Redesigning nature and managing risk: Social Representation, change and resistance

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**Abstract**

Resorting to social representations theory we illustrate how in our societies, where the pressures towards change in the environmental domain are constant and come from countless sources, processes of resistance are also their constant companions. We present four case studies. The first regards biotechnological innovation, which highlights the conflict between old and new conceptions of nature. A second example regards changes in response to flooding in France seeking to further our comprehension of how people can be persuaded to adopt behaviours related to a "risk culture" that does not deny risk. A third study examines how two different communities adjust to electricity supply changes in the UK and their objections to changes in the landscape. A last example concerns the adjustment to new legislation fostering public participation in Portugal. We look at how normative legitimacy constrains resistance, marking the discourse of experts involved in the management of the environment and how these can change through time.
Introduction

One of the more interesting paradoxes of our time is that our societies are in constant transformation yet they remain notably stable in many regards. This makes the relations between change and stability a central issue to examine when we seek to understand social thinking and action. When we approach this issue from the point of view of social representations theory, we have to acknowledge that significant representations develop under conditions of conflict and societal debate (Moscovici, 1988), since this is a theory seeking to understand how innovation circulates through society and how change is picked up in different fashions by different identity positions, and also how change is resisted, sometimes in blatant, sometimes in subtle, ways. The analysis of communication - as it happens in both interpersonal debates and in the media - is deemed central for understanding these phenomena. Since in communication different meanings co-exist and communication by definition involves the transformation of meanings, Social Representations Theory is also a view of how representations are organized around oppositional pairs of concepts (peace/war), which become thematized as arguments and when brought to public attention generate debate (Marková, 2003). Moreover the theory presents a view on how old and new ideas co-exist, relate to each other in diverse ways, and how some of those ways concur for social change, whereas others resist change and concur for stability. This of course means that old representations do not exit quietly when new representations are introduced and elaborated by a society (Jovchelovitch & Gervais, 1999, Wagner & Hayes, 2005; Castro & Lima, 2001). On the contrary, and since in communication people actively engage in the task of transforming ideas, they create new combinations that respond to their identities and interests, producing hybrid representational fields.

From this set of assumptions a number of questions about the articulation between change and resistance to change can be posed. For instance, how does change in representations occur during periods of intense debate? How, in the daily tasks of relating and debating with our friends and relatives do we advance change and spread new ideas, or, instead, resist change, and sometime slow down certain transformations - what are the contents of the representations we call for these tasks, and what are the processes that operate upon these? What are the processes through which a representation stabilizes and becomes dominant? What are the paths through which some representations acquire normative legitimacy, while others do not? Can institutionalized and normative representations be resisted directly or only indirectly? Are there any common characteristics to the representations that meet with stronger resistance?

Today all of these questions assume particular relevance in the environmental domain. A number of imperatives regarding sustainable development and environmental protection are exerting strong pressures towards social change, as new legislation and norms come to regulate the sustainable management and use of resources. We are all called to change our daily habits, to car pool and to separate our domestic waste; our countries signed policy documents committing them to recycling goals and international treaties bounding them to implement biodiversity conservation programmes and to change land and water use. At the same time, natural disasters and the institutional responses designed for them also insistently press the affected populations to change what sometimes are well rooted individual and community responses to natural risks. Moreover, technological innovation and its risks are a constant in our days, and its pressures and constrains are exerted on a daily basis on our most mundane options, with genetic modification affecting for instance those connected to our choices of food to buy.

How are all these pressures to change taken up in daily discourse and daily practices, how are these put at the service of change, or of resistance to it? This is a question that touches what we see as the crucial issue of a socio-psychological approach – how to link the macro level with the meso and the micro level? In other words, how to link the macro-processes pressing for social change - like laws, technical innovations or natural disasters - to the
micro-level processes of communication and everyday discourse that frame and re-frame the meaning of these pressures, and which in turn happen at the meso-level of concrete interactional situations and communities? The same is to say that we need to simultaneously consider and articulate the social constraints within which communication and dialogue occur, with the discourses of individuals in situation, and with the examination of how these are organized by and reflect social representations.

