

## Disciplinary boundaries

The unconscious barrier to a true understanding of what transdisciplinarity means by the words “beyond all discipline” comes from the inability of certain researchers to think the *discontinuity*<sup>1</sup>. For them, the boundaries between disciplines are like boundaries between countries, continents and oceans on the surface of the Earth. These boundaries are fluctuating in time but a fact remains unchanged: the continuity between territories.

We have a different approach of the boundaries between disciplines. For us, they are like the separation between galaxies, solar systems, stars and planets. It is the movement itself which generates the fluctuation of boundaries. This does not mean that a galaxy intersects another galaxy. When we cross the boundaries we meet the interplanetary and intergalactic vacuum. This vacuum is far from being empty: it is full of invisible substance and energy. It introduces a clear discontinuity between territories of galaxies, solar systems, stars and planets. Without the interplanetary and intergalactic vacuum there is no universe.

However, the above considerations are simply metaphors.

The astonishing fact is that *no rigorous definition of disciplinary boundaries exists till now in literature*. Based upon the transdisciplinary approach<sup>2</sup>, we are able to give such a rigorous definition.

We define *disciplinary boundary* as the *totality of the results – past, present and future – obtained by the laws, norms, rules and practices of a given discipline*. Of course, there is a direct relation between the extent to which a given discipline has been mathematically formulated and the extent to which this discipline has assumed a boundary. In other words,

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<sup>1</sup> Julie Thompson Klein, *Interdisciplinarity – History, Theory & Practice*, Wayne State University Press, Detroit, 1990.

<sup>2</sup> Basarab Nicolescu, *La transdisciplinarité*, manifeste, Monaco, Rocher, "Transdisciplinarité" Series, 1996. English translation: *Manifesto of Transdisciplinarity*. New York: SUNY Press, 2002, translation from the French by Karen-Claire Voss.

the *more* mathematically formalized a given discipline is, the *more* this respective discipline has a precise boundary.

Most of the disciplines are not mathematically formalized and therefore their boundaries are fluctuating in time. In spite of this fluctuation, there is a boundary defined as the *limit* of the totality of fluctuating boundaries of the respective discipline. For example, it must be clear for everybody that the economy will never give information on God, that religion will never give information on the fundamental laws of elementary particle physics, that agriculture will never give information about the neurophysiology, or that poetry will never give information on nanotechnologies.

There is a real discontinuity between disciplinary boundaries: there is *nothing*, strictly nothing between two disciplinary boundaries, if we insist to explore this space between disciplines by old laws, norms, rules and practices. Radically new laws, norms, rules and practices are necessary.

The above definition remains valid for multidisciplinary and interdisciplinarity, which are just continuous extensions of disciplinarity: *there are multidisciplinary and interdisciplinary boundaries as there are disciplinary boundaries.*

Not only disciplines but also religions and ideologies have boundaries.

However, *transdisciplinarity has no boundary*. Therefore, transdisciplinarity can never lead to a super-discipline, super-science, super-religion or super-ideology.

This crucial fact is the result of the structural incompleteness of the levels of Reality.

In fact, *it is precisely the incompleteness of levels of Reality which explains to the existence of disciplinary boundaries*. This might seem paradoxical but it is only a fake paradox. Disciplines are blind to incompleteness due to arbitrary elimination of the Hidden Third in these disciplines, i. e. the arbitrary elimination of the interaction between Subject and

Object. Once this unjustified assumption is eliminated, disciplines are inevitably linked one to another.

How does one understand this link between disciplines in the presence of incompleteness and discontinuity of levels of Reality?

In another words, can we imagine a *fusion of disciplinary boundaries*?

This dream of the fusion of disciplinary boundaries was present from the beginnings of transdisciplinarity<sup>3</sup>. This project goes back to the talk of Erich Jantsch<sup>4</sup> at the international workshop “Interdisciplinarity –Teaching and Research Problems in Universities”, organized in 1970 by the Organization for Economic Co-operation and Development (OECD), in collaboration with the French Ministry of National Education and University of Nice<sup>5</sup>.

*Such a fusion of disciplinary boundaries is simply impossible in transdisciplinarity*, because it would lead to a new boundary, whose even existence is incompatible with transdisciplinarity. Links and bridges between disciplines are still however possible: they are mediated by the Hidden Third, which can not be captured by any discipline and by any boundary. The most obvious sign of the presence of these links and bridges is the modern and post-modern migration of concepts from one field of knowledge to another.

Basarab Nicolescu

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<sup>3</sup> Basarab Nicolescu, “Transdisciplinarity – past, present and future”, in *Moving Worldviews - Reshaping sciences, policies and practices for endogenous sustainable development*, COMPAS Editions, Holland, 2006, edited by Bertus Haverkort and Coen Reijntjes, p. 142-166.

<sup>4</sup> Erich Jantsch, “Vers l’interdisciplinarité et la transdisciplinarité dans l’enseignement et l’innovation”, in Léo Apostel et al. (1972).

<sup>5</sup> Léo Apostel, Guy Berger, Asa Briggs and Guy Michaud (ed.), *L’interdisciplinarité – Problèmes d’enseignement et de recherche*, Centre pour la Recherche et l’Innovation dans l’Enseignement, Organisation de Coopération et de développement économique, Paris, 1972.