The Organizational View of Public Participation: A Narrative Analysis

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Abstract The following research paper presents results of an ethnographic investigation focused on the participatory process of a public project for urban environmental rehabilitation. This public intervention, called Iguaçu Project, is being carried out in the Baixada Fluminense, in the Rio de Janeiro Metropolitan Region (RJMR). Drawing upon the literature on social learning from both organizational and environmental management studies, the research investigates when and why social learning occurs within a participatory arena. The paper presents an analysis of stories told by nine key informants, selected as representatives of the main social categories involved in the project. The different meanings the narrators attributed to participation, environment, knowledge and learning in their stories, are analysed through abductive reasoning, i.e. through a continuous reference to the literature and confrontation with former narrative analysis in business organizations. The findings show an interpretative framework based on development of multiple-loop learning theory, defined as contextual loops. Furthermore, it identifies five explanatory propositions to answer the research questions. The occurrence of social learning in participatory arenas seems to depend upon five organizationally related factors: a systematized organizational structure; the participants' commitments and the pluralism of the participatory arena; the process proponents' reliability, the supporting role of a facilitator.

Keywords Social learning · Participatory processes · Organizational view · Narrative analysis

Introduction

Public participation (PP) is an essential matter in public policies, since it represents a current issue for democratic governments. It has acquired a special relevance in the last

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20 years regarding environmental questions (UNECE 1998; UNCED 1992; UNCSD 2012). Even so, it is going to be overshadowed by environmental debate, probably due to the difficulty in achieving results (Wesselink et al. 2011) or in preserving them. Participation has not ceased to be a necessity, but the complexity to manage it successfully makes it urgent to rethink this concept, identify new approaches to its effective implementation, even more so at a time of public budgetary constraints. Until now, the environmental scholars have approached PP through three prevailing perspectives (Petts 2006): substantive (meanings and definitions), normative (working rules and mechanisms), and instrumental (methods and approaches). Concerned with the need to develop a new view of participation, this work revises this concept, stressing its learning dimension, while proposing a different perspective: an organizational one.

In doing so, I start by acknowledging that social learning (SL) is one of the main desired effects of PP. In the domain of environmental policies, the complexity of decision-making is not only due to the public nature of the decision, but also to the uncertainty related with risks of environmental phenomena and the sustainability of related strategies. This specific condition makes room for the idea that environmental policies ought to be based on an integration among different kinds of knowledge—local, technical, political—(Maiello et al. 2013b), which is usually generated through SL dynamics (Rist et al. 2006). To contribute to environmental policy-making process, PP ought to be targeted firstly towards SL rather than towards other goals, such as communication or consensus-building. Thus, I have observed the participatory process ethnographically, investigating the underpinning learning dynamics through the conceptual framework formulated in organizational and behavioural studies, where the idea of SL was originally conceived.

Following the suggestions of Suddaby for qualitative research in management, this study deals with two different *substantive areas*, i.e. a field of practices and related interpretation, namely theories (Suddaby 2006). My substantive areas are: environmental management and policies, and organizational studies. Hence, the research adopts an abductive rationale, that is, the broadening of existing theories by introducing new concepts, addressed to theory *development* (Dubois and Gadde 2002), rather than theory generation.

Through an organizational view, I conceive PP not as an abstract value, but as a complex system, enlivened by several processes. From this perspective, the improvement of this system is based on understanding the underlying processes, determined by the interactions among its actors. It entails that learning and knowledge are socially constructed, that is produced through social actors' cognition and interaction. The research aim is to understand *when* and *why* these processes occur (explicative goal), and not *how* they ought to work (normative goal). The method used is narrative analysis, widely employed in organizational studies, applied in the analysis of a specific environmental programme: the Iguaçu Project (PjI). It is a public intervention for flood control, urban and environmental restoration in the Baixada Fluminense, a suburban area of RMRJ, under the direction of the Environmental Department of the Rio de Janeiro State (*Instituto Estadual do Ambiente*— INEA). The method is based on a collection of stories told by key informants, selected from among the actors engaged in the participatory process contemplated by the Project. Following a protocol of narrative analysis for organizational studies (Pentland 1999), actors' representations and meanings of the PjI were analysed, and an explanatory model of learning dynamics in participatory arenas was proposed. The results offer a systemic perspective of PP. It provides the academic debate an interpretative framework to rethink PP as a systemic practice and to observe it with an explanatory purpose. Furthermore, it attempts to explain why SL occurs in a participatory arena.

The structure of the paper is divided into the following sections: first, the concept of SL in organizational studies, and environmental policies and management literature, is reviewed, emphasizing its relation with participation; in the second, the selected methodology and methods are presented; in the third, the *fabula* (Pentland 1999), a synthetic, objective story of the analysed case, is described; in the fourth, results are presented and discussed; finally, in the last section, the research conclusions are drawn.

Theoretical and Conceptual Framework

Social Learning: An Organizational Concept

The concept of SL was born in behavioural and organizational sciences (Ginter and White 1982). Bandura (1969) introduced this concept, and suggested that the process of learning is determined by the interaction of multiple factors, such as personal features, behavioural attitudes and environmental conditions (Bandura 1977). While behaviourists in general conceive learning as a result of direct personal experience, SL theorists maintain that it also occurs by observation (Bandura 1977). Thus, SL differs from general learning because it entails a process of self-regulation which generates new behaviour (Ginter and White 1982) and, inductively, a new form of knowledge. One of the most important implications of SL for organizational practices is the idea that learning occurs through actions, and not only through an unidirectional transfer of explicit knowledge (Brown and Duguid 1991). In the realm of organizational studies, SL has been developed as a corollary of the concept of organizational learning (OL), which has been processed according to two different views: a *technical* one and a *social* one (Easterby-Smith and Araujo 1999). From a technical perspective, OL is strictly linked with organizational change, entailing that an organization learns if each component acquires new knowledge that contributes to useful changes. Argyris and Schön, two main contributors to this view, built a *theory of action perspective* (Argyris and Schön 1978), which underpins the idea that organizations learn through individuals acting as agents. They conceptualized the relationships between people (agents) and environment (organizations), introducing a learning structure based on two levels, or *loops*. On the one hand, the *single-loop* concerns the instrumental learning, which comes from the ordinary activities of organizations to pursue their missions, resulting in absence of feedback. On the other hand, the *double loop* implies a modification of organizations' underlying views and assumptions, bringing into question the current values and behaviour. In the authors' view, the *double loop* enhances effectiveness in decision-making through acceptance of failures and mistakes. Argyris (1976), introduced the concept of *multiple-loop (triple loop) learning,* which met with great interest among environmental scholars, who borrowed it to design governance models for complex socio-environmental systems (Pahl-Wostl 2009). The multiple or triple loop is the level of learning where the organizational change occurs, as it entails the development of new beliefs and behaviour. To present the conceptual structure based on triple-learning cycles, Pahl-Wostl (2009) explains that, while single-loop is related with action, and double-loop with awareness of the limits of organizational assumptions, the triple-loop is related with the absence of assumptions, with the definition of new ones, and, therefore, with the transformation of the organizational context.

