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The spatial dimension in university-social environment interactions. A proposal for the Argentine case

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ABSTRACT

This article analyzes how the spatial dimension is incorporated in interactions between universities and their environments, based on three ideal-types of interaction: scientific-technological poles, the establishment of networks, and the university as a *locale*. This work is based on a systematic analysis of specialized literature and fieldwork that included 120 interviews carried out across four Argentine universities between 2016 and 2021. The main findings indicate that spatial dimension is traditionally understood as a surface where actions take place; we propose to think of space in university-social environment interactions as a product of the different situations of interaction that is contingent and enables or restricts the possibilities of generating lasting impacts.

A dimensão espacial das interações universidade-entorno. Uma proposta para o caso argentino

RESUMO

Este artigo analisa a forma como a dimensão espacial é incorporada nas interações que têm lugar entre as universidades e os seus ambientes, a partir de três modalidades-tipo de interação: pólos científico-tecnológicos, redes e a universidade como sede. O trabalho baseia-se numa análise sistemática da literatura especializada, e no trabalho de campo em quatro universidades argentinas que envolveu a realização de 120 entrevistas entre os anos de 2016 e 2021. As principais conclusões indicam que, a partir das concepções mais tradicionais, a dimensão espacial não é complexificada, mas é entendida uma superfície onde as ações têm lugar. Pelo contrário, nas interações universidade-ambiente, propomos pensar o espaço como um produto das diferentes situações de interação, que é contingente e que permite ou restringe as possibilidades de gerar impactos duradouros nos ambientes das universidades.

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La dimensión espacial de las interacciones universidad-entorno. Una propuesta para el caso argentino

RESUMEN

El artículo analiza la forma en que se incorpora la dimensión espacial en las interacciones que se producen entre las universidades y sus entornos, a partir de tres ideales-tipos de interacción: los polos científico-tecnológicos, el establecimiento de redes y la universidad como sede. El trabajo se basa en un análisis sistemático de literatura especializada, y en un trabajo de campo en cuatro universidades argentinas que implicó la realización de 120 entrevistas entre los años 2016 y 2021. Los principales hallazgos revelados indican que desde las concepciones más tradicionales, la dimensión espacial no aparece complejizada, sino como una superficie donde discurren las acciones. Por el contrario, en las interacciones universidad-entorno proponemos pensar al espacio como un producto de las distintas situaciones de interacción, que es contingente y que habilita o restringe las posibilidades de generar impactos duraderos en los entornos de las universidades.

1. Introduction

Within the field of the social studies of science and technology, scholars of the economics of innovation and economic geography have demonstrated in recent decades a growing interest in creating analytical frameworks to understand the ways in which universities connect to their social environments. In this article, we argue that these interactions have essentially been conceptualized within two main modalities: participation in scientific-technological poles and the establishment of networks; a third modality is characterized by situational spaces of interaction and is represented here in the notion of a locale, a concept we suggest to be worthy of further study. The paper illustrates how each of these three modalities can be used to analyze the connections between action, knowledge, and space in the relations between the university and its social environment. In particular, emphasis is placed on the analysis of the link between the dimension of spatiality in situations of interaction and knowledge exchange. The locale modality constitutes the most original contribution of the work, as this concept has not been widely explored and is of increasing relevance to an understanding of university actions in Latin America.

In addition to their traditional roles of education, research, outreach, and human resource development, universities in the region also play an important role as a political agent promoting processes of transformation in the territories. This can be observed in the way in which universities are involved in a broad spectrum of issues related to public problems: both in terms of promoting citizen participation processes in science and technology-related issues and in their role as a state agent with a territorial presence that mobilizes a range of resources (cognitive, financial, of human resources) to address local challenges.

2. Methodological strategy of this research

The methodological strategy employed in this article is qualitative and seeks to generate concepts prior to testing a theoretical hypothesis. Based on this strategy, we attempt to create new categories (such as that of locale), which allow studying a phenomenon that has not been widely explored by literature in the field. The proposed categories respond to a set of particularities specific to the Argentine context, which could be verified in the four universities that we selected as a case study, although we consider that they have sufficient validity and scope to extrapolate to the analysis of similar phenomena in other places in the Latin American region.