The set of analyses we will present in this chapter touches on some of these questions, by taking them to empirical scrutiny linked to concrete case studies: A first example, “Nature under attack”, regards technological innovation, more specifically biotechnology being introduced to European societies. This is a topic where moral issues come to bear. At the same time it highlights the conflict between old and new conceptions of nature and renders contours of existing representations clearly visible by projecting them in sharp contrast to the new. A second example, “natural hazards and risk culture”, regards changes in response to flooding in France. We will examine on what grounds these changes are resisted and how these are linked to traditional practices and community arrangements. One of the important aims is seeking to further our comprehension of how people can be persuaded to adopt behaviours related to a "risk culture" that does not deny risk. A third example, “Blighted nature”, is concerned with the adjustment of two different communities to electricity supply changes in the UK. Can aesthetical objections be seen as a form of resistance to change? Is resistance conveyed through the ways themata are linked to values? A fourth and final example, “Managing the environment and nature”, concerns the adjustment to changed legislation fostering public participation in Portugal. Public involvement is now an imperative for the management of the natural and the built environment endowed with normative legitimacy. We will look at how this characteristic constrains resistance to it, marking the discourse of experts involved in the management of the environment in particular ways. We will also show how these can be changed through time, in connection with direct interaction between the expert and lay systems.

**Nature under attack**

Right at the beginning of Social Representation Theory was the insight that everyday knowledge and significant representations are most likely developed under conditions of conflict and societal debate (Moscovici, 1988). When there is conflict about an issue the accompanying heated personal and media discourse results in well-structured and stable representational systems, whereas when an issue is not at the centre of public attention, the system of related knowledge is unstructured and volatile (Wagner & Hayes, 2005). If indeed conflict is a constituent principle, then there has been a prime opportunity to observe social representations in the making in the field of new technologies—particularly biotechnology—being introduced in European societies in recent years.

Genetic Engineering is squarely situated at the cross-roads of scientific-technological artefacts and nature. On one hand their products are artefactual things; on the other hand they are modified versions of natural kinds, i.e. organisms, which the majority of people perceive as immutable elements in the structure of their worlds. The new technology changes natural kinds to artefacts and artefacts become natural. Artefacts reflect human will and desires. Chairs and cars, for example, are things that come about through human activity. They are characterised by their function, and they are usually understood as being alterable. Natural kinds are categories we draw upon to classify objects taken to exist independent from human behaviour. Their characteristics, such as form and physical appearance, depend to a certain degree on “chance” or “nature”. For natural kinds, category membership is assumed to rest on an underlying non-obvious structure, or “essence”. Such essences are seen to be stable, ingrained, and identity-defining characteristics.

This apparent rupture—the natural becoming artefactual—in our understanding of the contemporary world introduced a conflict that found its political expression in numerous
heated debates and political activities in Europe. In this arena the public underwent a process of Collective Symbolic Coping in order to come to terms with the new technology (Castro & Gomes, 2005; Wagner, Kronberger, & Seifert, 2002).

It is intriguing that times of conflict, where the grounds are being prepared to collectively elaborate a new representation of biotechnology, first shed a lime light on the pre-existing and traditional representations of nature. The reason is that the novel challenges crucial aspects of the received ways of thinking about nature and natural kinds. The challenge renders the contours of existing representations clearly visible and projects them in sharp contrast to the new. Hence, we are reporting here not so much the outline of a new social representation of biotechnology, but rather the structure of the existing common sense and everyday discourse about nature and life.

The vocabulary that focus-group participants use expresses the idea that Nature is seen as possessing a human-like will that is being provoked by the engineering of animate beings. Consequently, moral implications arise when technology confronts Nature and Life qua persona. This animistic twist making nature become a volitional Mother Nature allows participants to express concerns about future risks that may not be knowable. This uncertainty is well expressed by the recurrent statement that Nature will take revenge. There are two forms of the argument that allow to express unpredictability and that are based on slightly different worldviews: An animistic and a more vernacular version of holism.

In the spiritual form interfering with life and nature contradicts our obligation to venerate nature and life. Nature is seen as a superior force that affords respect for the natural order of things. Any changing of the genetic outfit of a living being is an interference contradicting traditional ways of achieving change in the natural order. This is the core of the reasons to reject Biotechnology because it makes new creatures designable according to human desires instead of leaving room for the vagaries of the natural way. This is particularly true with animals (cf. Pivetti, 2005). The vernacular representation of nature, in turn, is based on an elementary knowledge of recent scientific insights such as chaos-theory and homeostasis. Here, nature is imagined as a complex system, life as being highly dynamic and self-regulating. Accordingly, future effects are assumed to be “chaotically” unpredictable. Despite the difference in argument, this view implies the same conclusions as the spiritual framework (Wagner et al., 2001).