From the social perspective, the act of learning is *situated* in society (Gherardi 2013). In other words, people, as well as organizations, learn by taking part in the social system (Wenger 2000). In this view, the main concern is not how organizations use their resources

to learn, but how they learn by interacting as a social system and with society. Within this perspective, some authors maintained that knowledge is a social construction and the learning process is, first of all, an individual cognitive experience. Accordingly, information only matters if people understand what it means. People's understanding of the data is more relevant than its acquisition. From an empirical perspective, Orr, observing knowledge exchange among workers with different expertise and levels of specialization, stresses the relevance of collaborative behaviour (Orr 1990, 1996). More recently, Senge and Kim (2013), emphasized the importance of knowledge integration, and likewise of multiple-actor interactions, for OL.

Actually, the social dimension of learning was better theorized outside the OL field. Lave and Wenger, underpinning a social constructivist perspective, identified the organization as a *community of practice* (Lave and Wenger 1991). They argued that learning depends on participation in the community, and focused more on collective action and interaction than on individual cognition. The authors introduce the notion of *legitimate peripheral participation* (LPP), identifying it as the main driver of the learning process. Since learning only occurs within the community, in order to acquire new knowledge, the organization has to engage new-comers. Thus, learning and participation are closely related (Gherardi 2013). Deepening these concepts towards a more complete theorization, Wenger defines community of practices as the *basic block* of a SL system, the virtual place for the development of the system competences (Wenger 2000). In Wenger's theory, each community has flexible *boundaries* (Wenger 2000), since they can be modified by their members and opened to new participants. These boundaries may be cultural, social, economic or physical, but, according to the author, if they are adequately *coordinated,* they can become *bridges* (Wenger 2000) to expand the community learning process.

Social Learning in Public Participation: A Tool for Environmental Policies

Throughout the last three decades, SL has become a central issue in different areas of environmental and natural resource management studies. In this field, the resonance of the sustainability principle, which is a complex and still not well-defined idea, made the knowledge basis uncertain. SL, as a tool to build new insights and make shared public decisions, has started to attract environmental scholars' interest, especially when they are concerned with public engagement mechanisms. As early as 1995, Webler et al. analysing the role of PP in environmental assessment procedures, stated that good public decision-making ought to be based on competence, fairness and SL (Webler et al. 1995). They evaluate PP through the criteria of SL defined as «… *the process by which change in the social condition … and popular awareness … changes how individuals see their private interests linked with the shared interests of their fellow citizens…*» . The authors describe two components within the SL processes: cognitive enhancement and moral development (ibid. p. 446). While the former concerns the individual acquisition of new knowledge, the latter entails the individual judgment of right and wrong. Analysing the case study of the Swiss Canton Aargau, Webler et al. identify a range of instrumental factors to promote SL, and thus effective PP. They identified both methodological and contextual factors. Methodological factors are: *visits*, *face-to-face small group work*, *repeated meetings over several months*. Structural factors are: *political support for the process*, a strong institutional overarching system, *expert support during the process*, and clear *responsibility* in designing the process and ensuring its monitoring. More recently the concept of SL has been widely used in the field of river basin management (RBM). In this regard, the European project, HarmanyCOP (Harmonizing Collaborative Planning) developed a

framework for SL and tested it in ten case studies around Europe (Tippett et al. 2005). They provide more empirical evidence of SL, showing that it is linked to integrated resource management and the local contexts. Nonetheless, the purpose and findings of Tippet et al. are not so different from those reported by Webler et al. more than ten years earlier. Indeed, both studies tried to identify a standard procedure for SL within PP. Building upon the same RBM framework in Europe, also Garmendia and Stagl (2010) propose a comparative analysis of the learning effects within three different processes of stakeholders and public engagement. They founded their investigation on a structured survey and showed where the participatory process generates new factual knowledge, changes in values and perceptions or social consciousness. They conclude that SL, which they assume to happen at three levels and on three time-scales, depends on three factors: process design; process timing and types of participants.

The association between the participatory process and learning effects is also a core concern for the Transitional Management theory (vanKerkhof and Wieczorek 2005). Drawing upon a definition of learning based on the concept of *change*, Transitional Manager theorists maintain that, even if change in society cannot be totally controlled, it can be addressed and accelerated (*ibid* p. 735). Acknowledging the relevance of wide participation of social categories in local government, they suggest that this policy process has to be settled within the *transitional arena*, where different bodies of *knowledge* are brokered through the support of an expert facilitator (the transitional manager). This approach sheds light on the organizational dimension of the participatory process, emphasizing the need of an independent entity that addresses the different democratic instances. Similarly, Adaptive Management and Co-Management theorists (Armitage et al. 2008; Olsson and Folke 2004; Olsson et al. 2004) define SL as the highest level of the participatory process within public resource management. Armitage et al. (2008) distinguish three levels of learning: experiential learning (learning by doing, acquiring more know-how); reflective learning (changing perceptions and consciousness); and SL (changing ideas and perceptions together with others). Berkes (2009), drawing on organizational theorists, states that just through participatory approaches multiple-loops learning dynamics (Argyris 1976) can be activated and form communities of practices (Wenger 2000). Adaptive Management scholars also take into account human factors, such as the personal perception of risk, and ethical behaviour at both individual and collective levels (Armitage et al. 2008). Siebenhuner, from an ecological economic perspective, argues that the participatory procedure can foster SL. He investigates basic conditions that allow stakeholders' engagement practices to be a learning tool (Siebenhüner 2004). Using methods of involvement as variables to analyse final outcomes of four participatory programmes, he remarks that groups with a larger composition allow greater exchange of knowledge, having a greater impact in terms of SL. Nevertheless, he only referred to a different professional background, without considering different life stories and experiences that affect ways of behaving and perceiving reality.

Different from the latter, Rist et al. use an action research approach, and identify the reciprocity conditions of interaction between external and local actors as decisive for the SL effects (Rist et al. 2006). They emphasise the multidimensionality of SL—cognitive, emotional, relational, competence-related—and show how social capital and *emotional competencies* of local people complete the explicit competences of external ones, allowing the former to transform their tacit insights into explicit knowledge.

