XXXIII CONFERENZA ITALIANA DI SCIENZE REGIONALI

REPRESENTING THE UN-REPRESENTABLE? GEOGRAPHICAL APORIAS IN THE KNOWLEDGE AGE

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Abstract

While admitting that an important shift has occurred in the last two to three decades as the industrialised world has passed through the so-called post-fordist period and entered the knowledge economy, a number of questions still need to be answered. The basic question is to identify the distinctive and constituent features of the new economic condition, and its consequences with regard to the analytical tool-box, the spatial representation of related phenomena, and eventually to policies. After showing that the mainstream approach to the knowledge economy lies in an informational/ontological approach, the paper illustrates how a different notion of knowledge, based on a hermeneutic approach, allows us to improve our understanding of this new techno-economic paradigm. Problems arise however with the rendering of certain spatial aspects that are inherently informal in nature but nonetheless essential to this approach to the knowledge economy. In this regard, it does not seem entirely implausible to argue that the persistent dominance of the ontological viewpoint follows, at least partly, from the ease with which its spatial aspects can be rendered.

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1 Introduction

If 'place', unlike 'space', ensues from the projection on the environment of place-specific symbolic systems[2], the question arises if it is possible to render a place (any place) by a cartographic representation. Even admitting that the community concerned is able to accomplish such a task, fundamentally because it is the repository of both its internal social relations and the matrix of the related symbolic system, serious doubts arise, not only about the degree of trustworthiness, relevance and coverage of the map, but the capacity an external observer has to decipher it, once s/he is aware that s/he cannot have intimate knowledge (which means "to have intimate experience") of the local culture. The community may also be induced actually to hide certain crucial elements of its own social structure from itself or to take for granted certain beliefs it has about itself, to such an extent that the map it creates about itself-within-its-place renders much more how it sees (or mis-sees) itself than its factual conditions. As a consequence, in general a place-map will probably turn out to be nothing but an inextricably merged combination of ideal and ideological contents[3].

Franco Farinelli (2003) gives this viewpoint an authoritative confirmation by noting that, since place is "a 'field of attention', the force of which depends on the emotional investment made by the people who inhabit it, [… it] cannot be known from the outside, but only from the inside". "Just for this reason – he continues soon after – any place is a little word, that is something which depends on a complex whole of relationships among human beings" (p. 121; our translation). It has therefore to be admitted that if a cartographic map is a medium for sharing knowledge and coordinating action among actors in time and space, place-maps may be conducive only to endogenous local actions, that is for actions stemming from and carried out within and by the local community, while no room remains for it to be an operational device outside the local place, where objective, measurable and standardised representations are required for planning coordinated actions on a larger scale.

This view is clearly related to a modern approach to the world, according to which human beings are called to become "masters and possessors of Nature" (Descartes, 1637), all of Nature, i.e. the Universe

[2] The symbolic content of a thing, an act or a fact relates to the property a certain culture ascribes to them of evoking relationships of various kinds, for example, of the algebraic kind, but mostly of an interpersonal and social nature. In these pages, we shall make reference to this latter meaning. According to this viewpoint, a symbolic system is a complex whole of symbols which evokes a complex whole of social and interpersonal relationships.

[3] From the neo-marxist viewpoint, 'ideology' is a system of mental representations which is imposed on human beings in an unconscious although highly sophisticated way (Althusser, 2005). This interpretation represents an advance compared with the early notion of ideology as 'false conscience' (which implies, inter alia, that it is possible to define 'true conscience'). That interpretation points to the unfalsifiability rather than the falsity of consciousness just because any ideological stance, more or less unconsciously, avoids exposure to criticism. Another way to interpret 'ideology' comes from Durkheim (1912), according to whom ideology serves to express the surplus of force which the 'somehow primitive' human beings enjoy from carrying out common actions, and which they are not able to explain rationally. Whatever the case, ideology serves to (mis-)represent something which is un-representable by the community concerned, whether this condition is due to its removal of or its inability to see certain basic features of its social life.

(Lenoble, 1969). This being their mission, they need to have at their disposal an all-encompassing map of the world, which responds to a unique interpretative code and thus forms the basis for an all-encompassing coordinated action. Within this map, places are reduced into mere portions of a metric space, and matter only insofar as their dimension and their objective peculiarities fit with an effective and efficient spatial division of action. No other local feature which cannot be brought into a unified interpretation is then noteworthy, and is rather considered as a sort of background noise to be tolerated and possibly 'reduced'.

So, if a representation of places is required, the only suitable way seems to resort to a language which is consistent with their inherent symbolic content, that is the aesthetic language. What is indeed more fitting to render emotional and other ethereal contents like one's way of seeing one's own place than this kind of language, which is not focused on the referential content of the message, but on the interpretative-and-expressive codes? So why not leave the representation of place to painting, poetry, music or other performing arts, in the same way as happens, after all, for landscape, to which the notion of place is intimately related[4]? The aesthetic language was 'invented' by human beings – although they ascribe(d) this invention to the gods – precisely in order to represent what they are not able to render by the referential language, and they actually do that by deliberately leaving aside any objective representation of the world, and evoking instead, and endlessly working on, the possible ways (i.e. codes) of viewing it. In this way, they stimulate and somehow make discernible the deepest and ultimately unknowledgeable chords of their spirit (Berque, 2000).

