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Transdisciplinary Pedagogy and the Constitutive Role of Art: The Perspective of Transdisciplinary Realism

Abstract: Transdisciplinarity emerged as a part of a broader rethinking of higher education, in response to the fragmentation and increasing specialization of knowledge, which left modern science unable to address the complex problems of the contemporary world. Transdisciplinarity has articulated itself simultaneously as an educational movement, an approach to learning, knowledge, and research, as well as methodology. Systematic literature reviews warn that much of the term's application amounts to a superficial methodological label without a firm theoretical grounding. This article proceeds from the Nicolescuian line of transdisciplinarity and its axiomatics, and from the thesis that transdisciplinarity can be understood as a coherent philosophical system from which a distinctive philosophy of education follows. While pragmatic, problem-oriented approaches to transdisciplinarity can function without an artistic component, the article argues that within the Nicolescuian framework artistic practice is not merely a creative supplement but a constitutive component of transdisciplinary pedagogy. Building on this foundation, the article's principal contribution is the derivation of three pedagogical “trans” functions—transcendent, transgressive, and transformative—through which the three axioms are pedagogically operationalized; their synergetic action constitutes the attributes of *in vivo* knowledge, positioning artistic practice, as the Hidden Third, at the core of transdisciplinary pedagogy.

Keywords: transdisciplinarity; transdisciplinary realism; transdisciplinary pedagogy; art; the Hidden Third; zone of non-resistance; philosophy of education.

1. Introduction

Transdisciplinarity emerged in the 1970s both as a concept and an epistemological project within broader efforts to rethink the university¹ as a response to the fragmentation and specialization of knowledge and the consequent inability of modern science to address the complex problems of the contemporary world. It has

¹ The term was first used at the 1970 OECD seminar in Nice; cf. Leo Apostel, Guy Berger, Asa Briggs, and Guy Michaud, eds., *Interdisciplinarity: Problems of Teaching and Research in Universities* (OECD, 1972); Erich Jantsch, “Inter- and Transdisciplinary University: A Systems Approach to Education and Innovation,” *Policy Sciences* 1, no. 4 (1970): 403–28.

since been institutionalized: from the Venice Declaration (1986) and the founding of CIRET (Paris, 1987), through the First World Congress and the Charter of Transdisciplinarity (Arrábida, 1994), to the congresses of Locarno (1997) and Zurich (2000). Transdisciplinary studies, projects, and centers are steadily multiplying, yet systematic literature reviews warn that much of the term's application amounts to a superficial methodological label without firm theoretical grounding,² and that “a lack of a comprehensive synthesis in this area is evident.”³ At the intersection of transdisciplinarity, the arts, and higher education, Wander M. van Baalen and colleagues analyze 458 papers and show that only 13 out of the 56 in their qualitative synthesis elaborate the concept theoretically, while Basarab Nicolescu, one of the field's key theorists, is cited in a mere five of them.⁴

The conceptual ambiguity surrounding transdisciplinarity begins with its basic distinctions from other research approaches. Manfred Max-Neef orders them by increasing degree of integration: disciplinarity is specialization in isolation; multidisciplinary studies several fields without establishing connections among them; pluridisciplinarity establishes cooperation among related disciplines without overarching coordination; interdisciplinarity coordinates and integrates them; and transdisciplinarity strives for a holistic integration connecting all disciplines.⁵ According to Nicolescu, the disciplinary approaches (mono-, multi-, inter-, and pluridisciplinarity) retain their belief in the structural stability and autonomy of disciplines and operate within the same logical and ontological coordinates, whereas transdisciplinarity transcends those coordinates: it is concerned not with transferring models from one branch of knowledge to another but with studying the isomorphisms among domains of knowledge, thereby constituting a new type of knowledge.⁶ Transdisciplinarity, as Nicolescu defines it, “concerns that which is at once between the disciplines, across the different disciplines, and beyond all discipline,” and its goal is “the understanding of the present world, of which one of the imperatives is the unity of knowledge.”⁷ As Nicolescu clarifies, “beyond disciplines” precisely signifies “the Subject, more precisely the Subject–Object interaction,” for “the transcendence, inherent in transdisciplinarity, is the transcendence of the Subject.”⁸

² Ana Custodio-Ferrando and Ismael Cabero-Fayos, “Transdisciplinarity in Education: A Narrative Review of Its Didactic Validity and Contributions to Sustainable Learning,” *Sustainability* 17, no. 22 (2025): 10320.

³ Hosein Daneshpour and Ebo Kwegyir-Afful, “Analysing Transdisciplinary Education: A Scoping Review,” *Science & Education* 31, no. 4 (2022): 1047–74.

⁴ Wander M. van Baalen, Tamara de Groot, and Liesbeth Noordegraaf-Eelens, “Higher Education, the Arts, and Transdisciplinarity: A Systematic Review of the Literature,” *Research in Education* 111, no. 1 (2021): 24–45.

⁵ Manfred A. Max-Neef, “Foundations of Transdisciplinarity,” *Ecological Economics* 53, no. 1 (2005): 5–9.

⁶ Basarab Nicolescu, “Methodology of Transdisciplinarity: Levels of Reality, Logic of the Included Middle and Complexity,” *Transdisciplinary Journal of Engineering & Science* 1, no. 1 (2010): 19–38.

⁷ Nicolescu, “Methodology,” 22.

⁸ Nicolescu, “Methodology,” 22.

These distinctions are, however, far from settled; what prevails is what Audrey Leathard has called a “terminological quagmire” of inconsistently used and practically interchangeable terms—even dictionaries distinguish them poorly, some defining transdisciplinary simply as interdisciplinary.⁹

Behind the confusion stand two fundamentally different poles in the understanding of the relationship between interdisciplinarity and transdisciplinarity: some authors, in agreement with Nicolescu (Max-Neef, Sue McGregor, Paul Gibbs), insist on a radical distinction, holding them to be distinct epistemological and ontological projects, while others, in agreement with Julie Thompson Klein (Michael Gibbons, Christian Pohl, Helga Nowotny), see the relationship as a continuum of knowledge integration in which transdisciplinarity is a more intensive or broader form of interdisciplinarity.¹⁰ Connected with this unresolved debate is the divergence of the two dominant approaches within the field itself: the Nicolescuian, associated with the Locarno congress (1997), and the Zurich approach, associated with the Zurich congress (2000).¹¹ Whereas the Charter (1994) focused on philosophical and axiological foundations, the Locarno Declaration and Recommendations (1997) were directed toward operational and educational implementation. The document declares levels of reality inseparable from levels of perception and refuses to define transdisciplinarity within classical logic, but places its emphasis on education, the responsibility of knowledge, and the transformation of the university as a key site of cultural evolution.¹² The Zurich approach, by contrast, defines transdisciplinarity as pragmatic, problem-oriented joint problem solving among science, technology,

⁹ Bernard C. K. Choi and Anita W. P. Pak, “Multidisciplinarity, Interdisciplinarity and Transdisciplinarity in Health Research, Services, Education and Policy: 1. Definitions, Objectives, and Evidence of Effectiveness,” *Clinical and Investigative Medicine* 29, no. 6 (2006): 351–64; the phrase “terminological quagmire” is Audrey Leathard’s, quoted at 359.

