdisciplinarity, as it is articulated in the essays in this book, clearly recognizes the role of values in inquiry, rather than attempting to suppress or "bracket" them, it engages the inquirer as an active, ethical participant in world affairs.

Transdisciplinarity is not merely a lofty ideal. One of the key motivators for transdisciplinarity is its focus on the *practical* applications of knowledge. Let us step back and look at an example. An organization seeks to become more innovative. It has become abundantly clear in recent years that organizational innovation is a complex, multi-leveled process. In order to foster organizational innovation, it's not sufficient to simply propose a creativity training for employees where they will learn some creativity 'tools' such as lateral thinking. Regardless of whether such a 'tool-based' approach can actually even assist in developing individual creativity, it's simply not enough to have individuals with bright ideas if the organizational systems and culture do not support innovation. If the culture privileges "getting it right the first time," and is therefore risk-averse, if the culture defines 'intelligence' as the ability to critically tear apart an idea, if organizational systems force any attempt at change through the entire organizational chain and require documentation for every step in triplicate, then no matter how much individual creativity is fostered, the organization's overall ability to innovate may not change at all. In fact, one may end up with personnel who are even more frustrated than before. Stories of organizations that systematically squelched brilliant ideas that were later picked up elsewhere are, of course, legion.

Organizational innovation requires a multi-dimensional approach that addresses at least the level of the individual, the group, the organization (both culture and processes), and the larger business environment. This means that the knowledge of creativity and innovation that needs to be brought to bear on the situation must originate in a plurality of disciplines—individual psychology, group dynamics, organizational theory, strategy, marketing, and so on. The process of creating an environment that is favorable to innovation, and then productizing an idea spans a good number of disciplines. But it is not enough to simply draw on material from a variety of disciplines.

Degrees such as the MBA, or a Masters in International Relations, generally consist of a variety of courses that draw from different disciplines. A degree in International Relations may include courses on the History of Europe since 1900, Macro- and Micro-economics, Political Theory, Political Psychology, The Intelligence Community, and International Development. An MBA may take courses in Organizational Behavior, Leadership, Group Dynamics, Interpersonal Communication, Creativity and Innovation, Accounting and Finance, Environmental Policy, and Cross-cultural communication. A practitioner in business or diplomacy or policy-making may develop a familiarity in all these different subjects. The reality of work demands a broad background. But from the perspective of Nicolescu's vitally useful differentiation between disciplinary, multi-disciplinary, interdisciplinary, and transdisciplinary approaches, the way that the whole course of study is organized is really still in the shadow of disciplinary fragmentation. The subjects are taught "*in vitro*," to use Nicolescu's fortuitous phrase, as if

in a cognitive test tube. As the essays in this book illustrate, the method of transdisciplinarity is "*in vivo*:" the knower is not a bystander looking at knowledge in its pristine cognitive state, but an active participant, a *being-in-the-world*. The Transdisciplinary approach does not focus exclusively on Knowing, but on the inter-relationship between Knowing, Doing, Being, and Relating.

The purpose of programs like MBAs is to expose students to a variety of essential skills for their work, but the result is more often than not the equivalent of taking a set of courses from different disciplines in the hope that they will somehow make sense and be integrated in the student's actual practice. The focus is still cognitocentric, reproductive, and weakly multidisciplinary in Nicolescu's definition: gathering information from disparate disciplines, and then hoping against hope that the student will eventually be able to apply the knowledge and not view it as simply decontextualized information that is forgotten soon after the test. Transdisciplinarity moves away from *in vitro* cogniticism to the practice of *in vivo* education.