It follows that in the modern-and-over-ordered view a place-map turns out to be nothing more than the rendering of the eyes by which its author imagines 'how' the community concerned sees itself within that part of the surrounding world it considers to be the repository if not the source of its own identity, where 'how' precisely means 'through what symbolic code(s)' the community itself achieves that. It is precisely for this reason, the fact that 'place' has essentially to do with mental rather than objective states, that Farinelli himself maintains from Pierce that "[the place] is a mental image, which the cartographer gets rid of as soon as s/he sets to work, but – he intriguingly adds – without which no cartographic image could be built up" (p. 41).

These latest words are decisive with reference to the aims of this paper in that they provide the passage for leaving aside the modern perspective and its aporias in mapping places. From these words, it seems firstly that what the cartographer tries to throw out of the window actually re-enters through the door, behind his/her back. However attentive s/he is to the intrusion of 'pre-analytical' elements in his/her work, s/he is eventually not able (luckily, we may add) to entirely detach him/herself from the influences of the cultural, cognitive and also emotional schemes within which s/he has grown. The map

[4] Although intimately related, the notions of place and landscape differ because, whilst the image of a landscape can form even within a pure individual dimension (although the individual draws from the social dimension the aesthetic/interpretative code s/he makes use of to have that experience), the notion of place has a necessary social connotation, and can be considered as the landscape-with-its-community-within-it.

s/he endeavours to produce as an objective although limited rendering of the real world inevitably turns out to be the silent bearer of some irreducible ideological contents, and ultimately of his/her naïveté, so that any map is inescapably a place-map. But those words also suggest that without a symbolic and thus somehow ideological basis, it becomes impossible to give sense to (and represent) the world, because the sense – any imaginable sense – necessarily relies upon a complex whole of relational contents, social relations included, when it is not seen precisely as the projection of these latter tout court (Durkheim, Mauss, 1901-1902).

This way, the difference between a space- and a place-map is not in content, but in scale: the two are both inescapably place-maps, tinged as they are with symbolic-ideological contents (above all the one concerning the cartographer's supposition that s/he is able to render an objective portrayal of some geographical reality), with the differences that (a) the first refers to the wide, tendentially unlimited space of action of the dominant modern culture, while the latter appears, by comparison with the former, as a sort of folkloristic if not archaeological find of interstitial and essentially irrelevant sub-cultures, and (b) the first seeks to reduce places into a single algebraic structure, while the other renders single, separated pieces of the socio-spatial world which are ultimately inconsistent each other, and also mute respect for the projected single space-map.

This paper argues that these conclusions about the supposed inconsistency between place- and space-maps are prisoners of that same modern perspective which is put into question in/by the Farinelli's lines quoted. To take a critical view of modernity is in fact not enough if we are to recognise the countless traps this latter has scattered within our cognitive system and culture in general. The crucial question in this regard is from what viewpoint criticisms are made, because the specific content of the singularity and otherness of modernity, as well as, and mainly, the epistemic robustness of that content, depend on the position and certain intrinsic features of that viewpoint itself. As for the critical standpoint, the postmodern view seems fit to catch the basic ideological content of modernity, which consists in the assumption it makes about the possibility of having at its disposal a reliable criterion for excreting false assertions from the cognitive domain, and thus being able to approach *the* truth. What however remains unknown for as long as this criticism stays confined within the philosophical and also aesthetical domains, is the 'material' form it takes within the social praxis, that is if, where and how it takes root as a normal praxis. For as long as these conditions are not established, the postmodern criticism of modernity is destined to linger in that uncertain (and uncomfortable, as post-modern authors often complain) middle-ground of post-modernity, where the hyphen indicates precisely that the decisive step to finally (and also serenely) take leave of modernity has still to be taken.

The paper suggests that the accomplishment of these conditions began, somehow paradoxically, with the advent of the ICT revolution, and is actually a quite unexpected outcome of the same revolution. Instead of marking the triumph of modernity and the 'death' of proximity and place (Cairncross, 1997), it ironically turns out to be the breeding ground of an entirely new social praxis, which materially

departs from the epistemic premises of modernity, and within which proximity and place, among other things, perform/are allocated a crucial role. This is not however a complete novelty for those scholars and also practitioners who follow the current debate in regional sciences (see, among many others, Cooke et al., 2007): the hopefully original contribution this paper aims to give to the debate is to depict the way – the "where and how" – that change in cognitive social praxis is occurring, and to make some initial explorations of consequences it is having for spatial representation. That "where and how" – we argue – has originated in the disembeddedment, which has occurred and is still occurring within the core of social praxis, i.e. industry at large, of a new mode of learning which was hitherto intertwined with and obfuscated by the modern dominant cognitive praxis.

The paper is organised as follows. The next section defines the content of the 'new' notion of knowledge which we suggest has entered into social praxis, and which gives rise to a new economic paradigm, the 'knowledge economy'. Section 3 examines how this notion, which seemed bound to stay confined within the philosophical and aesthetic domains, is now permeating the economic domain, through its adoption mainly by industry and knowledge-based services. Section 4 points out some theoretical consequences that ensue from recognition of the establishment of the new knowledge paradigm. More specifically, the notion of the 'knowledge-creating milieu' is introduced as a category which proves to be particularly fruitful when dealing with 'places' in the knowledge economy. Conclusions will describe the consequences for place-mapping in this new paradigmatic condition.