The question "how participation ought to work" prevails in the studies reviewed, even if, as Newig et al. (2008) highlight that participation may not be designed on the method. Rather, methods should be defined according to the participatory process. Here, I,

expanding on Garmendia and Stagle (2010 p. 1714), define SL as a collective dynamic of *understanding, based on the exchange of not only factual, but also substantial and experiential knowledge,* which depends on attitudes to modify personal behaviour and beliefs in order to find shared meanings and support innovations in policy practices.

Research Design

Research Rationale and Purpose

From the reviewed literature, it emerges that scholars in both environmental policy and management fields, when analysing SL and participation, are mainly concerned with the ways to operationalize them (Bos et al. 2013). To stimulate a new view of participation, this research's purpose is to investigate the reasons behind the learning dynamics in PP, that is answer the question *why* (Van Maanen 2011), rather than *how*. Starting with the idea that *social learning cannot be forced upon actors*, but actors can be positively influenced by the creation of *learning situations* (Rist et al. 2006), the research focuses on the participants and on their experience of the participatory arena, within the context of a specific public environmental programme. Organizational scholars agree that, if an organization can understand the cognitive basis of people's reactions to changes, then it can enhance its resilience, i.e. its capacity to respond effectively to changes (Gioia 1986; Pasmore and Fagans 1992; Isaac 2002). In other words, it is relevant for an organization's success to understand how their stakeholders—internal (e.g. workers) or external (e.g. civil society organizations), make sense of the reality. Whereas psychologists and social scientists have emphasized that people communicate their sense-making and meanings of the realities through stories, narrative analysis became a popular method in social research in general (Czarniawska-Joerges 2004; Sintonen and Auvinen 2013) and in organizational studies in particular (Reissner 2005; Brown and Kreps 1993; Ospina and Dodge 2005). More recently, this approach has been gaining momentum in environmental management too. Accepting the idea of cognitive psychologists that mental models are simplified representations of the world, environmental scholars have acknowledged that the public's understanding of environmental problems is closely connected to prior experiences of these problems (Lejano et al. 2013; Lorenzoni and Pidgeon 2006; Kempton 1991). Consistent with this cognitive insight, the environmental constructive perspective (Berkes and Berkes 2009) also stresses that humans pick up their knowledge while socializing, communicating, and narrating their experiences. In fact, they learn mostly making sense of what they see, rather than accumulating information (Kempton 1991).

Building upon this rationale, in this research, I observed the participatory process from an organizational point of view, while adopting the definition of *organization* as *an open socio-cultural system, where people engage in symbolic interaction*s (Argyris and Schön 1996) systematically structured to address exchanged resources for a mission. Then, I identified a participatory process as a *semi-organization*, since, even if it is an open system of involved actors, it is not born of a clear shared mission. Stressing this organizational view, I investigated PP through the conceptual framework of organizational concepts, organizational theory, environmental policy and former organizational empirical studies, while collecting data through a narrative method. The narrative method allowed me to explore the actor-related and cognitive dimension of PP, and thus observe and understand the underpinning SL dynamics. To apply this method, first I collected the stories of selected key actors. Then I analysed these stories through an abductive methodological

approach (Dubois and Gadde 2002). It is a theory-driven methodology, which purports to empirically test theoretical concepts, to widen the interpretation of a certain phenomenon, through the observation of related facts (Svennevig 2001).[1] Here, I use this approach according to Dubois and Gadde (2002), who define it as *systematic combining*, namely a process of redirection of a theoretical subject made by the researcher's exercise to *go back* and *forth* from the theory to the field. Thus, in my analysis I go forth in my interpretation of narrative data related to the Iguaçu Project, while continuously going back to concepts and conclusions proposed by former authors, in different organizational case studies, intertwining theoretical arguments and empirical evidence.

The whole study is addressed by the following research questions: when and why do participants engaged in a public arena socially learn?

Research Materials: Sampling and Data Collection

As for the method, the results presented in this paper are derived from a study embedded in a wider ethnographic investigation carried out over a 6-month period, producing field-work materials based on a triangulation of sources (deSardan 1995b). The ethnographic materials were: 20 interviews; twelve participatory observations; content analysis of 84 meeting reports; a selection of local prints, the observation of three local community blogs and one web-TV. Ethnographers agree that saturation in qualitative approaches does not have to meet quantitative parameters, but it follows the researcher's sensitivity (Suddaby 2006; Ospina and Dodge 2005). It does not mean that the research can be arbitrary, but that the rigorousness of the research depends on an unstandardized protocol, based on the researcher's craft in systematizing his/her materials, communicating the logic underpinning its subsequent choices in the field to be replicable (Onwuegbuzie and Leech 2007; deSardan 1995a). Following Onwuegbuzie and Leech (2007), I took a subsample of nine key informants from my sample of 20 interviewees, which is considered an appropriate sample dimension for field work (Creswell 2002). On the basis of my ethnographic materials, and on the consequent awareness of the field, I classified the universe of the actors involved in the Iguaçu Project into four categories: residents, government officials, civil society stakeholders, process facilitators. Then, for each category, I selected two key informants, three being for the category of citizens, as it was broader than the others. Each couple of key informants was formed of individuals with different perspectives and personal positions in relation to the Project, in order to capture a more complete view of the participatory process. In this way, both more involved and less involved actors were heard (see Table 1).

Each interview was recorded and lasted at least 1 h, focusing on just five general issues: the project's story; experience of the participatory process; the exchanged knowledge and that conceived as relevant for the aim of the Project; the perception of local environment, the experience of the process in terms of learning.

Research Analysis: The Narrative Method

The materials collected were analysed through the narrative method. For a summary of the overall research design, see Fig. 1. Firstly, I conceived of narrative as not merely a description or a report of facts, but rather as a discursive construction concerning a succession of events, integrated by the narrator's view of the world and expressed through his/

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[1] For a complete review, the reader can refer to Hintikka (1999).