This paper is based on a systematic analysis of relevant literature, institutional documents (research projects, outreach programs, missions, and functions embodied in the statutes of universities), and on fieldwork carried out over five years and across four national universities in Argentina: Universidad Nacional de Quilmes, Universidad Nacional Arturo Jauretche, Universidad Nacional del Sur, and Universidad Nacional de Mar del Plata. These universities were selected based on their different geographical locations and contexts in which they are inserted. Various case studies were carried out within each university, in which interviews were conducted with researchers, extension workers, and users who were involved in different interaction situations. The studied cases cover a wide range of territorial interventions, including the creation of technological poles, issues of local economic development, socio-environmental issues, among others (Di Bello and Romero 2018; Sánchez Macchioli and Di Bello 2022; Soca 2021; Di Bello et al. 2020).

Over the course of this fieldwork, more than 120 semi-structured interviews were carried out. Of the total number of interviews, 22 were conducted with university staff members who have management responsibilities and also with research group directors. The rest were carried out with researchers, management personnel, extension specialists, and stakeholders connected to the university and related to the three modalities of interaction described. The officials interviewed were selected based on their function and position: priority was given to the highest university authorities and officials in charge of community engagement activities. The number of interviews conducted per university was based on the theoretical saturation criteria.

Through the interviews, we sought to investigate the discourses and evaluations that these university agents had regarding the predominant management orientations in the interactions with the environment. They were asked about relevant experiences related to engagement with the environment, the main objectives of extension and engagement policies with the surroundings, and their perceptions regarding the development of such practices.

We also analyzed the current statutes in each university, as well as their list of all research and outreach projects, the prioritized programs and their funding. In this study, our objective was to gain insights into the specific areas where universities establish connections with the environment, the types of projects that were prioritized, and how the perceptions of university management staff, researchers, and extension workers responsible for executing these projects have evolved over time.

The first three sections of this article articulate and conceptualize each of the identified interaction modalities. In the fourth section, a comparative analysis of the identified modalities is carried out based on three dimensions: interaction, knowledge, and spatiality.

3. Scientific and technological poles

A common spatial arrangement of university–social environment interactions is the conformation of the Scientific and Technological Pole (STP), a place or site wherein the university – either via research institutes, the participation of scientific personnel, or the use of equipment for research, knowledge, and development – connects with other scientific and/or productive organizations. In the literature, the concepts of the STP and Technology Pole (TP) have been increasingly proposed as models of spatial configuration that enable articulation, promote innovation, and foster economic growth of their region and specific location. These concepts emerged within evolutionary economics and economic geography to describe how positive synergies for technological innovation processes emerged out of groupings of companies and scientific centers in developed countries (Castells and Hall 1994; Ondátegui 2000; Massey, Quintas, and Wield 1992; Gomes 1999).

Universities are relevant to these arrangements as they generate new knowledge, local human resources, and support the process of transforming research into commercial products. It is widely considered that the more strictly academic a university is, the less likely it is to contribute to the development of an STP because institutional academic orientation tends to generate a focus on global excellence rather than the production of locally relevant knowledge (Castells and Hall 1994; Miao, Benneworth, and Phelps 2015).

A strong assumption underlying the STP and TP models is the notion that physical proximity is key to generating effective momentum for academia–business relations. In this sense, it is understood that the production, circulation, and appropriation of knowledge have an eminently localized character. Thus, for these types of models, co-presence is fundamental in facilitating both interpersonal and inter-institutional relationships, as well as the exchange of knowledge and application of that knowledge to the resolution of social and economic issues.

These approaches place importance to the spatial dimension of knowledge mainly by underlining the relevance of physical proximity for learning processes both within organizations and between or among institutions. In particular, it is suggested that, in a given space, co-presence is a prerequisite for fostering learning processes associated with the circulation of tacit knowledge (Arbo and Benneworth 2007). The spatial dimension is also relevant to the notion that STPs can foster the formation of “collective knowledge pools” from which a number of different industries can draw to sustain innovation processes and competitiveness (Miao, Benneworth, and Phelps 2015).

