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Among Institutions, Spaces and Networks: Interdisciplinary and Transdisciplinary Realms in the American Continent¹

Novel interdisciplinary configurations —what are in a sense institutional “experiments”— possess the potential to reveal new paradigms for knowledge production, organization, and application.

M. Crow y W. Dabars (2014, 20)

Why think in terms of institutions?

INSTITUTIONAL FACTORS ARE usually blamed for hindering interdisciplinary initiatives. This issue of **INTERdisciplina** presents a different perspective in which institutions are reconceptualized as social constructs (Ostrom 1990, 1995) that have contributed—and continue to contribute—towards the development of interdisciplinarity. Within this framework, universities become privileged realms as they create spaces in which there is freedom to generate conceptual and organizational innovations that pave the way to new forms of knowledge production (Weingart, 2014).

The *dossier* presented here is based on the premise of reflecting about the challenges faced by interdisciplinary (ID) and transdisciplinary (TD) knowledge production focusing on the institutionalization processes, the cultural

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transformations and the characteristics of the communities emerging from these processes.

Despite the extensive literature devoted to the different facets of ID (Frodeman, 2014a and b; Lattuca, 2011; National Academy of Sciences, 2005; Porter and Rafols, 2009; Repko, 2008; Repko *et al.*, 2011; Thompson Klein, 1990, 1996, 2005, 2011; to mention a few), and TD (Bammer, 2005; Pohl and Hirsch Hadorn, 2007; Regeer and Bunders, 2009, and others), Latin America still lacks a comprehensive understanding of these phenomena. As a first step towards achieving this goal, the present issue presents a compendium of contributions from the American Continent revolving around three linchpins: institutions, cultures and communities constructed around ID and TD knowledge production. Reflection on these practices constitute an effort to position the ID and TD realms within the local cultural contexts.

The authors were invited to revisit the following questions:

- What are the implications of institutionalizing interdisciplinarity in Latin America?
- What lessons can be learned from systematizing the experiences of ID institutionalization in our universities and academic settings?
- How do ID and TD research impact cultural processes?
- What characteristics must these processes and programs have? What interdisciplinary teaching traditions can be identified in undergraduate and graduate programs?

The relevance of these issues lies in their theoretical contributions to interdisciplinarity. The articles compiled here share the general goals of the journal *INTERdisciplina*, including: (i) to make the characteristics of ID and TD work in Latin America visible to other interdisciplinary communities; (ii) to promote a dialogue between researchers from different countries who face the challenges and opportunities of ID and TD; and (iii) to construct a common understanding.

This *dossier* does not pretend to be a complete catalogue of the diversity of organizations, programs and centers devoted to ID and TD in the American continent. On the contrary, it is necessary to complement the academic development through the theoretical construction of differences (Vilsmaier and Lang, 2015), and the systematization of the lessons learned.

The criteria to call upon these authors were built around three main aspects. Firstly, the diversity of ID and TD approaches, perspectives and applications each of the articles address to. Secondly, the incorporation of different American countries into this reflection. Last but not least, the

disciplinary differences between collaborators in this issue, which are neither effaced nor minimized.

This conjunction of articles uses “diversity” as a criterion to illustrate the current development of interdisciplinary research, teaching and outreach in different universities in the American continent, including the United States. Two interdisciplinary Ph.D. in Latin America programs are presented, one from the University of Valparaíso, Chile, and another from the Autonomous University of Querétaro, Mexico. In addition, there are contributions from Jan Boll, Timothy Link, Mary Santelmann, Robert Heinse and Barbara Cosens who analyze the interdisciplinary component of both the Water Resource Graduate Program from Oregon State University and the Water Resources Program from the University of Idaho, in the United States.

Nourished by the demands made by the arts and humanities in Chile, Gustavo Celedón reflects on the forms of knowledge within the political context that rule academic work worldwide. Celedón considers that interdisciplinarity is not alienated from knowledge production and this shapes its profile.