¹⁰ For the radical distinction, cf. Nicolescu, *Manifesto of Transdisciplinarity*, trans. Karen-Claire Voss (State University of New York Press, 2002); Max-Neef, “Foundations of Transdisciplinarity,” 5–16; Sue L. T. McGregor, “The Nicolescuian and Zurich Approaches to Transdisciplinarity,” *Integral Leadership Review* 15, no. 2 (2015); and Paul Gibbs, “Transdisciplinarity as Subversion: In Space and Place,” *Quality in Higher Education* 29, no. 3 (2023): 375. For the continuum view, cf. Julie Thompson Klein, “A Taxonomy of Interdisciplinarity,” in *The Oxford Handbook of Interdisciplinarity*, ed. Robert Frodeman, Julie Thompson Klein, and Carl Mitcham (Oxford University Press, 2010), 15–30, and “Discourses of Transdisciplinarity: Looking Back to the Future,” *Futures* 63 (2014): 68–74; and Michael Gibbons et al., *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies* (SAGE, 1994).

¹¹ The division should not be read as a strict opposition but as a difference of emphasis. The very axis of that difference — the Zurich approach’s pragmatic problem solving against the Nicolescuian ontology of levels of Reality — already runs within Nicolescu’s own foundational concept: Reality he determines as simultaneously pragmatic and ontological—pragmatic insofar as Reality designates that which resists our experiences, representations, descriptions, images, and formalizations; and ontological insofar as Nature participates in the being of the world, so that Reality also possesses a trans-subjective dimension, irreducible to social construction, the consensus of a collectivity, or intersubjective agreement (see the following section). The two determinations are co-constitutive: resistance is the mode in which the trans-subjective makes itself felt within experience. See Nicolescu, “Methodology,” 25; Basarab Nicolescu, “Column on Transdisciplinary Realism,” *Cybernetics and Human Knowing* 23, no. 2 (2016): 77; cf. McGregor, “The Nicolescuian and Zurich Approaches,” 7, 14–15.

¹² *Declaration and Recommendations of the International Congress “Which University for Tomorrow? Towards a Transdisciplinary Evolution of the University”* (Monte Verità, Locarno, April 30–May 2, 1997; CIRET–UNESCO); cf. Lima de Freitas, Edgar Morin, and Basarab Nicolescu, *Charter of Transdisciplinarity* (Convento da Arrábida: First World Congress of Transdisciplinarity, 1994).

and society: transdisciplinary research, according to Gertrude Hirsch Hadorn and colleagues, should grasp the complexity of problems, take into account the diversity of their scientific and life-world perceptions, link abstract and case-specific knowledge, and develop knowledge oriented toward the common good.¹³ Max-Neef formulates this difference as the distinction between “weak” and “strong” transdisciplinarity, the “strong” being explicitly grounded in Nicolescu’s axioms.¹⁴

This article proceeds from the “strong,” Nicolescuian line of transdisciplinarity.¹⁵ Nicolescu articulates theoretical transdisciplinarity through an axiomatic system he calls transdisciplinary realism, the foundations of which have been elaborated elsewhere.¹⁶ The article examines what philosophy of education this system articulates, and it argues—with Florent Pasquier and Nicolescu, Hans Dieleman, and Sacha Kagan—that within this framework artistic practice is not a supplementary but a constitutive component of transdisciplinary pedagogy. This established position serves as the theoretical foundation for the article’s original contribution: the derivation of three pedagogical “trans” functions—transcendent, transgressive, and transformative—in which the three axioms are operationalized, and whose synergetic action constitutes the attributes of *in vivo* knowledge. In doing so, the article also addresses what this framework implies for the understanding of art itself: its pedagogical instrumentality is not denied but resituated, for within this framework art is, more fundamentally, an epistemic practice in a radicalized, onto-epistemological sense—a mode of access to multilevel Reality operating at the level of vertical meaning and thereby implicated in the ontological transformation of the knowing subject.

2. From transdisciplinary realism to a philosophy of education

The distinction between the Real (Fr. *le Réel*) and Reality (Fr. *la Réalité*) lies at the foundation of transdisciplinary realism: the word Real, according to Nicolescu, designates that which is, by definition, forever veiled and as such inaccessible to the

¹³ For the Zurich approach, cf. Julie Thompson Klein et al., eds., *Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society* (Birkhäuser, 2001); Gertrude Hirsch Hadorn et al., eds., *Handbook of Transdisciplinary Research* (Springer, 2008), 4–5.

¹⁴ Max-Neef, “Foundations of Transdisciplinarity,” 5–16.

¹⁵ Transdisciplinarity is understood here, following Nicolescu, as a single project with three simultaneously operating aspects—theoretical, phenomenological, and experimental—rather than as a plurality of competing “transdisciplinarity”; Nicolescu, “Methodology,” 23. The typological debates surrounding these aspects cannot be treated here for reasons of space; for the present argument it suffices to note that the strong, Nicolescuian line is distinguished by its elaboration of the theoretical aspect of this single project, whose methodology nonetheless requires, on Nicolescu’s own insistence, the simultaneous and rigorous consideration of all three aspects.

¹⁶ For Nicolescu’s exposition of the concept, cf. Nicolescu, “Column,” 77–85. The theoretical foundations are systematically elaborated in Tajana Reznić Brenko, “Prema transdisciplinarnom znanju—teorijski temelji transdisciplinarne metodologije u viđenju Basaraba Nicolescu” [Towards the Transdisciplinary Knowledge – Theoretical Foundations of Transdisciplinary Methodology in the View of Basarab Nicolescu], *Filozofska istraživanja* 44, no. 4 (2024): 769–87.

human being, whereas the word Reality designates that which resists our experiences, representations, and descriptions, and is accessible to knowledge as a perceptual reconstruction.¹⁷ “Reality is not merely a social construction, the consensus of a collectivity, or some inter-subjective agreement. It also has a trans-subjective dimension.”¹⁸ In 1996 Nicolescu formulated three fundamental axioms that direct his methodology and make it possible to view transdisciplinarity as a coherent philosophical system, or worldview:

1. The ontological axiom: there are, in Nature and society and in our knowledge of Nature and society, different levels of Reality of the Object and, correspondingly, different levels of Reality of the Subject.
2. The logical axiom: the passage from one level of Reality to another is insured by the logic of the included middle.
3. The epistemological axiom: the structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because all the levels exist at the same time.¹⁹

The axioms are derived from the experimental data of contemporary science: the first two receive confirmation from quantum physics, and in part from quantum cosmology and molecular biology, yet far exceed the exact sciences; the third has its source not only in quantum physics but also in a range of other exact sciences and the humanities.²⁰

By levels of Reality of natural systems Nicolescu understands the macrophysical level, the microphysical level, and the cyber-space-time level (with a hypothetical fourth level of superstrings unifying all physical interactions); correspondingly, for social systems he identifies the individual level, the social level, the geographical and historical level of the community (family, nation), the cyber-space-time level of the community, the planetary level, and the cosmic level.²¹ Two levels of Reality are different if, in passing from one to the other, there is a break in laws, rules, and norms, and a break in fundamental concepts.²² The structure of the levels of Reality is marked by discontinuity, akin to the discontinuity that governs the quantum world, in which between two points there is a vacuum—an emptiness full of potentiality. Nicolescu stresses that levels of Reality differ radically from the levels of organization defined in systems approaches: levels of Reality are ontological and are discovered, whereas levels of organization are social constructs that we invent: they presuppose no discontinuity

¹⁷ Nicolescu, “Methodology,” 25.

¹⁸ Nicolescu, “Methodology,” 25.

¹⁹ Nicolescu, “Methodology,” 24.