Table 1 Narrators description the table provides a description of each interviewee, identifying the social category, the institution they represent and the role they cover in the project

	Category	Code	Profile
NGO Coordinator	Facilitator	A1	An NGO historically active in the area. Subcontractor of INEA
Social assistant	Facilitator	A2	Member of a group of independent professionals contracted by the construction company
INEA Project Coordinator	Government representative	B1	An engineer and public official of INEA, covering the role of General Coordinator of the Project
INEA Social work Co-ordinator	Government representative	B2	A State public official, outgoing Coordinator for the socio-technical works of the Project, at INEA
[a]	Resident	C1	A resident who is going to move to the one of new condominium built through Iguaçu Project, now living in a temporary social housing
[a]	Resident	C2	A resident who is going to move in the new condominium, now living in his house
[a]	Resident	C3	A resident of one of the 23 neighbourhoods, outgoing representative in the CLAs, and prime mover of a citizens Commission asking for in-depth changes in the Project and claiming for the unexpected exclusion of its neighborhoods from the project
Neighbourhood Association Director	Stakeholder	D1	The Directors of *MUB* (*Movimento União de Bairros*), an historical Baixada resindents association
Union of Environmental Association Representative	Stakeholder	D2	A representative of *Environmental Movements Federations—APEDEMA (*Assembléia Permanente de Entidades em Defesa del Meio Ambiente)

Source the author

[a] The names of residents are not mentioned

her own language (Lejano et al. 2013). Then, following Pentland (1999), I analysed the narrative data at two levels: (a) the narrative structure, (b) the narrators' meanings. The first level corresponds to what Pentland defines as *focal actor/actors*, i.e. objects and characters of the story (e.g. protagonist and antagonist) and the relations among them that determine the story's events. The second level coincides with the *identifiable narrative voice* of Pentland's framework, that is, the identification of the narrators' points of view, and their meanings and the feelings related with the events narrated. While the former is expressed by the narrator, the latter is interpreted by the researcher.

The analysis was structured in three parts: (I) plot and structure, (II) semantic field, (III) theory development.

I.   Plot and structure. The nine recorded stories were listened to three or four times, in order to transcribe them in story-plots, which are the units of analysis. I replayed the stories in different and distant moments of ethnographic investigation to enrich the interpretative framework. The main *narratology* in each story plot was structured, identifying the following elements: the protagonist, that is the main character; the antagonist, or rather the main adversary; and the assistant, a character who supports the protagonist toward his/her goal.
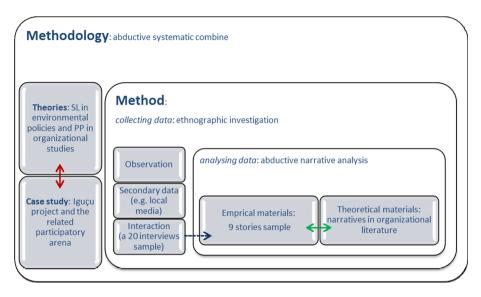
Fig. 1 Overview of the research design

II.   Semantic field. The *meanings*, which narrators assign to key research concepts, were classified into the following categories: *knowledge*—the knowledge transmitted through the process and the one considered to be relevant for the project; *participation*—the idea of PP and the reason for their engagement in the Iguaçu Project process; *environment*—the perception and the awareness of local environmental conditions; and *learning*—the learning process experienced through participation. The main meanings assigned to these notions were gathered and confronted in a semantic field (see Fig. 2).

III.   Theory development. By developing the analysis of semantic fields, and extending the theoretical constructs from the OL literature, I propose a descriptive model of learning processes in the public participatory arena. I introduce the concept of *contextual loops* and adapt the concept of *communitisation*, borrowed from the Indian governance experience in Nagaland (Spink and Best 2009), but adapted to the organizational analysis of PP of the Brazilian case study. Thus, I extended existing theoretical constructions combining organizational theories with empirical results that have emerged from the investigation.

Case Study: The Fabula

The *Baixada Fluminense* is an area composed of thirteen municipalities and located between the city of Rio de Janeiro, to the south, the mountains of *Serra dos Órgãos*, to the north, and borders on Guanabara Bay (see Fig. 1). Its current population is over three million, with an average per capita income of up to two minimum salaries, overwhelmingly black, young and female. This region suffers flooding, as a consequence of its geographical location (between the ocean and the mountains), which is seriously compounded by the deficiency of local environmental sanitation services. The so-called Iguaçu Project is a programme formally defined as a project for flood control, an urban and environmental
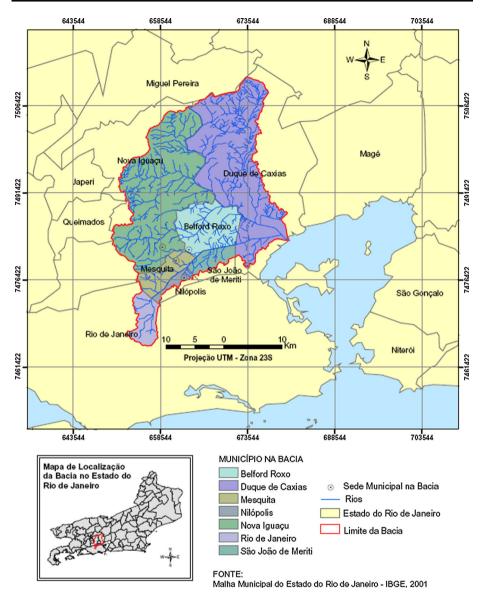
Fig. 2 Iguaçu Project area. The map describes the river basin Iguaçu-Bota-Serapui and location of the municipalities involved in the PjI. *Source*: Data IBGE processed by Hydrology Lab. COPPE/UFRJ

rehabilitation of the Iguaçu-Botas-Serapui river basins. It is part of the Growth Acceleration Programme (PAC),[2] the investment plan launched by the Brazilian federal government in 2007.

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[2] The PAC is co-ordinated by the Presidency of Brazilian Federal Republic through programmes and action implemented by the relevant Ministries (Ministry of Planning, Ministry of Budget and Management, Ministry of Inland Revenue and Ministry of the Cities), and operationalized by the *Caixa Econômico Federal*, the main Brazilian public bank created for financing public policy programmes.

The Iguaçu Project, which involves 6 of the 13 *Baixada Fluminense* municipalities and a single neighbourhood of the Capital city, is intended to prevent recurrence of the factors of environmental imbalance, leading to floods. In the beginning, the Project's works and participatory process were intended to act in 23 neighbourhoods. However, afterwards, some have been withdrawn. Currently, it is based on three main infrastructural lines of action: fighting the floods, revitalizing rivers, and resettling population living along the riverbanks in precarious housing conditions. Since one of the criterion to contract companies for PAC interventions establishes that no less than a 2.5 % of the total cost of infrastructure has to be designed for *socio-technical work*, i.e. for activities of the *participation, mobilization, and education*[3] of interested local communities, the PjI provides specific activities in this context. INEA, which is the public agency responsible for the project, manages the *socio-technical work* through external experts. Under this general co-ordination, the river works and housing construction are directed by different INEA units, and, likewise, the related socio-technical work, which involves the participatory process, has different structures and facilitators. The participatory process related to housing interventions is implemented by a group of social workers, contracted by a construction company, and is carried out with small groups of residents. On the contrary, the socio-technical work accompanying river interventions, which affects the majority of the local population, is implemented by FASE, a contracted NGO. The participatory process accompanied by FASE is based on a system of five Local Committees (CLAs), each covering multiple neighbourhoods of the municipalities involved. Each CLA, which is composed by representatives of civil society, elected at a neighbourhood level, is in turn represented within the Regional Forum, a larger arena, also involving local governments.