A graduate program with the same name and similar characteristics has been developed in Mexico. This is another example that demonstrates interinstitutional dialogues, since both programs share various academic fields that have been constructed in an interdisciplinary way. In the case of the Autonomous University of Querétaro, the authors present the characteristics of the Ph.D. interdisciplinary program in Thinking, Culture and Society (programa de doctorado en Estudios Interdisciplinarios sobre Pensamiento, Cultura y Sociedad), pertaining to the Interdisciplinary Research Center for the Development of Human Capital (Centro de Investigación Interdisciplinaria para el Desarrollo de Capital Humano). These two projects are linked in an effort to create an institutional platform that debates the sectoral logics at the university. The authors debate the need to broaden the links between the university and the society as a whole, and create the underpinnings for other logics that are not necessarily based on a disciplinary approach.

Boll *et al.*'s contribution has been included as a way of extending the boundaries of this reflection. These authors systematize the lessons learned from two interdisciplinary graduate programs in socio–environmental sciences in the United States. In their analysis, they present some dimensions that are similar to those constructed by Villa Soto *et al.*, and organize the results along five large linchpins, which we will not yet detail.

For its part, Cecilia Hidalgo presents a tour of the different institutional forms adopted by the interdisciplinary programs at the University of Buenos Aires (UBA) during Argentina's return to democracy in 1983. Using her experience at the university, the author makes an analysis that includes the

consolidation of intersectoral and interuniversity cooperation based on a dialogue between national and international institutions pertaining to the scientific system. Hidalgo claims that the UBA's interdisciplinary programs have strengthened their link with the public and private sectors, identified social demands for knowledge and moved forward in the generation of the optimal channels to coordinate their own efforts and the relationship with the different political decision-making and knowledge–use spheres.

The context of the Latin American universities (Arocena and Sutz, 2001; Arocena *et al.*, 2015; Vasen and Vienni, in print) is decisive both in the process that Hidalgo analyzes and in that referred to by Gregory Randall from the University of the Republic in Uruguay. His contribution focuses on the university regionalization policy implemented during the period from 2008 to 2014 in which interdisciplinarity was one of the priority axes. Randall claims that betting on regionalization implies some complex challenges: overcoming the local-oriented tendency (with its strong cultural rootedness) associated with the Uruguayan departments; being able to gather enough resources to create dynamic Regional Centers, and face the problems of regional infrastructure inherent to a centralized territory in Montevideo, the capital city. At the same time, this strategy made it possible to create new interdisciplinary structures with a role nationally as well as at the university.

Another example of institutionalization of interdisciplinarity is the consolidation of the Interdisciplinary Research Center in Sciences and the Humanities (Centro de Investigaciones Interdisciplinarias en Ciencias y Humanidades, CEIICH) at the National Autonomous University of Mexico (UNAM). Juan Carlos Villa Soto, Martha Patricia Castañeda Salgado and Norma Blazquez Graf examine this center's historical development based on three analytic linchpins: (i) the organizational design; (ii) the identity; and (iii) the legitimacy of new practices. The authors recognize the importance of establishing flexible organizational designs that may allow the development of an academic community and encourage the promotion of interdisciplinary research from a pluralist perspective. The creation of bridges between the sciences and the humanities is a distinctive feature of the interdisciplinary work conducted at CEIICH. This centre has gained legitimacy at UNAM by establishing great synergy between interdisciplinary education and research.

The different texts presented in this issue bring up the need to build an intercontinental dialogue based on the interdisciplinary experiences developed in different countries and regions for more than five decades (Simini and Vienni, in print). This history requires a framework with which to analyze and reflect about them in light of certain issues that are currently being imposed on researchers (Vienni 2014, 2016a). I propose that the consolidation of a field

called “Studies of Inter– and Transdisciplinarity” (ESIT; by its acronym in Spanish) (Vienni 2016a and b) would serve to delve more deeply into these issues.

Studies of Interdisciplinarity and Transdisciplinarity

The substantial goal of the field of studies of inter– and transdisciplinarity (ESIT) is to systematize the research done in ID and TD work, and propose strategies for strengthening these practices in Latin American contexts. This issue opens up a space for this and provides vast examples of its potential as a field of study.

Thus it aims to contribute toward the design of instruments to promote and evaluate ID and TD knowledge production at universities; as well as among universities, other institutions and stakeholders. Likewise, ESIT as a field of academic specialization can substantially contribute to the promotion of interdisciplinary studies. There have been attempts to foster the joint work of researchers who strive to understand disciplines different from their own, which they use as a point of departure to contribute to solving theoretical or practical problems.