²⁰ Nicolescu, “Methodology,” 24–25.

²¹ Nicolescu, “Methodology,” 27, 29; Basarab Nicolescu, “Transdisciplinarity: The Hidden Third, Between the Subject and the Object,” *Human and Social Studies* 1, no. 1 (2012): 28.

²² Nicolescu, “Methodology,” 25.

in fundamental concepts, and several of them can appear at one and the same level of Reality.²³

Each level is marked by incompleteness: the laws governing it are only part of the totality of laws, and even the totality of laws does not exhaust Reality, for the Subject must also be taken into account. From the unity of levels follows a new principle of relativity: no level of Reality constitutes a privileged place from which all the others could be understood. Such a model acknowledges at once the objectivity of the Real and the plurality of Reality, holding the subject constitutive of Reality but not of the Real—demarkating transdisciplinary realism from reductionism, which reduces everything to a single privileged level, and from relativism, which denies any objective Reality.

Coherence among the levels of Reality is secured by the zone of non-resistance. Between any two levels, and beyond them all, extends a zone of non-resistance to our experiences, representations, descriptions, and mathematical formalizations—a consequence, for Nicolescu, of the limitations of human bodies and sense organs.²⁴ The unity of levels of Reality of the Object and its zone of non-resistance constitutes the transdisciplinary Object, while the unity of levels of perception of the Subject and its zone of non-resistance constitutes the transdisciplinary Subject. The two zones of non-resistance must be identical for the transdisciplinary Subject to communicate with the transdisciplinary Object; this shared zone plays the role of a third between Subject and Object—an interaction term that unites them while preserving their difference, which Nicolescu names the Hidden Third.²⁵ In this communication, the flow of consciousness that coherently crosses the Subject's levels of perception answers to the flow of information that coherently crosses the Object's levels of Reality.²⁶ In his later work, Nicolescu refers to these two flows as spiritual and natural information, respectively, and further elaborates on their interconnectedness: “The two flows are interrelated because they share the same zone of non-resistance.”²⁷ The Hidden Third thus connects all levels of Reality: discontinuity among the levels does not mean their disconnection. The ternary structure of Subject, Object, and Hidden Third differs radically from the binary subject–object division of classical realism. The transdisciplinary Object and Subject, each with its levels, and the Hidden Third together define transdisciplinary realism: a philosophical framework describing Trans-Reality—the totality of all levels of Reality unified through the Hidden Third.²⁸

²³ Nicolescu, “Methodology,” 23, 25, 27–28.

²⁴ Nicolescu, “Methodology,” 26–27.

²⁵ Nicolescu, “Methodology,” 26–27; Nicolescu, “Column,” 77; Nicolescu, “The Hidden Third,” 20–21. Capitalized “Subject” and “Object” designate the poles of the transdisciplinary ternary structure; the lowercase “subject” refers to the human knower.

²⁶ Nicolescu, “Methodology,” 25.

²⁷ Nicolescu, “The Hidden Third as the Unifier of Natural and Spiritual Information,” *Cybernetics and Human Knowing* 22, no. 4 (2015): 94.

²⁸ Nicolescu, “Methodology,” 27, 34; for the graphic representation of the transdisciplinary Object, the transdisciplinary Subject, and the Hidden Third, see Nicolescu, “Column,” fig. 2 (82). Nicolescu's own spelling is “Trans-Reality” (“Methodology,” 34; *From Modernity to Cosmodernity*, fig. 17.5, 211), whereas Pasquier and Nicolescu write “Transreality”; this article follows the spelling of the source under discussion in each case.

The logical axiom introduces the logic of the included middle, formalized as a multivalent logic by Stéphane Lupasco and developed by Nicolescu, who joined it to the levels of Reality, into transdisciplinary logic, the key methodological tool of transdisciplinarity. Classical logic rests on the axioms of identity (A is A), of non-contradiction (A is not non-A), and of the excluded middle, according to which there exists no third term T that is at once A and non-A; transdisciplinary logic retains the first two and replaces the third with the axiom of the included middle: there exists a third term T that is at once A and non-A. Classical logic is not abolished; its validity is merely restricted to simple situations. On a single level the opposites A and non-A appear as an irreconcilable conflict; the T-state, exercised at another level, resolves them as non-contradictory, securing the passage between levels—and through its iterative repetition across all levels of Reality, known and conceivable, an open structure of their unity emerges.²⁹

Nicolescu himself uses various designations for transdisciplinarity: a methodology, a model of Reality, a new vision of the world, a metaphysics of Nature, and transdisciplinary realism. For positioning transdisciplinarity as a worldview I rely on the group gathered around Leo Apostel, whose project *World Views: From Fragmentation to Integration* (1994) develops a robust metatheoretical framework for analyzing and constructing worldviews in response to cultural and epistemological fragmentation. The authors define a worldview as “a coherent collection of concepts and theorems that must allow us to construct a global image of the world, and in this way to understand as many elements of our experience as possible”.³⁰ “World” here means neither the Earth nor the merely physical universe, but the widest environment cognitively, practically, and emotionally relevant to us. A worldview must encompass all aspects of human experience: not only systems of meaning but also systems of value, as well as aesthetic and ethical sensibility.³¹ Although not simply a scientific model, such a framework must not contradict known experimental facts, yet it reaches beyond what the physical sciences alone can offer; decisive is the two-way loop in which science, art, and ethics shape the worldview and are in turn shaped by it—the function of worldview construction being the conscious generation of that interaction.³²

The authors articulate seven questions that every complete worldview must answer, which Francis Heylighen condenses into three fundamental ones: what is (ontology), what is true (epistemology), and what is good (axiology).³³ Transdisciplinary realism, as shown elsewhere,³⁴ answers all three questions coherently through its three

²⁹ Nicolescu, “Column,” 81; the action of the included middle logic is symbolically represented in fig. 1 (79).

³⁰ Diederik Aerts et al., *World Views: From Fragmentation to Integration* (VUB Press, 1994), 17.

³¹ Aerts et al., *World Views*, 20.

³² Aerts et al., *World Views*, 21.

³³ Francis Heylighen, *Complexity and Evolution: Fundamental Concepts of a New Scientific Worldview* (Vrije Universiteit Brussel, 2018).

³⁴ Cf. Reznić Brenko, “Prema transdisciplinarnom znanju.” In Aerts et al., the ontological question is posed as a task and a set of proposals rather than given a structure; cf. *World Views*, 25, 66 (“Could one use the concept of finality as a link between different system levels...?”).

axioms and is thus confirmed as a complete worldview; where Apostel calls for ontological integration without giving it structure, Nicolescu provides it by radicalizing the very phenomenological tradition from which Apostel proceeds: what there remained at the level of epistemological modes of access—the levels of perception of the Subject—Nicolescu ontologizes, defining them as levels of Reality of the Subject. An axiological dimension is joined to the three axioms: Nicolescu does not single out axiology as a separate axiom—axioms, he maintains, should be kept to a minimum—but argues that values arise from their combined action and are neither objective nor subjective: they result from the Hidden Third—the interaction of the subjective objectivity of the transdisciplinary Object and the objective subjectivity of the transdisciplinary Subject.³⁵ Transdisciplinary knowledge thus carries from the outset a value-laden and embodied character, inseparable from the knowing subject. Table 1 presents the fundamental dimensions of transdisciplinary realism as a worldview.