At their core the spiritual and vernacular representations converge on two points: (a) Nature has the potential to react at its will (animistic) versus nature functions according to its own highly complex laws and may eventually “derail” when challenged (vernacular). (b) Nature is part of the moral order and manipulating living species violates their right to veneration (animistic) versus living beings crossing the species boundary are threaten nature’s equilibrium (vernacular). Point (b) indicates a fundamental property of cognitive functioning in dealing with living kinds: attributing “monstrosity”.

The topos of monsters and monstrosity populates our historical past down to the old Greeks and further (Daston & Park, 2001). Monsters were created for human purposes and made of improper material just as modern genetic hybrids combine genetic information from different biological species. The ways newspapers communicate monstrosity and threat from genetic engineering are manifold (Wagner, Kronberger, Berg, & Torgersen, 2006), and some fuel processes of resistance to change (Castro & Gomes, 2005), a dimension surely involved in the notorious differences found in European countries regarding support of biotechnology (Gaskell et al., 2006). In the press, the most obvious method is to use fictive chimeras combining body parts from different species. Most of the time, however, media use other methods to communicate monstrosity. One such method is highlighting the monstrous through its conspicuous absence, that is, to depict things where biotechnological threat seems to be absent: e.g. photographs of innocent children enjoying a cob of maize. The context—being reports about biotechnology—however, makes it clear that even in ostensibly healthy looking fruits and vegetables there might be invisible
danger lurking: Monstrosity is implied in the subtext, which can be taken as a code of resistance.

Again, the rupture introduced in everyday thinking by the existence of genetic engineering and the possibility to transgress species boundaries, offers the unique opportunity to see cognition in action when it attempts to make meaning of genetic hybrids. In a series of psychological experiments we showed that genetic hybrids are consistently seen as more dangerous, less beautiful, stranger, less pure etc. than natural animals. When the imagined hybrid is a genetic combination of different species, it is seen as more monstrous than the within-species hybrids, and the latter score higher on monstrosity than the natural animals (Wagner, Kronberger, Nagata, & Sen, submitted).

In common sensical thinking living beings and natural kinds are endowed with a property that cannot be shed under any condition: Their “essence”. The more incompatible the essences of original animals that are being genetically combined, the more monstrous the hybrid appears. The cross-cultural validity of the result points towards an underlying cognitive process that deals with categorical uncertainty in similar ways across different cultural backgrounds. Attributing monstrosity is the fall-back strategy when understanding the world in terms of familiar categories collapses. Hence, cognizing monstrosity signals an epistemological problem and a Category Crisis (Cohen, 1996). In the age of biotechnology it is the idea of mixing essence, encapsulated in the genome, from incompatible natural species that produces monsters.

In the face of these contemporary developments the idea of what is natural and what is artefactual must be redefined. While physical and chemical manipulation of natural substances does not significantly reduce their naturalness genetic manipulation does (Rozin, 2005). According to our research, however, it is not only the process of inserting genes into an organism that jeopardizes its naturalness, but simultaneously the crossing of natural kind borders in this process and thereby mixing incompatible essences.

There are two conclusions that we want to stress: First, we think that periods of conflict and extended discourse debate mark the nascence of new social representations. But for the researcher these periods of debate are grounds that are germane for unravelling the pre-existing structures of representations that are being challenged. The new representation will only develop in the long run. Second, we propose that the Western cultural history of monsters is a local expression of a universal cognitive process of dealing with violations of natural kinds. This process of cognizing monsters comes to bear wherever the established way of structuring the world of life is being challenged, be they malformed births or genetically altered animals. They are a reaction of confusion and ambiguity, vacillating between curiosity and fear, and at the same time a moral judgment about what ought and what ought not to be.

**Natural hazards and risk culture**

The nature, magnitude and consequences of most natural hazards incorporate a very high level of uncertainty. Taking decisions in face of this uncertainty is a complex process, particularly because it is difficult to put in relation local and global levels, as well as immediate and long term consequences of the behaviours.