The approach guiding this proposal is interdisciplinary in itself and is based on the scientific literature within the field of Science, Technology and Society (STS) (Albornoz *et al.*, 1996; González García *et al.*, 1996; Iranzo and Blanco, 1999; López Cerezo and Sánchez Ron, 2001; Pérez Bustos and Lozano Borda, 2011; to mention a few), Development (Arocena, 2003; Arocena and Sutz, 2001; 2003), as well as the research conducted by the author as a faculty of the Academic Unit of the Interdisciplinary Space (Espacio Interdisciplinario) at the University of the Republic (Cruz *et al.*, 2012, 2013; Martínez *et al.*, 2015; Vienni, 2016a and b).

The consolidation of a field such as the ESIT requires the creation of a platform to debate and promote interdisciplinary and transdisciplinary research, teaching (Spelt *et al.*, 2009), as well as activities developed with the mass media and politics. In order to define these objectives, it is relevant to research on ID and TD theory and practice, and carry on an exploration of the interdisciplinary nature of methodological approaches and how they create and shape research fields and disciplines in particular (Strathern, 2004).

The core aims of the ESIT are: (i) to move forward in the construction of a cognitive analysis of ID and TD as spaces of knowledge production; (ii) to generate academic knowledge on ID and TD; (iii) to enable the emergence of interdisciplinary approaches in different fields (academia, institutions, and so on); and, (iv) to design dynamics to promote interdisciplinarity and transdisciplinarity in different contexts.

As far as institutions are concerned, an analysis of the collectives producing ID and TD knowledge and their institutionalization within academia and other bodies is of interest (Vienni, 2016a). Academia brings up cultural, educational, social, political and moral issues that reveal the limitations of modern science, technology, research and education regarding the possibility of being of value to people (Vessuri, 2007). “Insufficient attention is typically given to the appreciation of a reflective relationship between knowledge and its institutional design in the progress of interdisciplinarity” (Crow and Debars, 2014, 14).

Institutions, Spaces and Networks

The following question can be set forth within the framework of the ESIT: What is the specificity of interdisciplinarity that justifies it as a working area within academia?

Interdisciplinarity, transdisciplinarity, the interdisciplinary approach and their outputs have been under discussion for over fifty years. The seminar held in 1970 by the Organization for Economic Cooperation and Development (OECD) was one of the most relevant events regarding the institutionalization of these practices. The question was then the same as today: “What substantial goal does a more interdisciplinary scientific practice pursue in certain academic spheres?” (OECD, 1972). This theme continues to be controversial, but at the same time is of core importance to the academic science (Ziman, 1985; 2003). Julie Thompson Klein (2010) updated the reflection about institutions and interdisciplinarity in her book *Creating Interdisciplinary Campus Cultures*, in which she analyses this panorama in detail in the United States.

In the words of Barry and Born (2013), “(...) one of the major questions raised in contemporary debates is whether promotion of interdisciplinarity is better understood as a response to given problems or as a means of generating questions around which new forms of thought and experimental practice can coalesce.”(10)

From our perspective, these practices and new forms of thought can guide the solution of the problems under the Development Studies, understood within the framework of Latin American studies (Arocena and Sutz, 2015).

The peripheral condition —experienced as the combination between the specialization in activities with relatively low knowledge content and the subordination to foreign powers— can be defined as underdevelopment (Arocena and Sutz, 2015, 25). The scarce solvent demand for knowledge in underdevelopment makes for an under-utilized knowledge supply. With this, the skills that were acquired under great hardship are defaced (Arocena and Sutz, 2015).

If we reflect on the amount of time and resources that interdisciplinary practices require (Lyall *et al.*, 2010), and the institutional investment needed to construct them; we can ask ourselves whether it is reasonable to think that an effort like ID and TD work, which implies institutional, cultural, political, and educational changes, can be linked to the goal of solving the problems faced by underdevelopment?