2 About knowledge[5]

Knowledge is a notion that is hard to define. Since it is intimately related to individuals' minds, any concept that they may formulate about it is fused with their cultural reference models, so that it becomes easy for them to fall into cognitive traps, such as fallacies, naiveties, and other pre-analytical views (Coe, Wilden, 1978; Watzlawick, 1980). With this caveat, knowledge can be broadly defined as the system of plausible beliefs that individuals and groups have about reality; at the same time, however, account must be taken of the fact that, precisely because belief is involved, there is inevitably a certain degree of approximation between the mental images of reality that individuals and groups form and the reality itself.

The key epistemological issue, therefore, is (and has always been) how to assess the degree of approximation to reality inherent in knowledge. In contemporary Western thought, two main epistemologies compete in regard to this point: the ontological (or modern) and the hermeneutic (or post-modern). The former is based on both the Cartesian belief that truth exists *per se*, and the subsequent positivist belief that subjects can reasonably assess the convergence of their mental representations on reality through empirical testing under controlled conditions.

[5] Sections 2 to 4 are partially drawn from Cusinato (2012).

Post-modern criticism has originated precisely from confutation of the positivist belief that it is possible to establish a reliable criterion with which to assess the approximation to truth. This criticism ultimately maintains that the device which positivists have conceived in order to excrete any residual metaphysical element from the scientific domain is actually grounded on a pre-analytical and indefensible assumption. As von Glasersfeld (1980) argues, certain aspects that would be decisive in rejecting false assertions can in fact be systematically ignored when conducting empirical tests because of a fallacy – a sort of scotoma – in the observer's perceptive aptitudes.

From this point onwards, truth does indeed become a conventional entity (once it is admitted that such a term maintains some relevant meaning), and the cognitive focus shifts from searching for it by collecting information about *the* supposed 'real reality' and the consequent acquisition of *the* truth to observing the mental processes by which subjects form their perceptual and cognitive aptitudes (and mainly fallacies) (Gadamer, 2004). This does not mean, however, that investigation of the real world should be abandoned because it proves to have no sound epistemological foundation: since a certain – although intrinsically 'weak' – representation of reality is needed for action, the only alternative to nihilism is a continuous shuttling between the image of the reality that the subject has built at a certain moment through his/her mental repertoire, and which s/he knows to be inevitably contingent, and the representation of the processes which lead to the formation and reshaping of mental repertoires (and cognitive codes).

As is well known, this shift in focus from information 'coming' from or 'collected' in the external world to the process of formation of perceptive aptitudes and cognitive codes signals the advent of postmodern thought, and entails the passage from one notion of knowledge to another. Once it has been admitted that any cognitive experience implies reflexivity, in fact, it is one thing to reflect on the external world without questioning the inherent properties and caveats of one's own interpretative code, and quite another thing to make a (certainly demanding) mental effort to investigate one's own way of observing that world itself. These two kinds of knowledge respectively refer to the ontological and the hermeneutic approaches[6].

The shift from the one to the other notion of knowledge is particularly relevant as regards creativity because, while admitting that it stems from the combination of existing elements in a new and useful way (Poincaré, 1908), such combination can occur at two very different levels, depending on whether or not the reference set of elements includes the cognitive code(s). Whilst in the ontological approach the combination concerns the information drawn from reality according to the best approximation to the true code that the subject supposes is at his/her disposal, and takes the form of a problem-solving

[6] According to this view, Nonaka and Takeuchi (1995) distinguish between 'Learning I', "[which] is obtaining know-how in order to share specific problems *based upon existing premises*", and 'Learning II', "[which] is establishing *new premises* (i.e., paradigms, schemata, mental models, or perspectives) to override the existing ones" (p. 44; emphasis added). Analogous distinctions are drawn by Morin (1986), who distinguishes between 'knowledge' and the 'knowledge of knowledge', and Bateson (1942), who first introduced the notion of 'deutero learning' [literally, 'learning II'] to indicate 'learning on learning'.

task (Guildford, 1967), in the hermeneutic approach creativity is conceived as the outcome of the exposure of the subject's own interpretative code to confrontation with other codes, and it first results in problem-finding, or else problem-creating experiences (Runco, 1994). This entails, among other things, recourse to different sociologies of creativity. In the first case, the subject *creates* by establishing a direct relationship between his/her mind and the external world, maybe solipsistically, and society intervenes mainly by endowing him/her with a convenient cognitive code (Schon, 1983). In the second case, by contrast, social relations play a crucial role, because it is only through them that the subject can experience differences in cognitive codes.

To be noted, however, is that *Learning II* is not alternative but complementary to *Learning I*. No-one can completely neglect the practical relationships that s/he must necessarily establish with the real world by devoting him/herself to contemplation of the relationships occurring between his/her perceptual aptitudes and cognitive code. To avoid the risk of alienation/annihilation inherent to such an attitude, the subject must therefore constantly shuttle between the two forms of learning, by assimilating the external world according to the provisionally available cognitive code at his/her disposal, acting according to that code, evaluating the outcomes of action and *questioning the cognitive code itself,* and in some cases, if necessary reshaping it (Piaget, 1967).

Given these premises, the next section is devoted to an examination of how the *Learning II* paradigm has entered the corporate firm and industry at large as a strategic praxis, thereby giving rise to the knowledge economy.