In the same way, research shows how representations of environmental risks are more conditioned by beliefs regarding the environment than by objective features (Sjöberg, 1998; Weiss, Colbeau-Justin & Marchand, 2006). When studying responses to natural hazards, we have to take into account these beliefs, which on one hand reflect primarily a lack of control: people cannot explain how or why a disaster appears, and most of the time, they are not prepared to react to this event. On the other hand, beliefs are inextricably linked to social values and a cultural background. This “cultural bias” is just
one of the set of “biases” that reflect the diversity of lay perceptions of risk and make scientific communication of risks always difficult and sometimes non operant (Peretti-Watel, 2000). The result of these biases is that the populations cannot evaluate the risk in the same way as the experts do. The question is then to know what means can be used to help people protect themselves against possible disasters.

Environmental psychology and sociology studies have shown that mitigation and prevention measures must necessarily take into account the representations and the type of acceptance of the risk by the populations: “the concept of risk defines at the same time a field of representation and a field of action” (Peretti-Wattel, 2000; p.5, our translation). Moreover, even a good knowledge of the environment is not sufficient for the adoption of adequate prevention strategies and behaviours. Sometimes even good legal information has no effect on the representations of flood risk (Weiss et al., 2006). That is why the analysis of the representations of the environment and of environmental risks can allow for a better understanding of resistance to the adoption of prevention behaviours. In addition, these representations also influence options regarding reconstruction (Colbeau-Justin & Mauriol, 2004).

In sum, research has shown that the way people evaluate and behave in response to environmental hazards is clearly linked to their perception of control and to the causal attributions they make in their explanations of a disaster. What is usually called "risk culture" corresponds both to risk acceptance and to the search for a maximal correction of known dangers and their consequences (Lascoumes, 1997). This correction can exist simultaneously at a macro-level (institutional regulation, technical mitigation, etc.) and at a micro-level, with the adoption of self-protection behaviours. In this spirit, the 2003 French legislation regarding major natural and technological risks contains numerous dispositions aimed at reinforcing the preventive information and the awareness of the populations regarding risks. These dispositions reflect the necessity to inform and to have an official and clear discourse about the risks affecting the populations. In this way, these measures reflect also current environmental theories that point out the necessity to locally promote the development of a risk culture, in order to encourage individual responsible behaviours.

These last years researches about floods in France\(^1\) have shown that behaviours and attitudes towards floods and flooding reflect the wish to better understand and to appropriate the event through individual as well as social coping strategies, like social re-organisation, solidarity, rumors, etc. (Colbeau-Justin, de Vanssay, Weiss, Chahraoui, & Laurent, 2001). This research has made obvious the difficulties of accepting risk, which are linked to the representations that people have about it and about their life environment. Even if, in all the cases, the population is not sufficiently aware about the risk of flood, the collective memory and the individual experiences of past floods constitute crucial factors for the evolution of the representation and the levels of acceptance of the risk.

For instance, in the department of the Gard\(^2\), two tendencies were observed. These tendencies excluded each other in most cases, but for some subjects they had also a “mixed” or integrated character. The first tendency reflected an appropriation of the risk by the population: the representation of the environment integrated the risk, which was accepted as a part of the life in the area. This acceptance of the risk come together with strong place attachment and also with the acceptance of individual responsibility: people wanted to adapt their way of life to the characteristics of their environment.

The second tendency concerned people who, on the contrary, excluded risk from their representations of their environment. For them, the whole responsibility of disasters could