A NEW WAY OF THINKING

As I have argued elsewhere (Montuori, 2005), transdisciplinarity can be summarized as requiring:

1. A *focus* that is inquiry-driven rather than discipline driven. This does not involve a rejection of disciplinary knowledge, but the development of *pertinent* knowledge for the purposes of action in the world.
2. A stress on the *construction of knowledge* through an appreciation of the meta-paradigmatic dimension—in other words, the underlying assumptions that form the paradigm through which disciplines and perspectives construct knowledge. Disciplinary knowledge generally does not question its paradigmatic assumptions.
3. An understanding of the *organization of knowledge*, isomorphic at the cognitive and the institutional level, the history of reduction and disjunction (what Morin calls "simple thought") and the importance of contextualization and connection (or "complex thought").
4. *The integration of the knower in the process of inquiry*, which means that rather than attempting to eliminate the knower, the effort becomes one of acknowledging and making transparent the knower's assumptions and the process through which s/he constructs knowledge.

Nicolescu makes a vital contribution to the articulation of Transdisciplinarity as a new way of thinking. As he points out, historically approaches to knowledge have focused either on Subject or Object. Transdisciplinarity goes beyond the dualism of opposing binary pairs: subject/object, subjectivity/objectivity, matter/consciousness, nature/divine, simplicity/complexity, reductionism/holism, diversity/unity which have marked the history of ideas for millennia (Nicolescu, 2002).

Nicolescu's approach is to bring in a third reconciling term to this dyad, namely *interaction*. Rather than seeing knowledge *statically* as either object-focused (traditionally the realist view) or subject-focused (traditionally the nominalist view) Nicolescu, drawing on the important work of Lupasco, frames this age-old binary opposition as an ongoing *process of interaction*.

Fay and Collins have shown how at the sociological level, dichotomies have marked the history of Western thought in the form of opposing movements such as atomism and holism (Collins, 1998; Fay, 1996). This shows that the history of ideas reflects ways of thinking that are in turn also reflected in the disciplinary nature of academia and research. *The organization of knowledge is isomorphic at the level of thought, the history of ideas, and disciplines*.

For example, there is an isomorphism between what Morin calls the reductive/disjunctive 'simple thought' that has characterized much of Western history, and the organization of knowledge in educational and research institutions. In his *Discourse on Method*, Descartes (Descartes, 1954) explored the basic laws of thinking, and fashioned them into a methodology for inquiry. Below are two key points Descartes made under the telling heading of *Rules for the direction of the mind*, published originally in 1701:

RULE V

The method consists entirely in the orderly arrangement of the objects upon which we must turn our mental vision in order to discover some truth. And we shall be observing this method exactly if we reduce complex and obscure propositions step by step to simpler ones, and then, by retracing our steps, try to rise from the intuition of all of the simplest ones to knowledge of all the rest. (p. 157)

RULE XIII

If we are to understand a problem perfectly, we must free it from any superfluous conceptions, reduce it to the simplest terms, and

by process of enumeration, split it up into the smallest possible parts. (p.179)

What Descartes proposed as rules for the direction of mind has been institutionalized in the organization of universities. There we find the same increasing specialization in departments, literally the splitting up into smallest possible parts, and the creation of strong boundaries based on three axioms of classical logic (Nicolescu, 2002). For the purposes of this argument I will apply them here to a specific discipline:

- The axiom of identity: Psychology is psychology (A is A).
- The axiom of non-contradiction: Psychology is not non-psychology, e.g., sociology, political science, economics, biology, chemistry, etc.
- The axiom of the excluded middle: there exists no term (or discipline) that is both psychology and not psychology.

Note that this technically excludes the possibility of already existing sub-disciplines such as Psychological Anthropology, Political Psychology, Cultural Psychology, Neuro-psychology, Psycho-biology, and a host of other hyphenated hybrids. That these hybrid sub-disciplines have emerged is a testament to the need to break out of existing disciplinary boundaries. But we also have to recognize that in many cases the disciplinary boundaries of the new system are closed, and even 'success stories' like cognitive science have not embraced the full extent of the implications of transdisciplinarity. Research conducted in the sub-disciplines that emerge, such as Political Psychology, is once again generally restricted to those in that field. The sub-discipline operates in isolation, and the system of disciplinary fragmentation continues. It becomes once again a closed system with strong boundaries that defines its identity. International Relations could arguably benefit considerably from being informed by political psychology, or cross-cultural psychology — and indeed political psychology emerged as a sub-field precisely to address this need. But its impact on the wider umbrella discipline of political science is generally minimal, as work conducted in the sub-disciplines mainly stays there, and the researchers talk amongst themselves and publish in their own specialized journals. The US lack of cultural awareness in the Iraq war, after decades of calls by the small band of scholars and diplomats who emphasize the absolute necessity of culturally sensitive international relations, is a case in point.