Results and Discussion

Results

Plot and Structure

At this first level of analysis, three kind of findings arise: the narrators' cognition of the Project as a whole; the self-representation of their role within the story (protagonist or not); and the representation of the other actors and their relationships with the antagonist and the assistant. See Table 2 for a complete report of the analytical framework. The Plot and structure extracted from each interview are combined in Table 2. See this table for a complete report on the analytical framework.

The narrators cognition of the Project is determined by the answers to the first question: "Do you know the history of the Iguaçu Project? Could you please tell me this story?" (see Annex). Comparing answers, it is possible to see that the same subject—the PjI—is represented in different ways by the narrators. A general feeling of distrust towards public institutions emerges among the residents, stakeholders and facilitators (A1, B2, C3, D1, D2), who identify public institutions as antagonists. For these actors, the inadequacy of local government to undertake its function is a central issue, also representing a burden on the achievement of their goals. For others, the political institutional forces, even those affecting the evolution of the process, are not crucial to the way they experienced it (A2, B1). Three different

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[3] *Ministerio da Cidades*, Manual de Instruções Projetos Prioritários de Investimentos—PPI PAC 2007–2010.

Table 2 Narrative structure the table reports the narrative structure of each story, describing for each narrator antagonist and assistant

Narrators	Narratology		
	Protagonist	Antagonist	Assistant
A1	The participatory process	Public Institutions which are not taking part in the process/the local political culture	INEA/local leaders/ neighbourhood associations/ active citizens
A2	The resettlement process	Intra and inter institutional conflicts and discontinuity in the Project direction	INEA/participating residents/ active citizens
B1	The infrastructural works	Residents who refuse to move	Local inhabitants who participate/facilitators/public institutions partners
B2	The project and the participatory process	Insolvent public and private institutions	Active citizens/civil society/ Labour Party (PT)/Federal Government/local leaderships
C1	The narrator and the project	Governmental sector responsible for the reimbursements of temporary housing (INEA Administration)	INEA (Works Director)/social assistants/others residents
C2	The narrator and the project	Housing Department of State Government (CEHAB)	INEA/social assistants/ neighbours
C3	The narrator and the project	State Government and Governmental Department involved in the project	Active citizens
D1	The MUB and the project	Government and public institutions/ Local (Municipal) Governments	(sometimes) Facilitator 2/ (occasionally) technicians (when they are not consultant)
D2	The project and social movement in the *Baixada Fluminense*	Government/Public institutions	Active citizens/social not partisan movements

The protagonist does not always corresponds with the narrator

Source author's analysis of semi-structured interviews

narratives of politics emerge, implying three different levels of politicisation: a *politicised narrative,* a *politically neutral narrative*, and a *non-politicised* one.

The first belongs to actors A1, B1, D1, D2 and C3. These actors are united by political interpretations of the Project history, even though they use different political rhetoric. The NGO agrees with the resident association's director and the representative of the environmental movement that there is a problem of political culture, even though the two stakeholders hold a critical vision of the Government (INEA) and the interventions. For the Government representative (B2), the political problems are related to local administrations that do not fulfil their roles. Finally, resident C3 conceives of the Project as ill-administered because citizens' rights are disregarded, information passed on to citizens is incomplete and so decisions are authoritarian.

The second level of politicisation belongs to the actors A2 and B1, as, in these cases, the stories correspond to their job experience. So, political criticalities are identified, but not deeply discussed.

The third level of politicisation regards residents C1 and C2, who are the protagonists of their own narratives. They answered the first question telling how the PjI affected their daily lives, rather than talking about the Project itself. The Project has brought deep changes in their routines and in their future perspectives, albeit in different ways. Thus, they share a willingness of social reaction, but not a political criticism, still not being fully aware of the public institutional system. As protagonists of their stories, they have a greater commitment to the Project, and this commitment enhances their attitude to learning socially through participation.

Semantic Field

Drawing upon interviewees' answers to the questions of sections B and C (see Annex), I classified the meanings that narrators attributed to key conceptual categories: *knowledge, participation, environment and learning*. See Table 3.

PP is the central point of the project for each narrator. All residents' stories start from the moment that they began participating in the socio-technical works. But, the meanings assigned to PP are different. For some residents (C1, C2) as well as for the INEA Project Co-ordinator, PP is an instrument to receive and transfer information, even though information transferred by the Government does not always match those required by the residents. On the other hand, resident C3 and the two stakeholders, who criticise the management of the participatory process, agree with the facilitators and the Government representative (B2) that PP is more than an instrument of information, it being the place for collective learning (C1 and C2), and the building of social change. Overall, except for A2 and B2, the other narrators stress that their idea of PP does not correspond to their experience of the participatory process in the Iguaçu Project, where the public engagement is aimed at *mere* information exchange, rather than supporting social change.

The idea of local *environment* is loosely connected with the participatory process, it being conceived as an external issue. Narrators mainly attributed to the *environment* either a very local meaning (A1, B1, C1, C2) or a very general one (D2). Nobody but the Government official (B1), allows specific attention to the environmental condition in his/he story. The riskiness related to the local environmental context is only raised by narrators D1 and C3, together with the Government Project Co-ordinator. C3 and D1 also identify it as a political issue. Actually, the nine informants interpret the environmental problems differently, associating it with different possible causes. For C1, C3 and D1, the causes are the local administrations and public institution misconduct. For C2, environmental problems are due to the citizens' misbehaviour, while, for B1, they are related to a combination of geographical factors and social behaviour.

At the very centre of the semantic field (see Fig. 3), there is the notion of *knowledge*. This is a meta-concept associated with all the others and which associates these with each other. It is generally conceived by the narrators as a resource to be exchanged through the participatory process. But, under this shared conception, it is still possible to identify within the narratives at least three different kinds of knowledge-related rhetoric.

A first prevailing rhetoric identifies knowledge as information (B1, C1, C2, C3, D2). Residents own the contextual information related to the local territory, as they live there, while the Government holds technical information on the evolution of the works and interventions, as well as the consequent territorial planning. According to this meaning of the knowledge, the participatory arena may be the place to exchange this complementary information.