At the same time, if we consider the ways in which the STP approach represents relevant social coordination mechanisms, the concept of an open system of resource exchange is worthy of note. In this approach, the system is a set of inter-institutional interactions directed toward productive innovation, where the university is one of the economic actors involved. These exchange systems create the conditions for a continuous generation of “synergies” among their components. The spatial scope of exchange systems can be organized by geographical, functional, or by political-administrative criteria. Similarly, there may or may not be a central coordinating entity (this may be governmental or a technological or productive node). Each approach may place different importance on the governance of relations as a mechanism for

articulating the various interests converging within STPs. In general, given that these perspectives emphasize the systemic-functional aspects of interrelationships and ignore the agential elements, the issue of governance does not appear to be a critical feature of analysis (the reference is generally limited to the governmental regulatory framework).

In terms of its proposals, the objective of this type of approach is to show that certain spatial-interactive configurations between scientific and productive institutions facilitate the generation of sustainable economic growth in a given territory (Rodríguez Pose 2012; González Arzac 2019). Within this frame, and under an overarching philosophy that encouraged university–business relations, policies that promoted STPs emerged and developed in the 1980s in Latin America. These policy proposals held the expectation of promoting technological and economic development both for the companies involved and the regions where they were located (Thomas et al. 1997; Velho, Velho, and Davyt 1998).

Nevertheless, most of the STPs have taken root conditions that are far from ideal, often with scarce resources or investment in R&D, and in regions where actors are mismatched or disjointed, in sporadic macroeconomic environments and with weak business demand for innovative knowledge. The evidence suggests that, with some exceptions, STPs have not played a prominent role in improving the innovative capacity of the firms involved, nor have they exerted a decisive influence on the economic activity of the places in which they are located (Giraldo Palacio 2019; Rodríguez Pose 2012; Gomes 1999). In the case of Argentina, although the model aroused some enthusiasm and generated the development of different projects since the 1980s, many were since abandoned or reformulated, partly because the configuration generated more interest in the university environment than in the productive sector (Albornoz 1992).

Our research finds that, in general terms, associative experiences under STPs did not arise as a response to a business demand for innovative knowledge, but rather as a university actor-driven initiative, largely grounded in the idea that the model induces development and is supported by the availability of public funds. This mode of interaction is present in one way or another in all of the surveyed universities, at least at an institutional discourse level; it is usually predominant in those universities that have highly consolidated research centers and groups in STEM fields, which already have a certain track record related to the transfer of research results to the environment.

Knowledge involved in most R&D activities is of low innovative intensity and it is not possible to establish a clear relationship between the associative experience and the economic and productive development of the surrounding. Similarly, it was observed that the physical proximity between the university and the companies does not necessarily lead to knowledge exchange activities. As for the modes of coordination, trust building, organizational and cognitive proximity seem to be more relevant than co-presence. Finally, in a context of disarticulation between actors, policies, and resources, the benefits for entrepreneurs do not seem to come only from cognitive resources, but also from other types of resources such as social and symbolic capital (Soca 2021).

4. Building networks

The concept of network is frequently used to denominate and graph the relationships between universities and their surrounding communities. It is common to find the

terms “academic network,” “cooperation network,” “thematic network,” or “association network” in STI policy and in the management of university R&D linkage. In these cases, the word network is used in a descriptive rather than analytical manner, in reference to networks of actors who are largely grouped in organizations engaging in exchanges in relation to a topic or problem of common interest (Lopera 2000; Seufert, Krogh, and Bach 1999). Understood in this light, the spatial dimension refers to the place of origin of the participants or the scope of their objectives; thus, a network may be local, regional, national, or international. The explicit or implicit assumptions of the policies promoting their formation underscore the idea that interrelationships promote the circulation and exchange of knowledge and know-how, and encourage cooperation in deriving a solution.

In our research, we have observed that universities promote academic actors’ participation in networks to engage in knowledge exchanges regarding local problems. In addition to the university, social organizations, international development institutions, and, to a lesser extent, local government officials also participate in these networks. Although we found that officials interviewed held a positive opinion of these activities and were interested in them, funding for implementing networks was usually scarce. Thus, a network’s continuity often depended almost exclusively on the will of its participants. Typically, such networks are established with the objective of addressing social issues, and to a lesser extent, issues related to productivity. These may include matters such as access to basic services, food security, gender inequality, and labor concerns, among others.

The governance of these networks is usually complicated due to the great heterogeneity, degree of expertise, and possibilities of the approach of the actors involved. On the one hand, the technical-cognitive resources offered by universities to these networks are often insufficient to provide comprehensive solutions. On the other hand, the alliance of the university with other actors in the territory (local governments, SMEs, business chambers, neighbors) requires great coordination efforts, which only in very few cases can be solved by academic actors. The university ultimately provides legitimacy and expertise to interventions but is often unable to stably sustain the resources required for interventions of great complexity, such as those aimed at solving social issues.