3 The rise of the knowledge economy

If the distinguishing and constituent feature of modern civilisation is the mission that human beings confer upon themselves to behave as "the masters and possessors of Nature" (Descartes, 1637), without any limit other than those imposed by the right use of reason and respect of moral and positive norms, the entrepreneur is the 'champion' of modernity. At best s/he embodies the ambition of continuously reshaping reality – potentially, any domain of reality, the mind included – in order to gain advantage (and gratification) in a competitive world. The enterprise is the venture that the entrepreneur continuously fuels to fulfil this ambition: a venture that entails creativeness and innovativeness, that is to say, the conception and implementation of new ways to make/combine things.[7]. And the firm is the organisational device that the entrepreneur sets up – this is the basic innovation that s/he makes (Schumpeter, 1911) – to design and implement innovations away from prying eyes and indiscreet ears.

[7] According to Schumpeter (1911), the entrepreneur's specific role is to innovate, since the act of creating/inventing can be analytically distinguished from the implementation of a new idea and conferred to another figure (the inventor). However, the question is whether innovativeness can actually proceed separately from creativeness, given that the implementation of a new idea entails problem-finding and problem-solving activities in both the technical and the relational domain, and that this requires an equally important aptitude for creativeness on the entrepreneur's part.

On this view, the entrepreneur's basic resource is a flair for seizing opportunities and assessing risks which requires a clear representation of the state of affairs. This means that the primary skill that entrepreneurs must possess is mastery of a reliable cognitive code (obviously the one that *they* believe to be reliable) which enables them to make the right choices quickly, and above all, more quickly than competitors. With these requirements, *Learning I* appears at glance to be the cognitive paradigm suited to entrepreneurs because it focuses on the relationship between mind and the external world, on the assumption that the current cognitive code is the best one available.[8] This does not mean, however, that entrepreneurs did/do not also have recourse to *Learning II*, because everyone makes conscious or unconscious use of this way of learning. Rather, it means that entrepreneurs consider this recourse as lateral (De Bono, 1970), as somewhat incidental compared with *Learning I*: a sort of philosophical digression to which they may sometimes usefully resort in order to gain fresh but also potentially destabilising views on things.

If this is a plausible representation of the epistemic background of the representative western entrepreneur, the question arises as to whether and how the *Learning II* paradigm has not only entered corporate praxis but gained the central place within it. One might suggest that the shift of focus brought about by postmodern thought – from the relationship between *the* cognitive code and the external world, to the process by which codes take shape within the subject's mind – eventually affected the domain of the firm mainly via management turnover. This is a plausible explanation, but on the condition that the new notion of knowledge proves more suitable than the previous one in achieving the firm's goals, namely success in market competition.

In this regard, we argue that the achievement of this condition has been the main and most amazing outcome of the advent of ICTs. More precisely, the hypothesis is that this advent, with the dramatic reduction in the cost of processing and transmitting information that it has made possible,[9] has had not only functional consequences – such as the spectacular dissemination of information technology, the reorganisation of corporate firms (also in spatial terms) and the comprehensive readjustment of markets on a global scale – but also significant consequences at the structural level: a level that relates to issues which, within a given techno-economic paradigm, lie outside the decision-makers' field of choice, such as social relations or the re-setting of boundaries between the firm and the society.

To understand the nature and implications of these structural changes, it is expedient to examine what has occurred within the corporate firm's communication circuits since the advent of ICTs. Before that advent, but also in the short interval of informatics-without-telematics, communication necessarily required the intervention of the human factor, since the monitoring of automatic devices, based as they were on electro-mechanical technology, only worked in an analogue/local way, with no possibility of their being integrated into a complete monitoring system at the firm level (and, *a fortiori*, more

[8] For a vivid representation of this view, see Schon (1983).

[9] Between 1980 and 2010, the "Cost of Hard Drive Storage Space" fell from about 200,000 US$ to 10 cents per Cigabyte (-62% a year). Source: http://ns1758.ca/winch/winchest.html (Accessed May 2012).

broadly). For example, how could a mechanical counter communicate with a mercury thermometer and, at the same time, for instance, with a chemical colorimeter or a budget item? The role of humans was merely to make communication possible at the firm level in those constrained conditions by translating (in the twofold sense of interpreting and transferring) the signals emitted by the different monitoring devices (human devices included) according to their specific and different languages.

However, this unavoidable human intervention meant that communication as a whole was exposed to ambiguity, because individual interpretative codes are idiosyncratic, and also because ambiguity can be also produced opportunistically (Cusinato, 1996). From this it follows that even the most peripheral agent had the power to condition the system's performance because s/he was able to affect communication, albeit at an infinitesimal level (Marcuse, 1964; Lyotard, 1979). It is also clear that, in such a situation, the top management's main concern was to establish accurate protocols with which to minimise ambiguity in communication circuits (Sennet, 2006): an effort, however, that could not (and cannot) fully attain its goal, not so much because of the increasing marginal cost of ambiguity reduction, as an approach *à la* Shannon would suggest, but because, insofar as the principal makes such an effort, the agents may be induced to produce additional ambiguity in order to maintain their degree of discretion.

This also explains why, within the electro-mechanical paradigm, the typical corporate firm assembled all productive phases within the same plant, the factory: whilst technical indivisibilities can account for the large size of plants, the proximity between the different and technically divisible parts and phases of the productive process met the functional need to reduce ambiguity and the strategic need to prevent free-riding within the communication circuits.

The advent of ICTs has wholly upset this scheme. The full integration of the peripheral monitoring devices into a single 'syntactic'[10] network made possible by generalised recourse to digital language has rendered unnecessary the intervention (and the connected power of mediation/interposition) of the human component in the codified communication circuits. This has enabled an unprecedented disembedding of syntactic/'monological' communication circuits from the previous single circuit within which this kind of communication was inextricably entwined with human/'dialogical' communication.