Table 3 Narrators meaning The table reports the excerpts of the interviews which describe the meanings that narrators assign to key research's concepts

Narrators	Categories of meanings			
	Participation	Environment	Knowledge	Learning
A1	The participatory process is well designed but has a poor impact on project decisions	In the past these risky rivers were uncontaminated and swimming	Lay knowledge may be important but Government does not take it in consideration	Technical information are passed unilaterally by INEA technicians to participants
A2	The participatory process improved since dwellers were able to understand dynamics and administrative criteria for the resettlement	–	The relevant knowledge acquired through the participation is the awareness of civil life rules	Participants learnt to work in group, changing their behaviour (e.g. punctuality) and becoming aware of civic rules
B1	Participation is important for the project implementation. Dwellers have to follow project works through CLAs meetings	Baixada Fluminense has a complex geomorphology so if the river bed is occupied by silts it overflows	Integration between technical and experiential knowledge is important but only technicians can perceive the project as a whole. We also acquire relevant information from dwellers (level of the river)	Information are exchanged between technicians and dwellers and environmental education courses were provided to enhance local environmental awareness
B2	The participatory process is complex to be managed, but was effective in term of civic education and social relations	The government of local environment suffer the lack of an integrated policy	A social and relational sensitivity is needed to manage participatory arena, but technical knowledge is fundamental	A transfer of knowledge between civil societies, NGO and government happened through participation
C1	Instrumental and useful	The local environment is polluted: waste in the river and waste on the road are caused by residents bheaviour and irregular public service	The knowledge required is certain and understandable information on the works	The process taught us to have a different environmental behaviour (e.g. not throw papers on the floor and to reduce energy and water consumption)
C2	Instrumental and socially relevant	There are problems with dust generated by building demolitions, but the local waste management improved	The knowledge acquired conceives in procedural information. Always exists a specific personalities of the Government in which we trust for these information	The process help to acquire new social awareness

Table 3 continued

Narrators	Categories of meanings			
	Participation	Environment	Knowledge	Learning
C3	People just participate to receive basic information	Environmental policies ought start from the neighbourhood. There are several interconnected problems and the high risk of floods. Interventions may start from sub-basin	The project is based on a research work, and this underlying study was well disclosed, even if it does not match the expected actions. Not all information are transferred to the population	Social life always teaches something. Participation, in general, gives the opportunity to make social control and this civic mission can enhance citizenship
D1	The process designed were unbalanced and authoritarian, but, we can always learn through participation	The local environment of Baixada Fluminense is risky, then sewer system is not integrated with dredge interventions. Dwellers are not aware of the risk	In this process both technical and experiential knowledge (from local communities) are relevant, but technical information need to be communicated in an understandable way to participants	We form through the militancy but we learn through participation. Participative processes, even when ill-structured, always enhance our capacity to deal with different social actors
D2	The participatory process is ambiguous and time-consuming because it is not aimed at decision making	The environment to be protected is the whole planet and not just our planet	There is a lack of institutional knowledge, because it is not clear how public administrations work. More knowledge and civic culture are needed	Participation is a life experience so it always allows learning something. There are no teachers in this process, the process itself provides an implicit and informal learning condition

Source author's elaboration of semi-structured interview

Fig. 3 Semantic field. The figure shows, through the position on the plan, the association between the key concepts and the main attributes assigned to them. *Source* the author

A second kind of rhetoric concerns civic and institutional knowledge, which is supposed to be disseminated through the participatory arena (A2, D2). Besides this same meaning of the word *knowledge*, narrators provide two different evaluations of their participatory experience. In fact, while the facilitator (A2) refers to the civic and institutional knowledge exchanged, conceiving it as an effective result of socio-technical work, the representative of the environmental movement (D2) criticizes the management of the process on the grounds of the deficient institutional information provided to the participants.

A third rhetoric, related with the meanings of knowledge, is based on the dichotomy, lay versus technical knowledge, and it seems to be a concern for the majority of the sample (A1, B1, B2, C3, D1, D2). While general agreement emerges among these narrators on the necessity of integration between the two kinds of understanding, it is still possible to highlight different nuances. Actually, B1and B2 emphasize, in their discourse, the relevance of technical knowledge for environmental projects, whereas C3, D1 and D2 express greater concern for the public understanding of technical information. In the opinion of these three actors, technicians involved in the project must make information understandable and complete (C3, D2). The director of the Residents Association (D1) states that:

> Technicians are not always the problem. Sometimes they can represent good partners for residents and residents' associations. In particular, when the technician is a public employee, and not a consultant, he feels free to explain to us what is really happening, because, as a civil servant, he is not concerned with corporate interests.

As for the semantic of *learning* concept, it is worth noting that in each story the learning process is associated to the social experience of the participatory process. Therefore, the idea of experiential learning prevails. Only the Government Project Co-ordinator identifies learning with formal environmental education courses, rather than informal interaction. Despite broad agreement that *public participation always teaches something*, as the Director of the Residents Association stated, the learning experiences described are different. A2, B1, B2, C1, C2 express a general satisfaction when assessing the participatory process from the learning perspective, as they said they had acquired specific knowledge related with both the political context and environmental management (C1, C2), or it had enhanced their civic awareness (A2, B1, B2). Both an active and a passive cognition of learning emerge. The Government representative (B2) declared:

Maybe the project still has not improved the local community's quality of life, but has taught the residents to participate with the aim of exercising civic rights and fulfilling duties… They have learned to participate without asking to be paid for it…

On the other hand, other narrators (A1, D1, C3) claimed a lack of concern for learning on the part of participatory process proponents and facilitators, as they stated that only an unidirectional transfer of information occurred in the Project meetings. Even so, one of these residents (C3) acknowledged that, through the process, he acquired the cognition of social control as a right and duty of citizens. Because of his critical view, he chose to leave the process to build up a new Civic Commission aimed at operating social control over the Iguaçu Project and advocating profound changes.