Since transdisciplinary realism satisfies the criteria of a coherent worldview, it can also be understood as an onto-epistemological framework from which a distinct philosophy of education follows. To determine this more precisely, Table 2 compares it, by way of orientation, with several dominant currents of educational thought, showing where it converges with them and where it diverges on account of its own onto-epistemological basis. Toward essentialist and transmission models it takes a distinctly critical stance, while with pragmatism, constructivism, critical pedagogy, and phenomenology it enters into a selective dialogue, adopting particular insights but relocating them within a different onto-epistemological framework.

While pragmatism, phenomenology, constructivism, and critical pedagogy each in its own way circumvents the question of the ontological status of Reality, or resolves it only partially, transdisciplinary realism offers an objective but not objectivist foundation. The Real exists independently of the subject—an enigma that no knowledge can exhaust. Reality, by contrast, is structured in levels and is known in dependence on the subject's perceptual capacities; it is plastic, yet it resists our representations and descriptions.³⁶ The subject is therefore neither a passive observer nor

³⁵ Nicolescu, "Methodology," 31. Unlike Nicolescu, Sue L. T. McGregor advocates axiology as a fourth axiom of the transdisciplinary methodology: an explicit axiological framework would enable the reconciliation of conflicting value systems within the space of the Hidden Third. See McGregor, "Philosophical Underpinnings of the Transdisciplinary Research Methodology," *Transdisciplinary Journal of Engineering & Science* 9 (2018): 189. McGregor's proposal responds to a real concern and has didactic value for readers first encountering the framework. Within the framework itself, however, values are not left unanchored: they emerge from the combined action of the three axioms as an effect of the Hidden Third. The difficulty the fourth axiom is designed to remedy—the absence of an explicit axiological anchor—therefore does not arise. More than redundant, a fourth axiom would alter the very status of values: posited as a separate foundation instead of emerging from that combined action, they would be reified—whereas it is precisely their emergent status, neither objective nor subjective, that enables them to mediate among conflicting value systems. I therefore follow Nicolescu's axiomatic minimalism, granting values no fourth axiom, while retaining the axiological dimension McGregor rightly emphasizes: the formation of transdisciplinary values—the accommodation and integration of values beyond those individually held—remains an explicit concern of transdisciplinary work, as an emergent effect of the three axioms rather than a further one among them.

³⁶ Nicolescu, "Methodology," 22, 25, 35.

the sole maker of the world, but a participant in a multilevel process of knowing and creating Reality. It is precisely this ontological position that enables transdisciplinary realism to avoid the traps of naive realism and radical constructivism alike.

If Reality is multilevel, relational, processual, and plastic, and the subject embodied, relational, and multidimensional, then education cannot be reduced to the mere transmission of content, to cognitive development alone, or to social action alone. It must be conceived as a process of the integral, simultaneously multidimensional development of the human being in relation to self, others, the world, and the cosmos.

3. Transdisciplinary pedagogy as an emergent field

This opens the question that guides the present section: how is transdisciplinary pedagogy articulated, and how does it relate to the philosophy of education? Transdisciplinary realism, as a worldview, is the ground from which a philosophy of education—and, consequently, a transdisciplinary pedagogy—is derived. Pedagogy is understood here as the translation of a philosophy of education into a theory of action, learning, and teaching, integrating a normative philosophy of aims and values with praxis-oriented practical pedagogics. The term transdisciplinary pedagogy is not univocal. The literature consists largely of edited volumes, and individual authors address particular segments of its educational articulation: for some it is primarily the general educational horizon, for others the principles of learning and teaching, for others curriculum, organizational models, or methods of work, with education, pedagogy, and method often used interchangeably. I read this instability as a sign of the emergent character of a field that is articulating itself on several levels at once, and I therefore retain the plurality of these approaches without positing transdisciplinary realism—from which I derive my own thesis—as its superior or sole line.

An attempt to formulate a transdisciplinary pedagogy is offered by Pasquier and Nicolescu.³⁷ Starting from the question of how to pass from describing the structure of Reality into a conscious effective mode, they develop a theory of action that translates the onto-epistemological framework of transdisciplinarity into a pedagogy. Their diagram of Transreality shows the alogical Hidden Third as the interaction of Subject and Object, each constituted of different levels of Reality, and its entanglement with the logical included middle.³⁸ From a world incarnated in three levels—the self, others, and the nature/world—the authors derive three levels of development: personal (the relation to oneself), professional (to others), and collective (to the world). Superimposed as three overlapping circles, the zones of development reveal that it unfolds not in separate categories but in a single space where the personal, the

³⁷ Florent Pasquier and Basarab Nicolescu, “To Be or Not to Be Transdisciplinary, That Is the New Question. So, How to Be Transdisciplinary?” in *Being Transdisciplinary*, ed. Basarab Nicolescu, Raymond T. Yeh, and Atila Ertas (ATLAS Publishing, 2019), 7–16.

³⁸ Pasquier and Nicolescu, 8–9, fig. 2.1.

professional, and the collective intersect and condition one another. In the zone of their intersection appears the Hidden Third; the zones of non-resistance belonging to it are accessible through “intuition, the imaginary and the imaginal, affectivity, lived experience, poetry, dreams,” vertically connecting the ontological dimensions of existence and establishing a bridge between the interior world of subjects and the exterior world of objects.³⁹ The imaginal here is a technical term, not a variant of the imaginary: it designates—as distinct from the merely imaginary, the fictive and the unreal—an intermediate world as ontologically real as the worlds of sense and intellect, and imagination, correspondingly, not as a producer of fictions but as a cognitive faculty with its own noetic value, following Corbin.⁴⁰

The model is situated on a “common pedestal,” a specific space-time containing individualities and communities immersed in the Hidden Third, grounding it in lived reality.⁴¹

Pasquier and Nicolescu ask what kind of education and educational policies we seek, and on which conception of the human being they should be based. In response, they propose a holistic approach that conceives of the human being as a “human temple.” The starting point is the claim that every newborn human being grows within a particular anthropological context (beliefs, culture, social organization, and economy), which they call Transreality or the common pedestal. Built on this foundation are four pillars—social bonds, the body, feelings and sensibility, and the mental functions—crowned by values and ontological questions.⁴² In the educational context the authors maintain that each of these levels includes and develops parts of all the others, and that the same basic scheme can be recognized in different fields, including curricula and disciplines. Transdisciplinarity appears in the fifth column, cutting across all the levels and disseminating through the whole structure.⁴³ In this context transdisciplinarity is not an addition to existing education but a principle that permeates the whole of human formation.

The pedagogy corresponding to this conception of the human being is one they call integrative and implicative: integrative, in that every form of transmission is useful depending on the moment and the context; implicative, in that learners are offered situations in which they become full actors of the process of their own learning. Such a pedagogy, they specify, manifests at the crossroads of the Hidden Third containing the subjects in their three dimensions of development: it focuses on the junction of

³⁹ Pasquier and Nicolescu, 10. For the multiple levels of development and their link with Transreality, see figs. 2.2–2.3 (10–11).

⁴⁰ Henry Corbin, “*Mundus Imaginalis*, or the Imaginary and the Imaginal,” trans. Ruth Horine, Spring (Zürich, 1972); the full English text is available at <https://www.amiscorbin.com/bibliographie/mundus-imaginalis-or-the-imaginary-and-the-imaginal/>. The French original, “*Mundus imaginalis ou l’imaginaire et l’imaginal*,” *Cahiers internationaux de symbolisme* 6 (1964), reprinted in *Face de Dieu, face de l’homme* (Flammarion, 1983), is cited by Pasquier and Nicolescu, 10n8.