The network concept has received analytical attention within the subfields of social studies of science and technology and economics of innovation. Authors in these fields often use the concept to analyze mechanisms of social coordination or socio-technical alliances that lead to knowledge circulation. Within economics, several authors have used the idea of the network to describe relation dynamics that spur innovation (innovation networks or networks of innovators) (De Bresson and Amesse 1991). These works share several assumptions and notions with those authors who deploy the concept of the scientific pole, including the perception of innovation as interactive and social learning as central.

In fact, the concept of network is often deployed in a merely descriptive way, as a form of naming a process of exchange between actors or institutions and within the context of a model of systemic analysis. Network is largely used in these works to illustrate a form of temporary coordination between similar organizations that interact for a time with a shared objective in mind. Its use as a term in this literature has grown alongside the consolidation of globalization, the use of information technologies in the circulation of

knowledge, and the management of productive and organizational processes. In most of the works drawing on this literature, the category of social environment or place does not have a differential status to the extent that the sociopolitical context in which networks are situated is assimilated to the notion of a surface on which actions take place. However, notably, the last decade has seen a proliferation of approaches within studies of public spaces that use the frame of actor-network theory and incorporate spatiality from a more action-centered perspective. In these approaches, space is not taken as a surface or a container of actions, but as the result of action, which moves continuously according to the interactions between actors and non-agential elements (Kim 2018).

The spatial dimension emerges as a central point of focus in studies on networks of knowledge, which in turn arose as an alternative to viewing innovation networks through an economic lens (Casas 2001; Tirado and Luna 2001; Luna 2003; Casas 2015). In these studies, emphasis is placed on understanding both what kind of knowledge circulates and what channels are enabling its transmission (degree of formality or informality of the channels, role of the “translators,” the prevailing mechanisms of coordination). Knowledge networks are situated in regional knowledge spaces, understood as the place where a state development project capable of promoting the development of the network can arise. The notion of regional knowledge spaces can be considered the environment of knowledge networks; their demarcation is granted in “knowledge-based social capital,” via which networks fostered by grassroots social movements or government policies are formed (Casas 2015). In this perspective, universities are central actors in the regional construction of social capital (networks, learning, trust).

Within the social studies of science and technology, “Network Actor Theory” was developed as a novel theoretical-methodological frame for the study of the production of scientific knowledge. A key element of this approach is that it grants non-human elements a central role in explanations of how certified knowledge is produced. Several works developed under this approach (Latour and Woolgar 1995; Latour 2008; Callon 2008) illustrate how material objects can come to the aid of scientists when constructing robust scientific conclusions that resist peer evaluation. For this to happen, the truth claim of the scientific statement must be supported by networks (composed of associations of objects and humans) that make those claims robust and long lasting. The notion of network is key to contemplating processes through which scientific knowledge and technological artifacts are created. The proposal is to “follow the actors,” both human and non-human, to identify their connections and the mechanisms of translation of interests that permit their alignment. Actor-network theory evolved into the notion of the socio-technical network (Callon 1995; Thomas 2008; Thomas 2012) which, in an exercise of extended symmetry, alludes to the alliance of actors and actants that mobilize cultural and natural/technical elements.

Similarly, Callon (2008) generated the concept of techno-economic networks to analyze the connections between human agents and objects engaged in processes of technological knowledge construction. In these networks, actors and actants generate processes of translation and the engagement of different interests with the aim of imposing cognitive solutions within the frame of relations of power and competition. The symmetrical approach of this frame avoids the use of concepts like environment or contexts; it is grounded in an ontological and epistemological philosophy in which there is theoretically no difference between action and structure, subject and objects. In general terms,

the frame is better equipped to explain processes of network alignment and discipline than to understand the coexistence of multiple visions and ambivalent meanings or temporary consensus among diverse actors (Garrety 1997).

5. University–environment interaction as locale

A third variant, or way of analytically representing university–environment relations, refers to the concept of the locale, taken from Giddens’s theory of structuration, and further developed by authors in the field of geography (Pred 1986; Thrift 1985; Werlen 2003).