The semantic analysis shows the existence of different languages and different meanings, that, even being an indicator of the process plurality, which, in turn, represents an opportunity for learning, hampered the creation of collaborative relations in the public arena. The following excerpt from D1's story exemplifies this point, as he reported the experience of one of the members:

…., one of our members started to question a point regarding the dredging work, asking about the depth of the digging. The technician corrected him, saying that the problem was not to do with depth, but with bathymetry… Now he learnt a synonym for the word "depth", but technicians could have used a more understandable concept to support the interaction with the lay public… Actually, he had a past professional experience in dredging works, so his criticisms and suggestions (to use an iron plate at a point of dredging intervention) allowed a reduction in the Project's labour costs.
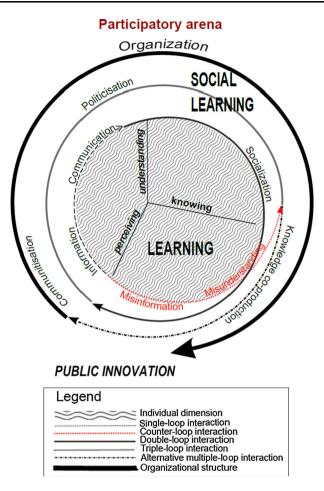
Theory Development

The semantic space of the words *knowledge* and *learning* shows that there are several flows of meanings and contents occurring in a participatory process, and, from a social change perspective, this epistemological complexity may represent a resource. To appreciate this potential, the different knowledge, which converges in the process, may be organised to be shared and become of public relevance. Even though participatory arenas cannot be rigidly structured, as they ought to be open and flexible, they can be observed and rethought through an organizational perspective. Thinking of the participatory arena as a *semi-organization*, it allows identification of knowledge exchanged within the participatory process as a strategic resource, produced and developed through learning dynamics, which are the driving force of a participatory system. If this learning is socialized, it causes the PP to work as a social innovation catalyst. The literature on SL shows that there are several contextual pressures and fluxes of inputs, which affect individual and collective learning dimensions (Rist et al. 2006; Garmendia and Stagl 2010). In the case of the Iguaçu Project, I observed that the three residents, despite their different conceptions of participation, experienced a process of learning, which increased their civic awareness as well as their social commitment. However, even though their political and socio-cultural backgrounds were similar (none of them has past experience in political activism or in social associations), their responses to the participatory experience differ depending on the socio-technical work process they are involved in. As matter of fact, the stories of the two residents (C1, C2), who participated in the small group meetings about housing construction have a non-politicized rhetoric. On the contrary, the other resident who participated in the broader CLA meetings, acquired a politicized rhetoric through PP experience. In the first case, the process of learning led to the foundation of a local

community within the participatory process, while, in the other case, it led to an opposition and to the constitution of a counter-community.

Dealing with the multiple-loop learning paradigm (Pahl-Wostl 2009; Berkes 2009; Argyris and Schön 1996), and with the theory of community of practices (Brown and Duguid 1991; Wenger 2000), I matched the above empirical findings with revised theoretical concepts, combining and extending them. In particular, I hypothesise that, in a *semi-organization*, such as a public arena, likewise any organizations, learning dynamics occur through several loops. I defined them as *contextual loops*, i.e. increasing levels of social interaction based on knowledge exchange. These contextual loops start from basic information transfer, to reach the highest level of knowledge co-production. In doing so, I represented the participatory arena as a spiral process, it being an open system, which evolves through the tension between engagement of new participants—*legitimate peripheral involvement* (Lave and Wenger 1991)—and the community building. This elliptical process, which starts with the public issue discussed in the participatory arena, evolves through the contextual loops, and result in various possible outcomes (see Fig. 4). By identifying the *public innovation* as the evolutionary outcome of a participatory arena, I assume that such an outcome has to pass through the constitution of learning communities of participants (*communitisation*).

Each of the four contextual loops identified—*information and communication*, *socialisation*, *communitisation*, *politicisation*—represents a process of content exchange and corresponds to one of the three dimensions of individual learning: perception, behaviour and understanding (Rist et al. 2006; Garmendia and Stagl 2010). *Information* represents an earlier step of the public involvement process, which affects individual perceptions and consists of unilateral content transfer. *Communication* implies an exchange and an early level of interaction. When this interaction is based on *dialogue*, i.e., in Isaac's words, on "*a field of genuine meeting and inquiry*", rather than on debate, then it can evolve into *socialisation*. This last loop entails that participants share not only information, but also the process of understanding, as they become aware of different beliefs and are able to modify their tacit assumptions. I hypothesise an overarching *organisation* system, which accompanies these dynamics from the earlier engagement of participants to an innovation in public policy, brokering contents and beliefs when they start to be socialised. If such knowledge brokerage occurs, socialisation can lead to a *communitisation* loop. This term, borrowed from the governance experience of Nagaland State in India (Yhome 2011), is combined here with Wengen's concept of a "community of practice". The notion of communitisation, as it is used in the Indian experience, consists of a transfer of power and ownership from the government to a community of citizens, which became, at the same time, holders and managers of public services and utilities. In the case of PP, the *communitised* resource is the knowledge. In other words, I name communitisation the learning loop process that allows the co-production of new knowledge and beliefs, underpinning shared decisions and solutions to public issues. At this level of process, participants, who in the lower loops exchanged knowledge and understood others' knowledge, can start to think collectively, addressing their dialogue towards knowledge co-production. In this way, participants are forming a community of practices, and if this knowledge can generate relevant public change, then they are socially learning. Actually, without a community, the learning experience, being individual, cannot lead to public innovation.

Finally, I considered that, in an open participatory arena, political interactions also occur. Here *politicisation* can lead to a kind of "counter-loop", as it entails the opposition of different contents, ideas and values. It is based on a discussion of public issues focused on political principles, and can evolve towards two directions: on the one hand, it could

Fig. 4 Learning processes and contextual loops in public participatory arena. The figure describes the development of the contextual loops which represent multiple-loops learning dynamics enlivening a participatory arena from the organizational view perspective. *Source* the author

empower participants who can increase their understanding of political and institutional mechanisms, enhancing their capacity to support communitisation; on the other hand, if politicised contents are positional, they can only be negotiated bilaterally, hindering the generation of communities. Politicisation can feed misinformation and misunderstanding, leading to conflict within the process (this is the case of resident C3 who stopped attending the CLA meetings). If this is the case, I hypothesise that the evolution towards the former direction will depend on the ability of the facilitator to build trust relations.

Discussion

Following the abductive methodological premises of this work, I discuss here the above results intertwining concepts from theory and findings from the field. I detected five explicative propositions (p.) of learning dynamics in an organization-related participatory process, which answers the question when and why participants socially learn through PP.