\(^2\) Four small cities were studied: Lunel, Remoulins, Alès and Sommières. The sample consisted of 80 persons who answered semi-directive interviews.
be imputed to the Government, which was seen as incompetent in flood management, and was criticized for the totality of its actions: regional and urban developmental plans, regulations, prevention strategies, etc. A hybrid conception also existed, with some people associating the risk with the governmental actions but also accepting possible self-protection actions. They both criticized the local developmental policies, and requested a global legislation concerning areas liable to flooding. Most of the time, this kind of claiming was made by the way of local organisations. The arguments used defended that an individual risk culture, i.e. the acceptance of risk and its associated prevention principles (Lascoumes, 1997) could take place and make sense only if the Government first did its work. These three representations had more or less equivalent proportions in the interviewed sample. However, the first one is the only one linked to the adoption of individual prevention behaviours. On the opposite, rejection of the idea that ones lives in a risky area is usually linked to a lack of personal experience of past floods and to a deficient knowledge of the history of local floods, and is correlated with resistance to change behaviours and to adopt preventive strategies. Moreover, these different kinds of reactions towards risk are linked to divergent expectations regarding preventive information: when the risk has been accepted, the expectations are centred on operational information (what to do in the case of a flood). When the risk is not accepted, the expectations concern information about the risk itself.

To conclude, this example shows that risk representations evolve on the one hand with the knowledge that people get through their personal and community experiences, and on the other hand with their attributions of responsibility (personal vs. institutional). The coexistence of three kinds of representations is an indicator of this evolution. It seems to point out that stages exist in these changes. But risk acceptance has also to face the fear of the unknown, which is actualised through significant requests in terms of information as well as regulation. Moreover, even if resistance to change is intense and reflects both this fear and a minimisation of perceived risk for the self, the behaviours are changing and suggest the emergence of a new risk culture. The strong mediatisation of natural hazards, in turn, does not seem to be very effective for this evolution, because it only intensifies the perception of global risks, but has no effect on perceived risk for the self. Furthermore, the evolution of representations and behaviours has often to deal with lack of trust in public institutions. This may be why the recent efforts made in order to link the institutional and legal level with the micro-level of individual behaviours are as yet not sufficient.

**Blighted nature**

Within the UK policy, increasing supply capacity from renewable or low carbon sources has become a key objective, with a target of 10% of electricity to be supplied by renewable sources by 2010 and an aspiration of 20% by 2020. Meeting these targets requires the development of electricity supply network technologies, which have technological, economic and social implications. For example, in Scotland, electricity companies plan to install 400kV overhead power lines to transmit electricity generated from wind farms on the Western Isles, to the south, i.e. England, where the demand for electricity is greatest. These plans have provoked contestation particularly at the meso-level, with local groups campaigning for and subsequently being granted permission for a full public planning enquiry. Contestation has arisen despite the pre-existence of extensive electricity generation and supply technologies (such as hydro power stations, pylons, overhead cables) throughout Scotland.

Social representations theory was used to investigate public understanding of electricity networks within a case-based discussion group study conducted in two areas that differed in electricity network salience: (1) one area, in central Scotland faced significant changes to the local electricity supply network; (2) for the other area, in central England, no changes were planned. A total of nine discussion groups were conducted with 62 local residents sampled according to gender across the two areas. Each group consisted of participants...
who were already familiar with each other through membership of a sport/leisure group or shared interests. In this way, social representations were studied amongst naturally occurring social networks (Moscovici, 1989).

The aim of the discussion groups was to investigate how electricity network technologies were represented and how social values might be related to the content and processes of communication about these technologies. A variety of empirical methods were used to examine the implicit symbolic content of thought, that included drawings and a word-association task embedded within each group discussion. In addition to socio-demographic data, an exit-survey was used to collect information about the importance attached to particular values as guiding principles in the participant’s life (Schwartz, 1992; Devos, Spini and Schwartz, 2002).

From the discussion group transcripts, seven main themes were identified: (1) environmental awareness, (2) sanctity of nature, (3) ‘hidden agenda’ for nuclear power, (4) change as inevitable; (5) limits to growth; (6) risks to health and (7) rational (material) versus symbolic coping.

Whilst the majority of participants had in common the expression of self-transcendent values, they adopted different views in relation to the seven themes as a function of espousing self-transcendence in combination with either openness to change or traditional values. For example, for those who expressed traditional values, ‘the fact was’ that nature was ‘scarred’ or ‘blighted’ by permanent and motionless pylons, cables, cooling towers and power stations, and this presented health dangers (e.g.:”...apart from the fact that they do blight the landscape you’d have thought from a health point of view (K., Leicester) ...they must radiate something or another" (C., Leicester). By contrast, the participants who valued change remarked how what in the 1930s and 1960s would be seen as a ‘mere installation’ of electricity infrastructure was an ‘imposition’ in the 2000’s. One Leicester participant adopted a more positive analogy, describing pylons as a metaphor for how we ‘create and share’.