The Second University Reform, carried out by the University of the Republic (Universidad de la República, Uruguay) from 2006 to 2014, applied the “University for Development” (Arocena, 2014; Arocena and Sutz, 2015).

This reform considered the creation of the Interdisciplinary Space (Espacio Interdisciplinario, EI by its acronym in Spanish)² in 2008, among other resolutions. The EI is a university structure constituted by interconnected programs that facilitates, promotes and legitimizes innovative approaches aimed to solve complex and multidimensional problems. It is an institutional space that interconnects the university structure (Arocena, 2008).

The EI’s guidelines function as large-scale linchpins that aim to integrate interdisciplinary practices with a pluralist spirit. They include: (i) the academic legitimacy reflected in specific institutional forms, (ii) the effort to avoid competition between disciplinarity and interdisciplinary development, and (iii) the resulting transformation of academic assessment criteria. The idea is to promote flexibility and serve as a point of entry into society in order to collaborate with the construction of agendas derived from concrete demands.

The concept of “networks of practice” serves to describe the steps that have been consolidated around this institutional proposal. The networks of practice (Brown and Duguid, 2000) constitute large social systems through which researchers share information, without necessarily producing new knowledge in an immediate or traditional way. Within current academic structures, the value given to research and the researcher tends to be measured in terms of the production of new knowledge. For example, the number of papers published in academic journals. These networks, however, may often yield results that are more difficult to measure, but are equally important such as public policy initiatives, publication of alternative journals, or the development of long-term products (Rothen, 2004).

This kind of work is being developed by a novel network of universities composed by the University of Valparaíso in Chile, the University of the Republic in Uruguay, the National Autonomous University of Mexico, as well as the Autonomous University of Queretaro, also in Mexico. The main objective of this network is the construction of new synergies and activities among its

members with an emphasis on ID and TD research, teaching and practice. Due to its close link with the ESIT, this initiative is named as the Latin American Network of Interdisciplinary Studies (Red Latinoamericana de Estudios Interdisciplinarios) (<http://www.redinterdisciplinaria.net/wp>).

Practice-based Regionalism

Gabriele Bammer (2005) considers that “(...) helping to formulate strategies to capture and transmit the methods and experiences in the processes carried out in specific projects; allows learning to take place in new projects. Fragmentation and loss of experience is a problem throughout the world”(24). How can this fragmentation be overcome? How can we learn from regional contributions in order to produce ID and TD knowledge? Is it through institutions or by strengthening cultures and communities? (Hidalgo, 1999).

In an interview published in the section entitled “Cardinal Voices” in this issue, Bammer answered these questions. The researcher considered that different methods have been developed to approach complex issues. Likewise, each discipline teaches us to work with the unknown and to apply certain methods in order to transform it. However, when we face complex issues there is always something that we do not specifically know or for which the available methods cannot find solutions (Bammer, 2005). It is here that fissures appear. How can we construct tools within the Latin American context that can help us overcome this fragmentation and these fissures?

If we consider ID and TD knowledge production in terms of a contribution to multidimensional or complex issues, a “region” could be delineated in terms of three different dimensions (Chou and Ravinet, 2015):

1. The constellation of stakeholders engaged in patterns of interaction, or in other words, “networks of practice” (Brown and Duguid, 2000).
2. The institutional agreements that are adopted, abandoned, or accepted.
3. The ideas and principles that were put into practice and that are interwoven with policies and policy guidelines.

These three dimensions represent a way of understanding interdisciplinarity (Ribeiro, 2016) (and transdisciplinarity) as a regionalism that also reinforces a form of interaction in the field of higher education, i.e., social exchange. In general terms, knowledge production and exchange cannot be divided into institutionally designed factors. According to Ribeiro, this gap might be the reason why the creation of social knowledge and interdisciplinarity have been relegated to the periphery of academic organization.

The networks of practice among stakeholders can, nonetheless, produce results that in spite of being difficult to classify, are equally important. These may include public policy initiatives, the publication of alternative journals or the long-term development of different outputs (Rothen, 2004). From the journal's perspective, it could be added that institutions, spaces and networks, whatever form they adopt, are potential spheres for ID and TD knowledge production. Do these efforts thus depend on the cultures and communities created through our institutions, spaces and networks of practice. ■

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