⁴¹ Pasquier and Nicolescu, 10.

⁴² Pasquier and Nicolescu, 12–13; the full human temple is represented in fig. 2.5 (13).

⁴³ Pasquier and Nicolescu, 13.

“know how to do,” “know how to be,” and “know how to become,” while pursuing at the same time emancipation and direct participation in the common ground.⁴⁴ For the present argument the point is decisive: the Hidden Third itself is presented as the source of this pedagogy—a confirmation, within the framework’s own pedagogical elaboration, that the mediating term is not an addition to pedagogy but its generative core. The authors hold that a new pedagogy must include: the transdisciplinary approach and complex thinking, transdisciplinary consciousness, spirituality, the relation with nature and the cosmos, creativity, the practice of the arts, transpersonal psychology, and soft skills.⁴⁵

Crucial for transdisciplinary pedagogy is the distinction between the disciplinary (transmission) and the transdisciplinary model of education. According to Nicolescu, disciplinary education is marked by a single level of Reality, orientation toward the external world of the Object, accumulation of knowledge, analytic intelligence, binary logic, and orientation toward power and possession, excluding ethical values; transdisciplinary education encompasses several levels of Reality, the correspondence between the Object’s external and the Subject’s internal world, understanding in depth, the harmony of mind, feelings, and body, the logic of the included middle, and orientation toward astonishment and sharing, including ethical values.⁴⁶ To the transdisciplinary model corresponds what Nicolescu calls *in vivo* knowledge, opposed to the isolated, transmissible *in vitro* knowledge that presupposes a passive learner.⁴⁷ *In vivo* knowledge unites knowledge and being, and mind, feeling, and body, encompassing several levels of Reality; art, spirituality, imagination, and embodied experience are not secondary dimensions but key sources of transdisciplinary knowledge.

On this basis I derive in this article three “trans” functions of transdisciplinary education in which the axioms are pedagogically operationalized.⁴⁸ The transcendent function, grounded in the ontological axiom, enables vertical movement through the levels of Reality by means of the Hidden Third: it ensures that knowledge spans several levels of Reality, presupposes the deep connection of the Object’s external and the Subject’s internal world, and fosters the equilibrium of analytic intelligence, feelings, and the body. Grounded in the logical axiom, the transgressive function transcends binary oppositions through the third term T. It is founded on the logic of the included middle, according to which what appears contradictory at one level of Reality is perceived, from another level, as unified and non-contradictory, thereby enabling a fruitful dialogue among scientific, artistic, intuitive, and somatic forms of knowledge. The

⁴⁴ Pasquier and Nicolescu, 14, fig. 2.6.

⁴⁵ Pasquier and Nicolescu, 15.

⁴⁶ Basarab Nicolescu, “The Need for Transdisciplinarity in Higher Education in a Globalized World,” in *Transdisciplinary Theory and Practice*, ed. Basarab Nicolescu and Atila Ertas (TheATLAS Publishing, 2013), 19.

⁴⁷ Nicolescu, “The Need for Transdisciplinarity,” 19.

⁴⁸ The words “three” and “trans” share the same etymological root—three is the transgression of two, that which goes beyond two; Nicolescu, “The Hidden Third as the Unifier,” 94. The triadic derivation is thus inscribed in the very word “transdisciplinarity.”

transformative function, grounded in the epistemological axiom, sets in motion the ontological transformation of the subject through the recursiveness of knowing: the passage from mere accumulation of information to a process in which knowledge becomes lived experience, a new way of living, and a path of self-transformation, building an ethical dimension of astonishment, sharing, and responsibility into the very process of knowing. The synergetic action of the three functions directly constitutes the attributes of *in vivo* knowledge: it is not a goal to be attained but a permanent, living process that emerges from the dynamic tension and cooperation of transgression, transcendence, and transformation.

Before turning to further articulations of the field, it is necessary to examine more closely the conception of art that underpins this framework. Since Nicolescu explicitly situates intuition, dreams, spirituality,⁴⁹ and lived experience in the zone of non-resistance, art is clearly not the only access to the Hidden Third: other non-discursive practices—ritual, meditation, contemplation, embodied movement—access it as well. Art, however, performs a specific configuration of that access. What distinguishes artistic practice is that it externalizes the passage through the zone of non-resistance into a perceptible, shareable form: a work, a performance, an event, which returns into the zone of resistance and becomes intersubjectively available—discussable, iterable, available as material for shared reflection. Meditation and contemplation remain primarily first-personal. Ritual repeats a closed frame: its form is prescribed, and deviation counts as error. Through the settings and procedures on which pedagogy draws—the studio, the rehearsal, the workshop, the sketch—artistic practice establishes an open frame: a shareable structure whose very content is the trying-out of what does not yet exist, so that deviation—even error—is invited rather than sanctioned; in this sense, experiment is not an accident of artistic practice but its very norm. Such a frame creates the conditions under which *in vivo* knowledge—knowing fused with being, which cannot be handed over ready-made—may emerge, though it also may not. What can be repeated is the frame, set up again and varied; each enactment remains singular. In the event, when it takes place, the whole is greater than the sum of its parts: those involved and the emerging work interact as true subsystems, their interactions constituting a new, irreducible element. Among the practices that access the zone of non-resistance, art thus offers an access that is at once shareable, repeatable as frame, and open to the new—which is what pedagogy requires.⁵⁰ Another practice may play a similar role precisely when it is framed as a

⁴⁹ Spirituality is understood here in Nicolescu's sense: distinguished from religion as a formalized, often dogmatic system, it names a personal experience of transcendence—in his later formulation, a new spirituality free of dogmas; Nicolescu, *From Modernity to Cosmodernity*, 215. Pasquier and Nicolescu likewise expressly separate spirituality from religion (7).

⁵⁰ Nicolescu's own study of Peter Brook's theatre confirms the point: the grouping of text, actors, and audience reflects the characteristics of a natural system—when a true theatrical event takes place, it is greater than the sum of its parts, the interactions constituting a new, irreducible element, while text, actors, and audience remain true subsystems opening themselves to one another; Nicolescu, *From Modernity to Cosmodernity*, 155–57.

shared, reflexive practice: the boundary is porous, and it is the mediating function, not the label, that matters. Since the transgressive function requires a medium for the dialogue of forms of knowledge, and the artistic artifact or event is that medium, art—without being exclusive—remains pedagogically irreplaceable.