This material separation between the monological and the dialogical circuits has had crucial consequences in corporate firms and industry in general. Firstly, closeness between the human factor and routinised activities is no longer necessary, and the latter can now be left to automata, except for their overall monitoring. Secondly, routinised activities become potentially 'footloose', except where there are technical indivisibilities. The main consequence, however, is that firms can exploit the creative potential of dialogical communication, and specifically ambiguity, now that this kind of communication no longer interferes with the monological circuits. This means that firms can now

[10] The term is drawn from Nonaka, Takeuchi (1995).

deliberately adopt the practices – or rather the pragmatics – of *Learning II*, thus shifting their focus from the 'mechanical' production of goods, including innovation – in the way that it is conceived by *Learning I* and conventional 'knowledge management' (see McAdam, McCreedy, 2000) – to the handling of those conditions suitable for generating "vision[s] to create something new" (Audretsch, Thurik, 1998, p. 23).

A displacement of borders is also occurring between corporate firms and society at a whole. During the *mechanically* "managed economy" (ibid.), the issue of learning and, above all, learning about learning normally fell within the socio-cultural domain, and only laterally concerned the firm, at the top management level. When *Learning II* is taken into consideration as a strategic activity, boundaries with the socio-cultural domain become weaker and permeable: indeed, they become a new action-field for the firms themselves (Sacco, Dragone, 2006). In fact, as long as learning is understood as an accumulation of information according to a given interpretative code, it implies high externalities, and for this reason it is not well suited to the firm (Arrow, 1962). But when it is considered from a hermeneutic viewpoint, it proves to be highly place-specific, in that it makes substantial use of ambiguity, which stems from personal idiosyncrasies. Thus, not only learning but also culture, understood as the aptitude to interact with interpretative codes (Geertz, 1973), become primary resources with which to enhance creativeness within corporate firms and organisations (Lash, Urry, 1994; O'Connor, Wynne, 1996).

On these premises, we (among others) argue that the rise of the knowledge economy has occurred (and is still occurring) through the *internalisation of Learning II practices by firms, and more generally industry, as a core strategic activity* (see Nonaka, Takeuchi, 1995; Houghton, Sheehan, 2000; Rullani, 2004; Lytras, Sicilia, 2005).

4 Corollaries

The shift of focus from *Learning I* to *Learning II* now occurring within firms and industry in general has important consequences for the analytical and normative domains. The relationships among things, agents and concepts shift considerably, so that meanings once conventionally associated with certain categories change, categories that were central within the previous paradigm become obsolete, while others arise and require analytical definition. Let us examine some of these consequences.

4.1 Noise and ambiguity

In the commonsense meaning of the term, 'noise' is a disturbance in the reception of a signal. It is considered to be the effect of interference or entropy in the transmission of the signal which distorts it compared with a normal and expected, though highly unlikely, form. It is already clear from this

commonsense definition that the notion of noise necessarily goes together with that of code, be this of a sensitive, syntactic or semantic kind. Only by possessing a code can the receiver discern between familiar and unfamiliar, correct and incorrect, meaningful and non-meaningful, expected and unexpected signals.

The status of noise becomes much more multifaceted, however, when intelligent systems are considered: that is, systems able to shape interpretative codes (within certain margins which ensure their internal consistency), precisely in order to give sense to signals that would otherwise be interpreted as noise, and hence ignored or rejected. This clearly introduces a third dimension of knowledge (and language) besides the syntactic and the semantic ones: the pragmatic dimension, within which *Learning II* actually resides. When considered from this perspective, the 'amount' of noise that occurs on the syntactic or semantic level can be divided into two parts: one that is potentially susceptible to being integrated as new information into the subject's interpretative schemes through adaptation of those schemes themselves (Piaget, 1967), and another that is not susceptible to integration. Whilst this latter part remains *noise*, the former gives rise to the realm of the human experience which lies on the uncertain terrain between noise and information, that is, *ambiguity* (Empson, 1930).

Ambiguity thus turns out to be the prerequisite – the 'raw material' – for learning (Visser, Visser, 2004). An ambiguity which appears as noise, and therefore as a 'bad', when it is seen from the information-science viewpoint and becomes a basic and perhaps irreplaceable good when approached pragmatically (Monod, 1980). The crucial question then arises as to the conditions that enhance the subject's ability *to perceive noise as ambiguity*, which relates ultimately to the capacity to reshape interpretative codes to make room for new and unexpected elements. Making reference to Durkheim's seminal notion of 'milieu' (Durkheim, 1895), but also to the notion of 'milieus of creativity' introduced by Meusburger et al. (2009), we label this system of generative conditions a 'knowledge-creating milieu', that is, a socio-spatial device with the capacity to produce original 'social facts' – in the case considered here, variants in interpretative codes – thanks to the concurrence of both subjective and structural conditions.

4.2 The general structure of a knowledge-creating milieu

For *Learning II* to occur, the subject must be competent in perceiving differences in the properties of cognitive codes. This entails that s/he is able to move beyond his/her mental schemes by admitting that other schemes are possible and that the (relative) hybridisation with the one that s/he currently uses may allow the creation of original and unexpected relationships among things, agents and concepts: namely, cognitive innovation (Lane, Maxfield, 2005). It is not our purpose here to examine what psychological conditions foster an aptitude in this generative experience and how they do so; instead

we restrict our treatment to examination of what and how external conditions (with respect to the mind) play such a role.