Unlike previously mentioned concepts that give a name to empirical configurations of university–environment relations and descriptive discourses, the notion of the locale does not figure as a part of the vocabulary of university management and is infrequently used to analyze university–environment interactions. Rather, it is a term largely deployed to describe interactive processes in more abstract terms. Nevertheless, we suggest that many of the influential relationships that universities maintain with their environments can be analyzed through the notion of the locale and its theoretical approach.

The notion of the locale expresses a spatial context of interactions made up of a series of symbolic, normative, and material elements that acquire theoretical significance to the extent that they form part of the interpretative schemes of its participants. Expressed in this way, this perspective, in addition to the aforementioned structuration theory, draws particularly on contributions from interpretative sociology. The emphasis in this case is on action rather than objects exchanged, negotiated, or circulated. In this sense, the regions or places where interactions take place are not taken as a passive element, a substrate, or a container of society, but rather as the product of social action or, more specifically, of practices that in their daily evolution shape the idea of a region or a place. Spatial configurations or arrangements of material objects are key to the “performance” of social actions and, consequently, to the generation of social realities (Werlen 2004).

Spatial contexts, understood as referential frameworks for action, can be grouped according to recurrent practices, organized through an interpretation of symbolic elements, normative and evaluative guidelines, as well as the use of material resources. In this sense, the locales and the possible regionalization processes involved are not delimited by physical delineations, but by agential elements. This approach allows one to identify and analyze the symbolizations associated with the kinds of places in which interactions between university and non-academic actors take place, and how these interactions take part in processes of intersubjective understanding.

Many university–social environment interactions can be conceived of within a framework of formulating situations of interaction, where knowledge, expertise, subjects, and objects circulate with the aim of carrying out a collective effort to address a social issue. These initiatives are not necessarily inscribed within the physical space of the university; many of them take place outside it and in the presence of other actors. In our empirical research for the case of Argentina, we observed that most of the relationships established between the university and its environment of influence take place in this manner, referred to here as the locale; these interactions are located inside or outside the university where co-presence connections are generated and sustained regularly over a period of time. Thus, if we understand university–environment relations using the category of the locale, we can identify multiple regionalizations (university-market,

university-government, university-labor market, etc.). Here we are interested in focusing on two types of regionalizations that we observed in our fieldwork and that we see as characteristic of universities in Latin America. The first type refers to regionalizations created when members of the university regularly interact in places (neighborhoods or defined regions) with the purpose of applying knowledge and resources to solve a problem. The second type refers to a form of regionalization that occurs within the space of the university (i.e. within the campus or the material infrastructure of a faculty).

The first type of regionalization has a long history in Latin America. Since the 1918 University Reform in Argentina,¹ these types of interactions have been referred to as university outreach. The spatial configurations that frame these interactive practices are central to understanding processes of co-production, use and appropriation of knowledge, as well as the modification of social, symbolic, and spatial capitals of participants. Institutional norms, the institution's role in procuring resources, as well as the expectations and subjectivities are all important elements to grasp the extent of transformation in the space, and the intentions of the policies of university-social environment engagement (Sánchez Macchioli and Di Bello 2022).

The second type of regionalization represents, in our view, a more recent feature that is also more applicable to universities located in places with certain socio-productive characteristics, such as the metropolitan area of the province of Buenos Aires in Argentina. It refers to the regionalization of the area surrounding the university campus via interactions with actors that are not formally linked to the institution. In our fieldwork, we noticed that several universities zoned part of their space to enable the entry of non-academic actors (e.g. by holding fairs or generating working groups with representatives of different sectors of society). This produces interactive spaces where new meanings are generated in regard to the university as a gathering space or as a site for the exchange of knowledge and experiences. Sometimes these regionalizations allow the materiality and symbolic systems of the university to be reappropriated as resources to facilitate dialogue (e.g. committees), as a place to carry out collective entrepreneurship (e.g. street fairs) or as a place for debate and community training for those living nearby (e.g. women's collectives or trade organizations).

Certainly, these are not always spaces of consensus nor are they encounters or exchanges under conditions of equality. One of the issues that allows us to analyze the perspective outlined in this section is precisely the asymmetries of power that exist between the different actors present, and which are based on their unequal access to material and symbolic resources. In this sense, we have observed that these asymmetries frame academic actors' perspectives on local issues, the forms in which knowledge should be applied, and the actions that should be taken toward resolutions.