With the concept of art thus determined, we return to the further articulations of the field. Within higher education, McGregor addresses transdisciplinary pedagogy as an educational framework organized around transdisciplinary learning, cyclical learning processes, and habits of mind, deriving nine transdisciplinary pedagogies, from the integrative curriculum to transformative learning.⁵¹ Gibbs derives transdisciplinary pedagogy from the question of thinking under conditions of complexity: since disciplinary framings cannot simply be combined into a harmonious whole, transdisciplinarity has to be framed in foundational terms rather than as an extension of other approaches; refusing hegemonies of knowledge that redefine problems away from their context, it places them in local and global contexts—in a praxis that is emotional, tacit, imaginative, and reflective, not one of rational judgment alone,⁵² while David Scott shows that a transdisciplinary curriculum requires an ontological rather than merely epistemological foundation, confirming, via Bhaskar and Heidegger, the turn that Nicolescu articulates with the ontological axiom.⁵³

Dieleman and Margarita Juárez-Nájera envision the transdisciplinary curriculum as a “rich ecology” of formal, experiential, and direct knowing.⁵⁴ In their Transdisciplinary Core at the Autonomous Metropolitan University in Mexico City, artistic practices were integrated into engineering education not additively but ecologically, so that each form of knowing retains its own logic while nourishing the others. This is a concrete case of art as a constitutive rather than decorative element of the educational whole. Kagan takes the arts in the transdisciplinary context as his central subject, viewing them as a transformative force that opens spaces of possibility—shared physical, social, and mental spaces in which imagination, experimentation, and creative, participative learning develop a sensibility for complexity.⁵⁵ McGregor subsequently shifts the discussion from the implemented curriculum to the curricular document, offering a template of its philosophy and rationale, though she calls it an “inaugural

⁵¹ Sue L. T. McGregor, “Transdisciplinary Pedagogy in Higher Education,” in *Transdisciplinary Higher Education: A Theoretical Basis Revealed in Practice*, ed. Paul Gibbs (Springer, 2017), 3–16.

⁵² Paul Gibbs, “Transdisciplinary Thinking: Pedagogy for Complexity,” in *Transdisciplinary Higher Education*, ed. Gibbs, 49.

⁵³ David Scott, “Interdisciplinarity, Transdisciplinarity and the Higher Education Curriculum,” in *Transdisciplinary Higher Education*, ed. Gibbs, 31–43.

⁵⁴ Hans Dieleman and Margarita Juárez-Nájera, “Introducing a Transdisciplinary Curriculum to Foster Student Citizenship: A Challenge Beyond Curricula Reform,” *International Journal of Higher Education and Sustainability* 1, no. 1 (2015): 3–18.

⁵⁵ Sacha Kagan, “Artful Sustainability in Transdisciplinary Spaces of Possibilities,” *Transdisciplinary Journal of Engineering & Science* 10 (2019): 63–71. The concepts of the sensibility to complexity and the transdisciplinary sensibility, which the article condenses, are systematically developed in Sacha Kagan, *Art and Sustainability: Connecting Patterns for a Culture of Complexity* (Transcript Verlag, 2011), chap. 4.

attempt”;⁵⁶ and where McGregor raises the question of the education of educators,⁵⁷ Shamini Dias and Shelby Lamar’s textbook offers an operationalization: joining philosophical foundations and complex-systems thinking with practical tools within a justice-oriented, transformative transdisciplinarity—not explicitly Nicolescuian, though compatible with it.⁵⁸ Together, these works show that transdisciplinary pedagogy is already being articulated as a framework for learning, a pedagogy of thinking for complexity, a curricular ecology of knowledge, and an onto-epistemological problem of the curriculum—yet mostly through individual compilations and inaugural attempts; the systematic, axiomatically grounded articulation of the place of art in them nevertheless remains the least elaborated, even though artistic practice is listed among the features of the new pedagogy. Nicolescu, it should be noted, understands transdisciplinary education as a long-term process unfolding along the entire vertical—from kindergarten to the university and beyond, in work, community, and everyday life⁵⁹—whereas most other authors focus on higher education.

The reception of Nicolescu’s concepts beyond this line confirms both their fertility and the cost of detaching them from their axiomatic ground. In sustainability science, Toddi A. Steelman et al. made the Hidden Third the operative concept of an empirical project: in the Delta Dialogue Network, art—as a boundary object carrying simultaneously particular and shared meanings—served, on the project’s own account, as the very means of entry into the Hidden Third in collaborative research with Indigenous communities. The project demonstrates the concept’s practical traction; its conceptual apparatus, however, renders the Hidden Third as a designable “transformational space”—a setting that can be deliberately created and facilitated. Yet design has purchase only on what resists it: settings, procedures, and dialogue belong to the zone of resistance and can indeed be shaped, whereas the Hidden Third dwells in the zone of non-resistance, where there is nothing for form to take hold of—the conditions of the encounter can be prepared, but the encounter itself can only be occasioned, not produced. The rendering thereby loses the ternary structure of Subject, Object, and Hidden Third, and the multilevel structure of Reality, which together give the concept its meaning.⁶⁰ At the same time, the case yields a positive lesson for

⁵⁶ Sue L. T. McGregor, “Transdisciplinary Curriculum: Educational Philosophy and Rationale,” *Integral Leadership Review* 19, no. 1 (2019).

⁵⁷ Sue L. T. McGregor, “Transdisciplinary Teacher Education,” *Education Sciences* 12, no. 7 (2022): 485; see further sec. 4 below.

⁵⁸ Shamini Dias and Shelby Lamar, *Transdisciplinary Pedagogy for Ethical Education Textbook*, with Jonathan Aragon, Jessica Knippel, and Holly Allen, 2nd ed. (Claremont Graduate University, 2022).

⁵⁹ Basarab Nicolescu, “The Transdisciplinary Evolution of Learning” (paper presented at the annual meeting of the American Educational Research Association, 1999).

⁶⁰ Toddi A. Steelman et al., “Identifying Transformational Space for Transdisciplinarity: Using Art to Access the Hidden Third,” *Sustainability Science* 14 (2019): 771–90. The authors cite two of Nicolescu’s articles (“Methodology”; “The Hidden Third”), but the apparatus itself is not taken over: the Hidden Third receives an interpretation of their own. The substitution shows in the terms and in the figure. “Subjective” and “objective” function as commonsense categories, without the distinction between the Real and Reality, the crossing of

the argument developed here: an empirical project seeking access to the Hidden Third found that access precisely in art. Deployed not as a vehicle for transmitting science or making a political point but to “create respectful space to bridge different ways of knowing and experiences,” art functioned concretely as objects in which knowledge, practice, and belief were embedded; as a medium for sharing knowledge and art-making skills; as testimony of social–ecological change; and as artefacts of knowledge co-production⁶¹—a practice-level corroboration of the mediating, rather than instrumental, function this article assigns to art. Read from the opposite direction, the case also indicates why the present article proceeds as it does: operationalization—here pedagogical—is transdisciplinary in the strong sense insofar as it is derived from, and stays anchored in, the axiomatic foundation. It is precisely this derivation that the three “trans” functions, introduced above, undertake.

Into the field of transdisciplinary pedagogy thus mapped, this article places the thesis advanced by Pasquier and Nicolescu—that art, as the Hidden Third, is one of its constitutive components—and undertakes its systematic grounding in transdisciplinary realism as a philosophical system. The Hidden Third, the mediator connecting the levels of Reality of Subject and Object, is a-logical: unlike the included middle, which is logical and operates in the zone of resistance, it belongs to a domain that surpasses logic and cannot be captured by rational discourse.⁶² Human experience gains access to it, as noted above, through intuition, imagination, lived experience, dreams, and poetry—that is, through cultural-artistic and aesthetic/spiritual practices.⁶³ While science works with fragments of a single level of Reality, art and culture cut across several levels of Reality of Subject and Object and belong to the zone of non-resistance, in which the Hidden Third manifests itself.

subjective objectivity and objective subjectivity, or the internal structure of the transdisciplinary Subject and Object (sec. 2); and Fig. 1 depicts the Hidden Third as a bounded central region on a single plane, overlapped by four circles of experience and knowledge, with the region's properties inscribed inside it as a list. With no Subject, no Object, and no levels of Reality in the picture, a spatial region with listed contents thus stands in place of an ontological interaction term—a term real in its effects, knowable by what it enables, and never given as an object of positive description. The interpretation thereby reduces transdisciplinarity to a single one of its aspects—the experimental, detached from the theoretical. The authors' own reservation—that the weakness of the framework is just that, a theory, and one established by a Western scientist (785)—illustrates the point twice over: theory is one of the project's inseparable aspects, and axioms, by their very nature, are not demonstrated but judged by the results of their applications—the project's own success in reaching the Hidden Third through art is precisely such a verification; for the framework's practical elaborations, see Basarab Nicolescu and Atila Ertas, eds., *Transdisciplinary Theory and Practice* (TheATLAS Publishing, 2013), and Paul Gibbs, ed., *Transdisciplinary Higher Education: A Theoretical Basis Revealed in Practice* (Springer, 2017). And the framework's genesis is itself transdisciplinary, born of the very dialogue between the scientific and the non-scientific, the Western and the non-Western, that it advocates, so that it already crosses the divide the label presupposes; the decolonial question, legitimate in its own order, lies beyond the scope of this article.