As a first approximation, such conditions entail the intervention of three interrelated (and in certain circumstances, interchangeable) devices: (a) a generator of 'cultural noise'[11], which may be an individual, a social group or the society at large; (b) an interpreter, which is an intelligent device inclined to consider noise as the expression of underlying though unknown cognitive codes, and (c) a noise regulator – which may be of a physical and/or institutional nature – which enables the interpreter to decide how much/how long to expose him/herself to noise in order not to succumb to it. We now examine two main ideal-types of knowledge-creating milieus in order to highlight how structural and functional features (spatial features included) change according to the scale of the milieu, and how they work in enhancing *Learning II* aptitudes: the dialogical milieu, and the city.[12]

4.2.1 The dialogical context as the elementary form of knowledge-creating milieu

From a purely epiphenomenal point of view, dialoguing people exchange words in a reciprocal and repeated way. Since words are signifiers which serve to convey meanings, it is reasonable to suppose that people intend to exchange meanings when they exchange words, and that the exchange is deemed advantageous for (and by) both of them. This pure referential intention is fully realised when the people concerned have recourse to the same interpretative code, when they correctly codify and de-codify their reciprocal messages, and when the channel faithfully transmits them; otherwise a margin of misunderstanding – ambiguity – forms.

This image clearly pertains to the *Learning I* approach, and it conveys a simplified and somewhat caricatured depiction of a dialogical experience. When seen from the *Learning II* perspective, the image is completely reversed. The precondition for a dialogical experience to take place is that the people involved admit the idiosyncratic character of their respective cognitive codes and initiate a dialogue in order to ascertain the peculiarities of those codes through the ambiguities to which they give rise to when shared experiences are discussed.

The real 'referent' of a dialogical condition is in fact the differences between the interpretative codes of the dialoguing people, and although the latter appear to be exchanging words and meanings in their dialogue, they are in fact exchanging margins of ambiguity: that is, noise which they believe to be susceptible to interpretation by reshaping their own cognitive codes. The primary condition for an

[11] "Cultural noise refers to impediments to successful communication between people of different cultures [or sub-cultures, we add]. Sources of cultural noise include differences in language (e.g., the same words have different meanings), values (e.g., importance of being on time or setting work schedule times in a culture), non-verbal cues (e.g., interpretation of body language), and many others" (O'Connell, 2004).

[12] Another typical kind of knowledge-creating milieu is the firm (Nonaka, Takeuchi, 1995). On a wider scale, Compagnucci, Cusinato (2011) attempt to analyse territorial systems as knowledge-creating milieus.

individual to form an aptitude for dialogue – and therefore for dealing with cognitive codes – therefore consists in offering to share his/her own cognitive code – his/her mind – with others and 'betting' on the reciprocation of the other(s) (Godbout, Caillé, 1993). From this it follows that a dialogical experience belongs in the wider category of positive reciprocation, with the rules of which it has to comply to be effective: words are gifts and not merely signs; they are precisely symbols, in that they stand for a 'signified', namely ambiguity, which *relates* to other symbols and signifieds, and also relates to the parties' aim to create and nourish an interpersonal *relationship* from which they hope to gain a surplus in terms of sense.

Some circumstances, with spatial implications, may improve the generative potential of a dialogical experience, such as:

a. the subjects' capacity to suspend urge. This means that the parties must have at their disposal (or also create) a shared mental space in which the urge to acquire, to understand or to act – any urge – is moderated and moulded into a wish or, better, the evocation of a wish. Since physical space has a high symbolic content in that it serves in a steady and public way to represent, i.e. institutionalise, the image that a community, a group or individuals give to themselves, the presence of physical spaces and their arrangements in ways that allude to the condition of staying aside the space of everyday concerns may induce people to develop a propensity for relaxation and dialogue;
b. an aptitude for giving. Since positive reciprocity[13] requires gift-giving in order to establish fruitful and durable relationships, the spatial arrangement must also transmit the idea that the parties have at their disposal a protected area within which gifts (words, in the case considered here) are not exposed to the risk of being pillaged or offended.[14] A sense of sacredness must then be evoked by that physical space to symbolise the shared belief and will that an area of intimacy exists within everyone and also among the dialoguing parties, which is considered untouchable by each and every person entering that physical space;
c. respect for silence. Since the parties to a dialogical experience make gifts of words, words themselves have to be respected and also patiently hoped-for, as occurs within the emblematic experience of the "silent trade" (Curtin, 1984). This entails that silence – one's own and that of others – is not only respected but also appreciated (Rovatti, 1992);
d. the physical proximity of the parties is also an essential condition for dialogue. Inasmuch as the parties expose themselves reciprocally to the direct view of the other(s), they make it clear that they are wholly and unreservedly involved in the experience of reciprocal exchange;
e. finally, to avoid the risk of entropy, the space of dialogue must be cautiously open to the external world, and induce guests to make a mental shuttle between the two. Voices, buzz, and also noise from the external world must enter that space, albeit in a softened manner, as a reminder that the

[13] On the notions of positive, negative and balanced reciprocity, see Sahlins (1972).
[14] On the practice of establishing 'sacred spaces' to make exchanges in risky conditions, see Polanyi *et al*. (1957).

dialogical experience is a temporary and precious suspension, and not a refuge from everyday social life.