An important issue in regard to the formation of a region is the presence of certain dynamics that occur when these regions or environments are constructed as a deliberate object of intervention by certain actors. It is there that the risk of the emergence of "top-

¹The University Reform of 1918 was a movement that sought to transform higher education institutions in the country, aiming for greater democratization, academic freedom, and social relevance. The Reform was a response to the perceived authoritarianism, elitism, and academic conservatism of the university system at the time, and was driven primarily by university students. Among other objectives, it aimed to establish an active university outreach policy, promoting greater engagement with the community and a commitment to address social issues. The Reform had a significant impact not only in Argentina, but also in other Latin American countries, inspiring similar movements for educational reform and social change (Buchbinder 2010).

down” strategies arises, in that actors with greater power can model or delineate a space of intervention, with the aim of determining the bounds of social intervention without taking into account the presence, legitimacy, and interests of other actors with less power. In our research, we observed that there is a widespread tendency for university-led initiatives to develop a particular notion of the social environment (which we can assimilate in conceptual terms to that of the region) from which linear dynamics of transfer or connection can be observed. In these ideas of social environment, the flow of symbolic, financial, and cognitive university resources bypasses, to a certain extent, the resources of the targeted area, thus conditioning the development of the proposed interactions. In a similar sense, if we understand that the interaction between a professor and a student, a researcher and an official or businessman interested in the product of his research, an extensionist and a social collective involves some kind of ritualized behavior, this type of analysis helps to illuminate processes that may develop, such as the appearance of asymmetries in rituals (or rather, in the management of the rules of the ritual); and the form that different types of rituals might take (for example, access to the organization or the maintenance of a relationship).

This is central when thinking about the relationship of the three dimensions that form the groundwork of this article: interaction – knowledge – space; particularly given that, as Meusburger and Werlen (2017) point out, “the generation of socio-cultural realities always points to specific spatial relationships.” It seems relevant to underscore that cognitive processes, embedded in the perception and the analysis of situations, decision-making, and in actions, are inseparable from the spaces where those processes take place, spaces that harbor routinized practices and power relations. If university interventions ignore the fact that these spatial configurations mediate processes of symbolic appropriation, they will likely be unable to generate long-term impacts from the application of knowledge in their surrounding communities. Thus, when we investigate university–social environment interactions, we must pay attention to the multiple directions of action involved (technical-instrumental, symbolic-cultural, normative-social), to the cognitive resources associated in each case, and to how they are articulated within the perception and configuration of space.

6. Final reflections

In this article, we described three ways of articulating processes of interaction, knowledge, and spatiality in the links between universities and their environments. These are presented in summary in [Table 1](#).

The representation of university–social environment interaction as a pole is commonly employed in economic approaches. The notion of the pole implicitly refers to an open system in terms of its social coordination mechanism. It tends to highlight the need for interaction processes as part of its general systemic objectives. This leads to “disconnections” between actors treated as failures to be solved rather than as problems to be analyzed. Likewise, this approach tends to see the university and its surrounding community as discrete entities, rather than as a continuum with diffuse boundaries. Knowledge is considered a resource that is exchanged and that circulates in the system of interactions with the function of promoting innovative behaviors or processes. It is assumed that physical proximity is a necessary condition to the learning processes that generate innovation.

Table 1. Ideal-types of interaction and dimensions of the university–social environment relationship.

Modality/ dimension	Interaction	Knowledge	Spatiality
Science and Technology Pole	An interactive system of resource exchanges. Interactions promote positive synergies for participants. Physical proximity facilitates interpersonal and inter-institutional relationships, as well as an evaluated flow of knowledge	Valued within the framework of interactive systems. Importance of tacit knowledge for learning processes	Designed on the basis of co-presence, which fosters learning processes within the organizations. Space is assimilated to a physical substrate
Networks	A set of actors that engage in exchanges around a specific subject or issue of shared interest. Organized into nodes or smaller groupings. In some versions there is an assumed symmetry between actors and actants. There may or may not be physical proximity	Of any type, not necessarily certified. Subject to negotiation. Is one element that circulates in the network	Space functions as the result of actions, at the intersection of trajectories; it changes continuously through interactions between actors and the non-agential elements involved
Locale	Analyzed as situations of interaction, which are delimited by symbolic, intersubjective (not material or physical) marks. Interaction can take place within the university, or in an external place. It requires co-presence	Of any type, not necessarily certified. Acquires meaning within a framework of intersubjective relationships. Asymmetries in the participants' symbolic and material resources affect the processes of co-production and appropriation of knowledge	Interactions generate their own processes of regions or environments, delimited from agential elements and the subjectivity of the participating actors. Action and space are co-constituted

Source: Elaborated by the author.