First of all, I highlight the impact of the organizational structure of the participatory process on its participants' involvement and learning. While the CLAs' socio-technical work was based on a structure designed by the government and facilitators, the other meetings regarding housing construction were composed only by residents and evolve spontaneously throughout the process. Nevertheless, the first ended up being irregular and discontinuous, while the other is described by participants as timely and continuous (Maiello et al. 2013a; Maiello and Christovão 2011). The residents participating in the two processes express different meanings and take different actions, therefore the organization of the process crucially affects the learning experience. This consideration leads to stating a first proposition:

> I p.: participants experienced SL dynamics *when* the participatory process had sys-
> tematized organizational support

Secondly, I compared my findings with the narrative analysis applied to those conducted in private firms. The study of the Iguaçu Project shows how each actor understands events and stories in a different way, developing a different semantic. Reissner detects an opposite trend for private organisations (Reissner 2005). In her analysis of Tyssen Krupp, she describes a fundamental homogeneous structure in the narratives collected. The hierarchical defined structure of private organisations is opposed to the plurality and informality of public participatory arenas, which contain greater diversification and variability of visions. While, in a participatory arena, several values and visions meet, and the challenge for participants is to find a shared vision, in a private organisation, a defined mission exists and the problem for workers is to overcome organisational limits without breaking the protocol, as Isaac emphasises. This first contrast allows explanation of the difference between an organization and a semi-organization, and why I defined a participatory process by using the second concept. The narrative analysis of the Iguaçu Project shows that a participant's personal commitment is crucial to form communities within the participatory process and to approach a SL dynamic. Similarly, Reissner, in her narrative analysis about Tyssen Krupp, shows that its commercial success was due not only to technology, but also to people commitment (Reissner 2005). The commitment in both cases is a fundamental premise for participants to form a community of practices, which leads to a feeling of membership and a willingness to collaboratively find answers to common problems. From this consideration, the second and third propositions are derived:

> II and III p.: participants have been able to socially learn *because* they had a strong
> commitment in the engaging public policy and because of the pluralism of the
> participatory arena

The organizational literature provides a suitable explanation for the ill-administrated mechanism of PP. In fact, the lack of information in the Iguaçu Project, a complaint of both stakeholders and residents, can be partially explained by Argyris' statement (Argyris 1976): *valid information appears to be more easily generated for less important and less threatening decisions*. This leads to the third proposition, that is:

> IV p.: participants did not learn socially *because* they were kept away from the
> participatory arena by omissive behaviour of process proponents (e.g. government)

In Orr's ethnographic studies, representatives used to share problems among themselves in order to develop new solutions together (Orr 1996). In addition, they socialised this new knowledge with workers of different levels (specialists) with whom they activated a collective learning process. Unlike the aforementioned studies, in the experience of the Iguaçu

Project, where routines do not yet exist, although trust relations emerge, collaborative behaviour does not prevail. As a matter of fact, in PP, the existence of a plurality of meanings inhibits the creation of communities of practice. In a private organisation, workers from different departments speak a common language, and even if each of them has a different professional background, they all share the firm's values and mission. As an interviewee in Reissner's research stated: in an organisation « *everybody sings from the same song sheet* » (Reissner 2005). On the contrary, in a participatory process, different actors with their own voices, meet (Bobbio 2004), and only in the best cases, does good music come out. Though the pluralism is an added value of each participatory process, such a plurality of sounds need a facilitator, who has the task to harmonise the different contributions and support and organise the actors involved. It allows statement of the fourth proposition:

> V p.: the participatory arena generated SL dynamics *when* a facilitator accompanied the organizational structure

Conclusions

PP is a fundamental component of public environmental policies and management practices. Even so, it is losing momentum in a period of global economic crisis and due to the difficulties in implementing effective efficient participatory policies. While participation remains a necessity to manage complex socio-ecological systems, it is also necessary to rethink it. This research tried to do so, inquiring into a participatory process from an organizational perspective, and in particular from the point of view of the underlying SL dynamics. Moving from the definition of organization, the research proposes identification of the participatory arena as semi-organization, that is an evolving open system, where engaged actors interact. But, the shared mission is not a premise. Rather it is a goal of the process. In the interpretative framework I proposed, this goal is public innovation, whose fundamental driver is SL. Thus, the research is addressed by the aim to explain when and why SL occurs in PP. To do so I adopted an abductive approach, that is, I started with a case study, and progressed to revised theories. I produced some inferences for PP theory development. I chose the case of the Iguaçu Project, as it is paradigmatic as an environmental policy. As matter of fact, PjI is one of the winners of the national award "*Best practices of local management, 2011*" promoted by the *Caixa Ecônomica Federal*[5] (Vargas 2011). Though the accomplished works are mainly concerned with dredging rivers and flood control, housing interventions, which require close co-operation among institutions, technicians and residents, they are delayed and constitute the prevailing cause of underlying conflicts. It shows that the larger the number of actors affected by a policy, the more necessary public engagement becomes.

Despite the validity of the selected case, the study presents limitations, as it had to cope with the difficulty in analysing an open system, with no natural boundaries (Dubois and Gadde 2002), and from a qualitative perspective too. Thus, the interpretation is inherently affected by the researcher's point of view, results are not immediately generalizable, and inherently partial, being derived from an ethnographic investigation. Nonetheless, while trying to develop the existing theories and expand the current debate on PP in environmental policies, this paper provides three main contributions. First of all, the interpretative framework proposed allows one to think of the participatory arena as a multiple-loop system, where organization is crucial to balance the dynamics taking place in the loops below: *politicisation loop*, where the questioning of values and assumptions occurs, and the

communitisation loop, where new shared values ought to emerge. Secondly, the case analysed shows that the effectiveness of participation is not a matter of process design, as former scholars maintained (Garmendia and Stagl 2010; Siebenhüner 2004; Webler et al. 1995). Rather it is systematised, but not a centralizing accompaniment of a competent facilitator. Finally, SL seems to occur *because* of: the participants' commitments, the plurality of the participatory arena and the reliability of the proponents.

Annex

Interview Protocol

a. Project story

    (a.1)   Do you know the story of the Iguaçu Project? If so, could you tell me this story?

    (a.2)   Where and how did you learn this story?

b. Participation, knowledge and environment

    (b.1)   Do you know the pattern of participation on which the socio-technical work of the Iguaçu Project is based? If so, could you tell me how it operates?

    (b.2)   Do you take part in this process? If so, what is your role?

    (b.3)   If you have attended the meetings of the Local Committees or Forum, could you say on which main subject they were focused?

    (b.4)   What kind of knowledge prevails in the discussions? In your opinion, what kind of knowledge is necessary to accomplish the Project goals and pursue the improvement of the local environment?

    (b.5)   What is your perception of the local environment?

c. Learning

    (c.1)   Do you think you have learned something through the participatory process? If so, could you tell me what you learned? If not, could you say why?

    (c.2)   If you answered "Yes" to question (c.1), do you think this knowledge is useful? Is it useful only for your own interest(s) or for those of the entire community you belong to? Why?

    (c.3)   If you answered "Yes" to question (c.1), could you say which of the main categories of actors you learned more from?

    (c.4)   Do you think you could teach something through the process of participation? And if "Yes", for whom? And if not, why?

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