In sum, then, well-established aspects of representations of electricity infrastructure, like health concerns, aesthetical preoccupations, worries regarding negative effects of pylons on property value or on the local economy, or the perceived threat of pylons to nature, re-emerged also in our groups as forms of resisting change. But it is notorious that new themes, anchored in both electricity supply and electricity use aspects, emerged too. Examples of these new themes are those regarding a 'hidden agenda' for nuclear power or the vulnerability to acts of terrorism.

Also to be remarked is the fact that within both old and new themes, transversal issues of local attachment and national identity were also identified, particularly within the Scottish discussion groups (e.g. “but I don’t see why we should have to put up with huge pylons up here to put it down south (.) when at a little more expense they could put it underground and it would not be the unsightly”(D., Beauly).

This is why this research suggests that specific value orientations, namely openness to change versus tradition, should receive attention, because they seem to shape the choices of themata underlying representations of electricity structures. However, our research also suggests that attention should be paid to the role that new anchoring categories and themes attuned to emerging risks of our time have as forms of resisting the installation of new infrastructures. Finally, this study also shows that identity concerns continue to be a possibility of resistance often activated. So meeting UK government targets to increase renewable electricity generation will require a better understanding of how values, old and new themes and identity processes influence both acceptance and resistance to future electricity network change.
Managing the environment and nature – identity concerns and temporal dimensions

In most European countries the idea that the publics should be actively involved in environmental decisions has now acquired ample normative legitimacy. This is a consequence of the emphasis on local involvement coming from *Agenda 21* (Pol, 2002) and related treaties and of a clearer awareness of the necessity of increasing the transparency of decision-making processes that incorporate technical-scientific knowledge (Wynne, 1996). In these countries public participation has evolved from the informal to more formal modes, and now occurs under the rubric of various policy and legislative tools (Eisenfeld et al., 2006), some of which even meet calls for a more dialogical and less pedagogical model of participation (Opus report, 2003). However, and despite the fact that the legislated norms are already supported by several forms of institutionalization, in Portugal the practice of public participation is still nascent (Eisenfeld et al., 2006) with a deep gap between the norms and the facts (Lima, 2004). In other words, change in the realm of public participation in environmental decisions is being imposed on society in a top-down manner, but previous practices remain as yet relatively unchanged. This situation lets us hypothesize that change is being implicitly resisted in a way that avoids blatant opposition, which would contradict formal laws and rules.

We present two examples of how public participation in environmental matters may be sometimes resisted and also sometimes forwarded through daily dialogue and communication by individuals in specific contexts. Through these examples we examine how the macro-processes of social change are linked to the level of communication and everyday situated discourse.

The first example concerns a controversy regarding the built environment of an historic neighbourhood, more specifically the transformation of a XVII century Convent into a closed luxury condominium. The controversy began when the professionals (architects, jurists, sociologists) from the Office of the responsible local authority accepted the transformation without consulting the community. As a consequence some of the residents organised a movement to act against the plans and to protest against the lack of public consultation. The ensuing debate brought the professionals of the Office to face the dilemma of having to argue against the dwellers aims without opposing public participation per se.

From the seven narrative interviews, one for each professional category, conducted with the Office technicians, two principal aspects emerged. The first shows that the technicians organise their discourse through the paradox of, on one hand, defending public participation in general and, on the other hand, disqualifying the concrete case of public participation they face as an illegitimate “defence of particular interests”. In other words, they “particularize their way out of contradiction” (Billig, 1985, p. 98) by depicting the movement of dwellers not as public participation proper.

The other aspect can be called an *identity shift*. When talking about public participation from the point of view of their professional identity, the Office technicians criticize the residents and depict their goals as illegitimate. However, when talking about public participation from the point of view of citizens, they emphatically agree with it and consider this right as central to citizenship. In sum, the technicians both affirmed and denied the relevance of public participation depending on their identity context. The two positions could appear as contradictory, but since both are sustained by arguments that make sense when examined separately – normative arguments, on one side, and functional arguments, on the other - they do not feel the contradiction as such. In fact, resorting to one or the other of the arguments that are available in the representational fields seems to be an adaptive discursive mechanism, necessitated by the multiple identities of our times and their often diverging demands (Jovchelovitch and Gervais, 1999).
A second feature concerns the views of public involvement emerging from the interviews. In recent legislation and policy documents from both the EU and Portugal (Opus report, 2003) public participation is not so much defined anymore as a pedagogical effort, but as a dialogical partnership. Our interviews, however, contain no traces of this conceptual change. Instead, we observe a pedagogical vocabulary where participation means either to ask questions at the Office, to consult the technicians and to let oneself be informed; or to protest, to disagree, to express an opinion. The questions of how to turn indignation into a fruitful input to decisions is not raised.