In contrast to the systemic approach, the network approach is more commonly deployed in sociological analyses that study interactions between academic institutions and other actors. The network approach considers a wider range of actors and dimensions of analysis. In this way, networks are not conceived as forming with a specific purpose in mind (such as innovation) but are constructed through more or less stable heterogeneous associations between actors and non-agential elements. Representing relationships in this way allows more attention to be paid to the processes of negotiation and conflict that are connected to unequal resources and power. Likewise, the notion of network can account for fluid, discontinuous, and unstable processes like the temporal interactions that can occur between the university and the social environment. Furthermore, some of the sociological perspectives that deploy the notion of network assume symmetry in the treatment of agential and non-agential elements, impeding a subjective and motivational analysis of actions. Knowledge is but one element circulating in the network, enabling or impeding alignment. The concept of network permits one to include analysis of the deployment and coexistence of the trajectories of actors and elements, thus configuring the spatial dimension as a place in which relationships, connections, conflicts, and circulation of knowledge take place. Space, analyzed under this frame, cannot be thought of as a given element, but rather as the product or result of these interactions. In this way, it serves as a network in constant evolution, both enabling and restricting action and alignment.

Beyond these theoretical concerns, in practice, the concepts of system and network are used in most works as descriptive categories that account for factual processes of social

coordination. In this sense, their use does not imply conceptual integration with a more general theoretical framework. Moreover, both in theory and in policy management, they often denote a prescriptive character in that the network or system appears as a desirable mode of social interaction (Romero et al. 2015). As spatial configurations of social relations, then, the concepts of system and network are usually assimilated as normative imperatives; their utterance reinforces their ability to operate efficiently in a desirable socio-productive transformation process.

Finally, we understand that there are a number of university–social environment interactions that can be better understood through the situational approach and the notion of *locale*. To this end, we explore its potential as a heuristic map for the study of university–environment interactions. From this perspective, the central strategy of the analysis would consist of identifying and characterizing interactive scenarios, spatio-temporally situated, between university and environment actors and how they simultaneously configure orientations of action, spaces, and modes of knowledge appropriation.

It is important to consider that universities are not homogeneous or totalizing entities; nor are they free of contradictions. Given that it places emphasis on the symbolic dimensions of interactions, the situational approach gains flexibility by accounting for diverse situations in which university and non-university actors exchange meanings in relation to phenomena understood by both groups as problematic. In this way, the approach is not limited to functional or sectorial terms, given that issues may be economic-productive or socio-environmental. The participation of the university in a situation such as those previously mentioned is always partial, in the sense that it does not involve all its actors, nor its entire organizational structure, activities, or functions. However, each scenario of interaction generated from some group or university institution leads to a specific social discourse and configures a specific idea about the region. This idea, produced out of the subjectivity and interests of those establishing the framework of interaction, can be studied via the concept of “spatial context.” Examining spatial context makes it possible to include various elements in the analysis, including recurrent practices (such as the products of interactions) that reflect the relationship between symbolic elements, value, and normative guidelines proposed by the interaction, and the relationship with material resources exchanged.

The notion of the university as a locale has not been widely explored in the relevant literature, despite the fact that this type of interaction has become increasingly important empirically, both in terms of resources invested, dedicated personnel, and the number of university-based actions. In this way, we consider that the notion of a locale allows us to address, in a very precise way, a range of activities that promote interaction with the surrounding community, which often go unnoticed under the more traditional approaches. These more classical approaches to the study of linkages are mainly oriented toward the study of interactions with the outside community that are focused on spurring productive development or fostering innovation; they largely ignore interactions aimed at resolving socio-environmental or local development problems on a smaller scale. Given the kinds of interactions and scenarios made visible from viewing the university as a locale, we consider it useful for approaches that intersect sociological and geographical conceptualizations: it is in this dialectic between action and context, which occurs in spatial–temporal situations of university–social environment interaction, that processes of circulation and appropriation of knowledge are put into play.

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