Even in hybrid sub-disciplines, appropriate subject matter for research is defined by disciplinary boundaries rather than by the reality of problem-situations. This creates enormous blind spots. As an example, in the United States psychology has been the dominant discourse in the area of creativity. As a musician, I have been particularly interested in the creativity of musi-

cal groups. When I first started researching musical creativity in the late 1980s, I found to my great surprise that there was hardly any research on creativity in musical groups, or creative groups in general, for that matter. Despite the enormous evidence of collaborative creativity in musical groups, research laboratories, the workplace, theater and film, and so on, the issue was simply not addressed in the research.

Creativity was framed from the disciplinary perspective of psychology—and traditionally specifically personality, psychometric, and cognitive psychology. Psychology was the dominant discourse in creativity research, and as such defined the parameters for what could and could not be researched. When in 1988 Mihaly Csikszentmihalyi (Csikszentmihalyi, 1988), a leading researcher of the psychology of creativity, authored a chapter in Sternberg's *The Nature of Creativity: A Psychological Approach* (Sternberg, 1988), he argued for a systems approach to creativity. This would include not just the creative person, but also the domain (the larger context of the creative activity, such as painting) and the field (the gatekeepers, like art critics and gallery owners). Csikszentmihalyi tellingly began by reassuring other psychologists that this did not mean he had become a sociologist. He had not, in fact, "betrayed" his discipline and moved over to "the other side."

The response to one specific article I co-authored (Montuori & Purser, 1995) was particularly telling because it showed the power of binary oppositions at work. I proposed a contextual view of creativity that, in a Batesonian sense, addressed both organism *and* environment, or more specifically individual *and* social context, and addressed the creativity of groups, cities, and so on. Critics (Greening, 1995; Hale, 1995) wrote that I was completely rejecting the study of individual creatives, in favor of sociological determinism. The critics' assumption was that any approach that proposed viewing individuals as embedded in a social context and participating in a set of relationships, and where relationships themselves could in fact be constitutive of a creative process, could not *also* endorse the study of individuals. And *ultimately*, the argument ran, creativity is an individual process. This small example illustrates a number of relevant points:

- a) how a disciplinary-driven approach could obscure the reality of existing practices of creative interaction in groups;
- b) how the disciplinary perspectives were based on generally unquestioned paradigmatic assumptions about the nature of creativity, the fundamental unit of analysis (the *ultimate* nature of the self), and so on;
- c) how a binary logic led to a conceptualization of creativity which could only see it as either and individual process or a social process (atomism versus holism);

The stress the contributors to this volume place on transdisciplinarity as a new way of thinking is not misplaced. Indeed, its importance cannot be overestimated. Thinking that is informed by a binary logic is faced with an uphill struggle when considering the possibility of both/and, *relational*, thinking. As my example suggests, *the disjunctive, binary logic literally prevents some thoughts from being thought, and some possibilities entertained*. In the same way, disciplinary fragmentation is not simply as division of labor that helps us to address the increasingly overwhelming amount of knowledge that is being generated. Disciplinary fragmentation is not just a *response* to knowledge, it actually *frames* knowledge. It is a way of organizing knowledge. And because the sub-systems of the larger system of disciplinary knowledge are mostly closed systems, *disciplinary fragmentation creates blind spots by framing the world in a discipline-driven way that actually prevents certain subjects from being "seen."* This was the case of collaborative creativity in the United States, and an indication of how disciplinary matrices are closely related to cultural patterns, since in Japan, the research on creativity has focused extensively on groups, but not individuals. Disciplinary knowledge stressed the primacy of the cognitive disciplinary framework (*in vitro*) rather than the lived experience of individuals engaged in collaborative creative practices (in the arts, R&D labs, etc.).