⁶¹ Steelman et al., “Identifying Transformational Space,” 785; the enumeration follows Rathwell and Armitage's typology of art's boundary-crossing work, as applied there.

⁶² Nicolescu, “Column,” 84.

⁶³ Pasquier and Nicolescu, 10; Basarab Nicolescu, *From Modernity to Cosmodernity: Science, Culture, and Spirituality* (State University of New York Press, 2014). Cf. already the *Declaration of Locarno* (1997), pt. 9, where transdisciplinary education “revalues the role of [...] intuition, of the imaginary, of sensitivity, and of the body” in the transmission of knowledge.

In the hermeneutic elaboration of the methodology Nicolescu distinguishes three types of meaning: horizontal meaning—interconnections at a single level of Reality, the pursuit of most academic disciplines; vertical meaning—interconnections involving several levels of Reality, which is what poetry, art, or quantum physics accomplish; and the meaning of meaning—interconnections encompassing the whole of Reality, the Subject, the Object, and the Hidden Third—as the ultimate goal of transdisciplinary research.⁶⁴ According to this typology art operates at the level of vertical meaning.

This cutting across levels rests on the integration of the modes of knowing that rationalist discourse keeps apart. The unity of knowledge should not be understood as a single unified knowledge or a single theory, as sometimes misread, but as an “equilibrium between analytic intelligence, feeling, and the body.”⁶⁵ Dieleman reads that equilibrium through embodied cognition, as the unity of cognitive, embodied, and enactive knowing, and connects it with neuroscience and the enactivist tradition.⁶⁶

From the framework set out above follows the thesis of this article: artistic practice in transdisciplinary education is neither a superstructure nor an epiphenomenon, but an integral and constitutive part of the process of knowing. Positioned in the Hidden Third, it acts as a mediator between Subject and Object and their levels of Reality and corresponding zones of non-resistance, integrating the analytic, bodily, and experiential dimensions of knowing and thereby enabling an integration of knowledge and being that surpasses fragmented disciplinary knowledge.

That this claim is not self-evident is demonstrated by the literature on the arts in transdisciplinary higher education. Van Baalen and colleagues distinguish three positions of the arts: an instrumentalized position, in which art is a tool for attaining other ends; the artistic vantage point, in which art serves as the starting point of inquiry; and the transdisciplinary approach, in which art is an integral part of the process of knowing.⁶⁷ The position defended in this article is precisely the third: art is not reduced to a mere method or illustration but, acting as the Hidden Third, functions as a bridge between the levels of Reality and a mediator between Subject and Object, whereby it becomes necessary for the ontological transformation of the subject.

⁶⁴ Basarab Nicolescu, “Transdisciplinarity as Methodological Framework for Going Beyond the Science-Religion Debate,” *Transdisciplinarity in Science and Religion* 2 (2007): 35–60.

⁶⁵ Nicolescu, “Evolution of Learning.”

⁶⁶ Hans Dieleman, “Transdisciplinary Hermeneutics: A Symbiosis of Science, Art, Philosophy, Reflective Practices, and Subjective Experience,” *Issues in Interdisciplinary Studies* 35 (2017): 170–99. Dieleman notes that Nicolescu did not elaborate the connection with neuroscience, although Nicolescu repeatedly refers directly to Damasio’s research, which shows that emotions are not an obstacle to rational thought but its constitutive element; cf. Antonio Damasio, *Osjećaj zbivanja: Tijelo, emocije i postanak svijesti* [The Feeling of What Happens] (Algoritam, 2005).

⁶⁷ Van Baalen, de Groot, and Noordegraaf-Eelens, “Higher Education, the Arts, and Transdisciplinarity,” 24–45.

4. Concluding remarks

From the preceding analysis it follows that transdisciplinary pedagogy is articulated as an educational horizon in which the transformation of the subject, multi-dimensional development, and the unity of knowledge are interconnected: education extends beyond the acquisition of content to encompass the formation of a human being who learns about the self, others, and the world without separating knowledge from being. Rather than homogenizing different forms of knowing, the unity of knowledge emerges here through a dynamic interplay, dialogue and reciprocal transformation of scientific, experiential, artistic, intuitive, and relational knowledge; the task of transdisciplinary pedagogy is to create the conditions under which that encounter, and thus the unity of knowledge itself, become possible at all. Art is not set apart within this framework: in the role of the Hidden Third, it is one of the practices through which the relation of Subject and Object is enacted.

Realizing such a horizon raises a question beyond the choice of content and methods. Already the Locarno Declaration sought to build transdisciplinarity into the existing university—not by founding new chairs but by creating transdisciplinary workshops and spaces, and by recommending that a tenth of the teaching time in every discipline be devoted to transdisciplinarity; yet the same Declaration explicitly names the teaching of teachers the most complex problem of that evolution.⁶⁸ Since the connecting of different forms of knowledge and the transformation of the subject cannot be transmitted ready-made but are established in the process itself, implementation relies on an educator capable of embodying and facilitating that process—and the systematic education of such transdisciplinary educators is still largely absent. McGregor therefore articulates it as a distinct area connecting philosophical, theoretical, pedagogical, and professional components, recognizing in it a shift from the teacher as a transmitter of the inherited “grand narrative” of knowledge to the teacher as a participant in the creation of transdisciplinary knowledge, though she herself notes that this remains a nascent and untested idea.⁶⁹ That this is no technical detail but a demand touching the very disciplinary organization of knowledge and the primacy of science is shown by the resistance such a pedagogy encounters in the academic milieu: resistance to a shift that relativizes that primacy, and to abandoning the security of right and wrong answers.⁷⁰

A further question reaches into the very status of the field: does the systematic articulation of transdisciplinary pedagogy—with its concepts, its formation, and its methods—necessarily turn into yet another discipline, that is, into precisely what Nicolescu regards with wariness, holding that the founding of separate chairs and the proliferation of disciplines would be contrary to “the transdisciplinary spirit”?⁷¹

⁶⁸ *Declaration and Recommendations* (Locarno, 1997), esp. Declaration, pts. 6 and 9, and Recommendations 5 and 6.

⁶⁹ McGregor, “Transdisciplinary Teacher Education.”

⁷⁰ Dieleman and Juárez-Nájera, “Introducing a Transdisciplinary Curriculum,” 14.

⁷¹ Nicolescu, “The Need for Transdisciplinarity,” 17–29.