To sum up, the structural features of a dialogical milieu consist in (a) the concurrence of two or more (but not too many with respect to the requisites of reciprocation) dialoguing individuals, who meet on a voluntary basis, act according to schemes of reciprocity and alternately work as both ambiguity-generating and sense-building devices, and (b) the intervention of a moderating device which is in turn made up of (b1) the binding rules of reciprocity in exchanging words, that is, respect for the other's words as well as pauses and silence, and (b2) a suitable arrangement of spaces (the inner space of any dialoguing individual, the common space among them, the outer space and the softened connection with it), which works as a symbolic apparatus in evoking the conditions of proximity but also respect between the involved subjects, the (relative) suspension of everyday concerns and the possibilities of generating variants in interpretative codes.

4.2.2 The city as a knowledge-creating milieu[15]

The idea that the city is a cognitive milieu – in the generative Durkheimian sense – entered economic thought through the work of Jean Rémy. According to Jean Rémy, the city is distinct from similar socio-spatial formations because it gives rise to specific economic outcomes, and particularly to the production of "certains types de connaissance" (Rémy, 1966, p. 72). As to how this process comes about, Rémy initially provided a version which was affected by a notion of knowledge lying at the crossroads between the syntactic (or informational) and the pragmatic dimensions. On the one hand, he made room for the pragmatic dimension by noting that the city-milieu is characterised not only by the large amount of information that it is able to process but by the heterogeneity of sources and recipients. The concurrence of these two elements – a large amount of information and the heterogeneity of users – facilitates, in Rémy's view, reciprocal fecundation between the different visions which form within the forcedly circumscribed infra-urban milieus, *giving rise to common ways of seeing things*. On the other hand, however, Rémy did not conceive the rise of those common visions as the formation of new interpretative codes. Even less did he conceive learning as the outcome of a dialogical relationship between codes, but rather as the union of visions which find the opportunity to integrate their partial repertoires in reciprocal contact.

Finally, the issue of the heterogeneity of interpretative codes has been dealt with by Rémy and Voye (1992) from an urban-ecological perspective: "L'ailleurs pénètre la ville – they maintain, not only from the outside but also and systematically from the inside – d'autant plus que s'accroissent le volume et l'hétérogénéité de la population" (pp. 44 and 45). From this it follows that, in a context of generalised anonymity, cultural niches emerge "où, plus souvent que des sommes d'activités individuelles on

[15] See also Cusinato (2007).

trouve les activités collectives les plus disparates et les plus susceptibles de se développer dans la marginalité, l'illégalité [...] et donc de susciter un sentiment de curiosité et de mystère" (ibid.). Thus, the city becomes a milieu, and more precisely a "*milieu of milieus*" (Rémy, 2000b), made of sub-systems which generate local cultural codes and continuously produce variants of them thanks to a number of relations that they necessarily establish and nourish among themselves and with the external world.

The process by which the heterogeneity of codes turns into a cognitive resource is now described in a manner different from the early Rémy (1996). The contacts between the infra-urban milieus do not merely entail integration between the respective cognitive repertoires; they also give rise to "un 'pool' d'informations indéterminées [... dont] on ne connaît pas à l'avance le contenu pertinent, ni même la personne capable de le formuler" (Rémy, 2000b, p. 37). Although Rémy does not say so explicitly, contacts of this kind produce noise, and it is precisely in the points of contact, of partial and also occasional overlaps, "à première vue peu compatibles" (ibid., p. 38), that opportunities for exploration occur as premises for learning.

Unlike in dialogical contexts, however, relationships within the city are generally impersonal and involuntary, and heterodoxy rather than discipline is the engine of shifts in cognitive and more widely cultural codes (Redfield, Singer, 1954). Moreover, the device by which new cognitive and cultural codes spread among people is not reciprocity (which is an institutional device) but emulation (which is a socio-behavioural one), and ambiguity is no longer a club good as it is in a dialogical context, but rather a public good (in its raw form of noise). As a consequence, the city can be considered a 'natural' noise-generating milieu in comparison with the artificiality (in the sense of artificially/intentionally made) of a dialogical milieu.

The real problem thus becomes how to perceive this 'social/natural'noise as a potential vector of original information (about codes), and how to exploit it as a resource for creativeness and innovativeness. Both these processes entail the intervention of a third party, who may also come from among the same urban milieu, but has to be able to play the role of a meta-observer with respect to the noise-generative device (Atlan, 1979). More precisely, recourse must be made to a chain of highly specialised figures, the first and the last links of which are respectively the cool-hunter and the 'post-modern' entrepreneur: the former is able to perceive those variants in cultural-behavioural codes suitable for economic exploitation (Klein, 2000), and the latter is able to turn the suggestions coming from the borders and mediated by the cool-hunter into new goods with high symbolic content (Schmitt, 1999; Ferraresi, Schmitt, 2006). Between these two figures, a number of others intervene to giving rise to the so-called 'creative class' (Florida, 2002): designers, engineers, psychologists, information and computer technicians, advertisers, publicists, and many others, whose shared feature is the ability to deal with interpretative codes, that is, *Learning II*.

This suggests that the smaller the milieu is in scale – essentially, in volume and space – the more it acquires the features of an artefact, and conversely, the larger it is, the more it appears to be a social and, in some way, 'natural' device with respect to the subjects involved. Investigation into the rate of artificiality and naturalness of milieus at different scales therefore seems to be a crucial step in (a) ascertaining the functioning of these socio-spatial devices and the knowledge economy as a whole, and (b), on the normative side, in assessing what room for manoeuvre exists, what policies should be adopted, and by whom they should be implemented, to improve their generative potential.