As Nicolescu writes, the need for Transdisciplinarity has never been greater. And yet, there is little awareness of this urgent issue in academia, let alone in the public sphere. It is still all too common to hear, even in academic circles, or perhaps one should say particularly in academic circles, discussions of inter- or transdisciplinarity punctuated by questions that are really variations on the old saw, "jack of all trades and master of none." Does transdisciplinarity mean a shallow, superficial understanding of a number of different disciplines but little grounding in any of them? Is transdisciplinarity not, at best, a journalistic overview of a variety of subjects, a 'vulgarization'? The persistence of these kinds of concerns show that the fundamental premises of transdisciplinary work have yet to be understood. Transdisciplinarity is inquiry-based, and this, as the contributors demonstrate so well, does not mean forsaking the development of a knowledge base. On the contrary, it suggests the need to develop a more nuanced, appropriate and systemic knowledge base. But these sorts of critiques reflect a certain territoriality in academia. The American philosopher Bruce Wilshire, in his remarkable book *The Moral Collapse of the University* (Wilshire, 1990), has illustrated in great detail how academic departments stress their disciplinary "purity," and warn new faculty members to avoid the "pollution" of other disciplinary perspectives. The rejection of inter-, let alone *transdisciplinary* work, is closely related to the territoriality that emerges with years of investment in a specific discipline, and the legitimization of hyper-specialization. It is also related, as the authors in this book often point out, to cognitive and emo-

tional issues. The territoriality is a manifestation of a larger paradigm. It is not just the fear of pollution from material originating in a different discipline. It is also due to the fact that the *organization of knowledge*, and the correlated *way of thinking*, are deeply ingrained into us.

Because transdisciplinarity is radical, in the sense that it goes to the roots of knowledge, questions our ways of thinking and our construction and organization of knowledge, it requires a discipline of self-inquiry that integrates the knower in the process of knowing. Nicolescu's vision of transdisciplinarity, and that of the contributors to this volume, goes beyond cogniticism and the focus on analytic intelligence to propose a new type of intelligence that reflects a harmony between mind, feelings, and body. Once we acknowledge the contribution of feelings and the body to our overall intelligence, and integrate them into the process of inquiry, the opportunity—and indeed the need for—self-inquiry becomes every greater. Edgar Morin begins one of his summaries on the reform of education (Morin, 2001) with the first lesson, which is to challenge error and illusion. But error and illusion are not simply the result of poor research, faulty logic, and so on. Error and illusion also arise through our blind spots, our projections, by the way in which the ideas we possess can actually possess us. Cognitive pathologies offer a remarkable opportunity for self-inquiry, and likewise the acknowledgement of our passions and motivations to pursue certain avenues of inquiry offer us with opportunities to understand who we are. Nicolescu's view of transdisciplinarity does not have the mutilated model of humanity as merely a disembodied cogito, but squarely grounds us in the complexity of human nature.

With the integration of the cognitive, affective, and physical dimensions, and of the subjective/objective, inquiry moves into a new realm. Inquiry is now not just directed 'outward' towards the external world, but it is rather seen as an ongoing process, a dialogue that engages knower and known, inquirer and inquiry. If our observations are theory-laden, and we build our theories on the basis of observations, we can easily see this as a vicious circle. But it can become a virtuous circle if we use this constant dialogue as an opportunity to see inquiry as an open, self-reflective evolving system. And indeed the inquirer, from this perspective, also becomes an open, self-reflective, evolving system, integrating body, emotions, and mind. Inquiry becomes an integral part of a more harmonious development of humanity. This is where we reach Nicolescu call for transdisciplinarity as a transcendental process, and one that begins to integrate the sacred—where inquiry, inquirer, and the subject of the inquiry all are part of the larger pattern that connects, a *re-ligio* or reconnection of what has been torn asunder.

Alfonso Montuori,
San Francisco, November 2006

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