Our second example regards a biodiversity conservation programme that is being implemented by an environmental NGO. During one year we followed-up the preparation and first stages of this programme in the interior South of Portugal. This is a place where local communities are already living in Nature 2000 Sites, which impose restrictions in the name of environmental protection. In this example we focus on the interviews of the programme technicians, which we conducted at the beginning of the programme and one year later. In analysing the interviews (two in each period) we paid particular attention to the way the technicians described their roles and how they elaborated on their relationship with the local communities. A comparison of the interviews from the two periods highlights significant changes in the technicians’ way of involving the community members in the programme.

In the first series of interviews the pedagogic model of public participation and community involvement dominated. The NGO experts perceived the locals as mere recipients of information that would make them act correctly towards the environment. Local knowledge and traditional practices were challenged by expert knowledge. At the same time, the NGO experts were strongly aware of their paradox: they had to establish communication with the community in the service of their programme, but at the same time they knew that this communication was hampered by the negative image people had of them as “green environmentalists”. One way of dealing with this paradox was the attempt to avoid the negative image by hiding the fact that they were working for an environmental NGO; this however, also robbed them the professional force of their expert position.

Interviews from the second period show a hybrid representation of community participation, where both top-down and bottom-up intervention and participation models were integrated. Here local knowledge was considered useful and some local practices judged as ‘already ecological’. This change was brought about by successive meetings with the community members, which –helped to reconcile the “deep ecological ideology” and a dialogical form of public participation. This integration of the pedagogic model based on the conflict between lay and technical understanding, and the new dialogical relationship emphasising power equality, acknowledgment partnership with the Other and accentuating shared beliefs characterizes the tools now used in matters of social change. At the same time it shows the hybridization of representations and the renegotiation of identities (Castro, 2006). The example illustrates the importance of studying social re-presenting in situations of potential conflict and processes of reciprocal adaptation; but it also illustrates the pivotal role of expectations concerning the future and their implications for changes in thought and action (Valsiner, 2003). Besides being rooted in their situational context, social re-presentation processes are also situated in a temporal stream.

**Conclusions**

For social representations theory representations emerge from a triadic relation between a Self, an Object and an Other (Marková, 2003). In the case of environmental studies, this means that they are to be taken as co-constructions not reducible to purely intra-individual perceptions mediating our relation with the environment. Instead, their emergence is guided by a net of relationships and by a culture. As researchers we need to pay attention to the articulation of the macro level of culture with the meso level of contexts and the micro level of dialogue, communication and individual action.
With this framework to guide our attention, we can anticipate that transformations that challenge a culture's more central claims to knowledge are then bound to be resisted. Some are resisted on moral grounds, and we saw in this paper how the projection of monstrosity was the central organizer of resistance to cross-kind genetic modification. We also saw how the attribution of responsibility to the Other and the optimistic minimisation of perceived risk for the Self in the case of floods results in resistance to change, i.e. in resistance to the adoption of prevention behaviours. Another example showed how old aesthetic and health arguments were mobilized together with new emerging ones (risk of terrorism) to resist transformations to the landscape. Finally, we saw how individuals make use of several discursive and socio-cognitive mechanisms through which they are able to manage contradiction, and how in some cases the management of contradiction allows individuals to resist change - i.e. to seemingly accept change, without changing.

Change however, is also a daily reality, and the research here presented also helps to see that non cross-kind genetic modification may be more acceptable, that acknowledging the responsibility of the Self leads to behaviour modification in response to flood risk, that the inevitability of change is also a developed theme regarding landscape transformation, and finally that new representations can emerge as a result of daily interaction and communication that try to devise common goals extended in time.

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