The question of the status of transdisciplinarity and of transdisciplinary pedagogy, however, invites a distinction: transdisciplinarity, on Nicolescu's definition, is not a discipline but that which is at once between the disciplines, across them, and beyond them. If transdisciplinary pedagogy is its pedagogical articulation, it would have a subject matter, a theoretical grounding, and a methodical elaboration, and could thus be understood as a special pedagogy, akin to intercultural, media, or ecological pedagogy—which need not contradict the transdisciplinary spirit, though it remains open whether it thereby nevertheless constitutes itself as a new discipline. The way out of this tension probably lies not in resolving it but in accepting it as productive: in the possibility that the field develop more systematically without closing itself into yet another specialization.

Individual elements of such an articulation are already present—from a philosophy of education and a theory of action to curricular models and the first attempts at teacher education—but their systematic consolidation is still to come and exceeds the reach of any single author's approach. In this sense transdisciplinary pedagogy shows itself to be an emergent field: developed enough to be distinguished from a mere methodological metaphor, yet still open with respect to its status—and, within it, with respect to the place that belongs to art.

The question of that place, however, is not settled within the field itself but at the level of the philosophical system on which the field has here been grounded. Within transdisciplinary realism, art thus receives a threefold determination. As a form of knowledge, it is a practice of *in vivo* knowledge: knowing fused with being, in which the equilibrium of analytic intelligence, feelings, and the body is enacted rather than merely described. As a way of accessing Reality, it operates at the level of vertical meaning: it does not depict one level of Reality more vividly, but establishes interconnections among levels—true artistic creation, Nicolescu writes, arises in the moment, “bridging several levels at the same time, engendering a transperception.”⁷² And as an epistemic practice, it is epistemic in a radicalized, onto-epistemological sense: since the levels of perception it engages are levels of Reality of the Subject, artistic practice is implicated in the ontological transformation of the knower. One further implication for the theory of art may be noted. The derived, secondary status of art has received its most influential theoretical codification in the scheme of base and superstructure. The scheme presupposes a fixed material substrate—matter as brute, self-identical substance—over which the symbolic would be erected. On the ontology adopted here, matter cannot be equated with substance: at the microphysical level of Reality a perpetual transformation of energy, substance, and information is observed, and materiality itself comes in degrees across levels of Reality that are discontinuous yet connected, with no privileged level; no information-free material

⁷² Nicolescu, *From Modernity to Cosmodernity*, 9–10. True scientific creation, Nicolescu adds, arises likewise, bridging several levels of representation and engendering a transrepresentation, which explains the surprising similarities between the moments of artistic and scientific creation: the creative moment in art and in science shares one and the same trans-level structure.

stratum is therefore available to play the role of such a base.⁷³ The pair is thus not an antagonism to be resolved by a third term but an interpretive construction deprived of its footing—it dissolves rather than being resolved. The material and the symbolic are accordingly not substrate and addition—meaning arises within the same multilevel and multireferential Reality in which information is already constitutive of matter—and art cannot be assigned the derived status of a symbolic supplement to material production. The implications of transdisciplinary realism as a philosophical system extend across many fields; three are of immediate concern here: toward pedagogy, where the constitutive place of art is thereby secured; toward educational and cultural policies, which lose the theoretical justification for treating art as ornament or luxury; and toward the philosophy of art and aesthetics, where the marginalization of art—“a permanent, complex, and ongoing process”⁷⁴—shows itself to be an epistemological rather than an ontological affair: what recedes is the recognition of art’s multidimensionality, not the multidimensionality itself, which persists—attested by the presence of art across all cultures and throughout the existence of the species. Its pedagogical instrumentality, finally, is not denied but resituated: art can serve education precisely because, more fundamentally, it opens access to the Hidden Third—mediator between Subject and Object and source of transdisciplinary knowledge—and thereby co-constitutes the conditions in which such knowledge emerges.

⁷³ Nicolescu, “Gödelian Aspects of Nature and Knowledge”: energy as the unifying concept, information as coded energy, substance as concretized energy; matter as the association of substance, energy, information, and space-time, with degrees of materiality differing across levels. Two cautions apply. The symbolic is not thereby reduced to physical information: meaning presupposes the Subject and arises in the Subject–Object interaction (see the typology of meaning above and the distinction between natural and spiritual information in sec. 2). And the degrees of materiality order the levels topologically, as an arrow of the transmission of information—the finer penetrating the coarser—not as a relation of base and superstructure.

⁷⁴ The formulation is that of this journal’s thematic issue “The Marginalization of Art: A Permanent, Complex, and Ongoing Process”, *AM Journal of Art and Media Studies* 37 (2025), which examines the process from critical-theoretical, feminist, media-theoretical, and political-economic perspectives; the present framework adds an onto-epistemological determination.

Table 1. Transdisciplinary realism as a complete worldview: three fundamental questions

Dimension	Question	Transdisciplinary realism (Nicolescu)
Ontology (includes the logical axiom)	What is?	Reality is multilevel and ontologically differentiated; no level is privileged or fundamental (the new principle of relativity); the transdisciplinary Object, the transdisciplinary Subject, and the Hidden Third form a ternary ontological structure; discontinuity does not mean disconnection—the levels are interconnected through the Hidden Third; the logic of the included middle enables the passage between levels.
Epistemology (the epistemological axiom / the complexity axiom)	What is true?	The structure of the totality of levels of Reality is a complex structure: from the universal interdependence and inseparability of complex systems follows global causality; the laws governing any single level are always incomplete; knowledge is neither merely exterior nor merely interior but both at once, and therefore remains forever open, incompletable, and inexhaustible by any single perspective.
Axiology	What is good / bad?	From the combined action of the three axioms—the recognition of multilevel Reality, of unity in diversity, of the openness of knowledge, and of the relational character of subject and object — emerges a po/ethical orientation toward responsibility, humility, tolerance, transparency, and respect for diversity.

Note: The term po/ethics (poethics) was coined by Christian Moraru, *Cosmodernism: American Narrative, Late Globalization, and the New Cultural Imaginary* (University of Michigan Press, 2011), 55, and adopted by Basarab Nicolescu, *From Modernity to Cosmodernity: Science, Culture, and Spirituality* (State University of New York Press, 2014), 97.

Table 2. Comparative positioning of transdisciplinary realism in relation to the dominant currents of educational thought

Current	What it shares with transdisciplinary realism	Where transdisciplinary realism differs
Pragmatism	Emphasis on experience and on learning through action	It does not confine experience to a single level of Reality and to the horizon of practical utility, but opens it toward a vertical movement through the levels of Reality and the levels of perception of the Subject, including the zone of non-resistance in which the relation between the transdisciplinary Subject and the transdisciplinary Object is established.
Phenomenology	The centrality of embodied experience	It regards the body and feelings not only as media of lived meaning but also as legitimate modes of access to multilevel Reality; it understands the unity of knowledge as an equilibrium of mind, feelings, and the body, not as the primacy of a single cognitive mode.
Constructivism	Knowledge is always mediated by the activity of the subject	It does not permit the reduction of Reality to the constructions of the subject or of the community; constructions unfold in relation to the Real and to multilevel Reality.
Critical pedagogy	The emancipatory impulse	It does not enclose emancipation within the socio-political level: the social level is one level of Reality but not the only one, so emancipation concerns the multidimensional being and its relation to all the levels of Reality.
Essentialism	The realist commitment: a reality independent of the knower	Essentialism proceeds from an objective and fixed reality; transdisciplinary realism offers an objective but not objectivist foundation: Reality is multilevel, not fixed.

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