5 Conclusions

The key role that knowledge now plays in fuelling creativeness and innovativeness, and consequently in enhancing competitiveness, is widely recognised – to such an extent, indeed, that what was initially epitomised as the post-industrial or post-Fordist era is now increasingly referred to as the 'knowledge era'. Although this shift in labelling the present condition is extremely useful because it signals recognition of the existence of a break with the industrial era – in the sense that the new techno-economic condition involves some genuine constituent features – a preliminary question arises as to the appropriateness of the notion of knowledge that scholars, above all, generally use when approaching this issue. The suspicion is that they are resorting to an obsolete notion of knowledge – the 'modern' or ontological notion, though this may sound paradoxical – whereas the corporate firm and social praxis as a whole are turning to a hermeneutic approach as a consequence of changes that have occurred on the material and, more specifically, the technological level.

Although an important shift has occurred in recent decades from an individualistic towards a social viewpoint on knowledge (Florida, Kenney, 1993; Gibbons et al., 1994, to recall some seminal contributions), economic thought has not yet clearly realised that the opening to the social dimension entails a deeper shift of perspective, concerning the epistemic status of the notion of knowledge itself. The disembeddedment of the hermeneutic approach which is occurring within the firms' praxis along with its higher potentiality as to creativeness and innovativeness by comparison with the ontological approach, should induce economic theory to emerge from its present uncertain situation, midway between the *traditional* (and more consonant to the neoclassic viewpoint) ontological approach and the quite numerous although not fully explicit references to the hermeneutic approach it is now possible to read in the literature.

It is no accident that the economic lexicon still remains firmly tied to a informational/conventional view of knowledge: knowledge is widely interpreted as the acquisition (rather than the creation) of information; it is accumulated (rather than articulated), combined (rather than hybridised), disseminated (rather than compared with), applied and finally empirically tested (rather than epistemologically criticised). Also the contributions which pay careful attention to the distinction

between tacit and codified knowledge, to their interaction to explain innovativeness, and to the relevance that proximity and place have in these processes (among others, Sven et al.. 2004; Cooke et al., 2007; Meusburger et al., 2009; Evans, 2009), do not generally take into consideration that this subject provides a formidable opportunity to deal with idiosyncrasies in cognitive codes and gain access to the hermeneutic dimension of knowledge.

Once this dimension and its potentialities in enhancing creativity are plainly acknowledged, it will also become possible to solve those ambiguities and eventually start building an analytically well-founded notion of "relational space" (Capello, 2007). In the meantime, it is only possible to make tentative explorations of this issue and prove their consistency on the empirical level. This is the sense of the exploration we have conducted in this paper starting from the issue of geographical representation of places. This issue can be finally expressed as follows:

Once it is admitted that place matters in a knowledge-based economy (in the meaning we have given the term in these pages) *and that the notion of milieu* (in the meaning we have also given the term in these pages) *is a suitable category to render the socio-spatial structure of a place, does a map of milieus also matter, in that the conditions of proximity within any milieu and among milieus are conducive to specific and relevant cognitive (and economic) facts?*

The paper has given some initial suggestions on the premises of this question, regarding the rise of the knowledge economy and the constitutive role the hermeneutic approach plays within it. It has not, however, dealt with the question of the potentialities of this approach as to innovation. The analysis of the structure of a dialogical milieu and of a 'milieu of milieus' (the city) has enabled us to infer some spatial aspects of knowledge-creating milieus at different scales, though further investigation is needed to fine-tune research and corroborate outcomes with empirical evidence. Despite these important limitations, it is possible to offer some final comments on the issue of 'mapping' milieus and systems of milieus.

The question is how to accomplish that task, once it is admitted that milieus are 'made of' both material and symbolic, place-specific, elements. In other words, is it possible to map not only single symbolic systems but also spatial complexes of symbolic systems? The only way it can be done is to have recourse to a unifying code which does not, however, trivialise the specific symbolic content of places. There seem to be two possible ways to face this issue. The first is to resort to structural anthropology, and to go back to (but actually 'to build up') the common matrix (the meta-code) of those apparently incommensurable symbolic systems. This way, we would obtain a map of the various local realisations of that common matrix, but severe questions arise as regards the elements to be taken into consideration at the various scales and with respect to the issue of enhancing learning and creativity. Whilst having no competence in this matter, we have serious doubts that it is a practicable way, if for

no other reason that the anthropological approach is quite static, while learning requires an evolutionary approach.

The other and in our opinion practicable way is to have recourse to that conceptual mediator we have indicated as 'milieu', by representing its constituent *structural* and/or *functional* features. As regards the first, it seems convenient to start from the features Durkheim specified back in 1985 – volume and relational density – and to integrate them with other features that many authors have subsequently suggested, such as heterogeneity (Jacobs, 1969; Rémy, 2000b; Storper, Venables, 2002), openness (for example, Lazaric et al., 2008; Storper, 1996) and other qualitative aspects suitable to attract creative workers (Florida, 2002; Hutton, 2006; Harmaakorpi et al., 2008; Storper, Scott, 2009). As to the functional features, reference can be made to the presence of knowledge-creating activities (which, according to the hermeneutic approach, are devoted to dealing with cognitive codes and not generically with information). Early tentative but not unsatisfying enquiries have been made on both cases respectively (as regards the author of this paper) by Cusinato, Gibin (2009) and Compagnucci, Cusinato (2011). Much ground remains to be covered, however, but the aim and the task of building a geography of places has become an indispensable and also exciting epistemological and methodological issue.

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