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Public managers as catalysts of knowledge co-production? Investigating knowledge dynamics in local environmental policy

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ABSTRACT

Scholars agree that governance of the public environment entails cooperation between science, policy and society. This requires the active role of public managers as catalysts of knowledge co-production, addressing participatory arenas in relation to knowledge integration and social learning. This paper deals with the question of whether public managers acknowledge and take on this task. A survey accessing Directors of Environmental Offices (EOs) of 64 municipalities was carried out in parallel for two regions – Tuscany (Italy) and Porto Alegre Metropolitan Region (Brazil). The survey data were analysed using the multiple correspondence method. Results showed that, regarding policy practices, EOs do not play the role of knowledge co-production catalysts, since when making environmental decisions they only use technical knowledge. We conclude that there is a gap between theory and practice, and identify some factors that may hinder local environmental managers in acting as catalyst of knowledge co-production, raising a further question for future research.

1. Introduction

The governance of the environment involves three challenging dimensions: the complexity and interconnectivity between nature and society (Swyngedouw, 2004), the indeterminacy and uncertainty of science (Ravetz, 2000; Wynne, 1996), and the multiplicity of local community values (Edelenbos et al., 2011). The type of knowledge necessary to manage this challenging array has become a topical issue. Both complexity and uncertainty are aspects of post-modern science, questioning the classical dividing lines between disciplines (Lyotard, 1994) and emphasising the constraints of "normal science" (Funtowicz and Ravetz, 1993; Beck, 1992; Khun, 1962). These factors, together with the multiplicity of societal values and interests, have made the management of public resources a problematic issue (Blackmore, 2007; Hardin, 1968), supporting the idea that environmental policies should not be based only on technical knowledge.

A body of empirical literature highlights the relevance of local community knowledge for environmental decision-making. Wynne's analysis of Cumbrian sheep farmer showed

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how the local community was able to identify radio-isotope deposits, contradicting the scientists' declarations that the effects of Chernobyl's cloud offered no risks (Wynne, 1992). Yearley's study, regarding an air pollution model applied by the municipality of Sheffield, revealed that the citizens' lay judgement was crucial in identifying missing elements to complete the model (Yearley, 2000). Epstein's research on AIDS activism in the USA reported the influence that the lay activists had on the national biomedical research protocols (Epstein, 1996). The acknowledgement that the complexity of environmental policies lies not only in the limitations of traditional scientific knowledge, but also in the public understanding of science (Petts and Brooks, 2006; Bulkeley and Mol, 2003; Irwin et al., 1999), shed new light on participatory approaches. The complex nature of public policy (Weber and Khademian, 2008; Roberts, 2000; Fischer, 1993) has in fact made it necessary for citizens, experts and local governments to collaborate. At the level of theory, scholars of environmental management and policy demand more knowledge integration (Brugnach and Ingram, 2012; Edelenbos et al., 2011; Armitage et al., 2008; Weber and Khademian, 2008; Pahl-Wostl et al., 2007; Feldman et al., 2006; Folke et al., 2005; Olsson et al., 2004). However, in terms of practices, seldom do final decisions reflect the plurality of the public involved (Brugnach and Ingram, 2012), and rarely is a new co-produced knowledge generated. We argue that for participatory processes to work in favour of knowledge co-production, public managers should exploit non-technical knowledge for decision-making, and embody integration and engagement in their managerial approaches. Observing environmental officials' attitudes and their office routines is crucial to verify these arguments. To date, within the academic debate, there has been a considerable focus on the dichotomy of expert-lay people (Petts and Brooks, 2006; Wynne, 2006; Bäckstrand, 2004), as well as the role of networks for knowledge integration and co-production (Quick and Feldman, 2011; Feldman and Ingram, 2009; Lejano and Ingram, 2009; Weber and Khademian, 2008; Feldman et al., 2006). However, the role of local public managers is still a marginal concern, mostly analysed at theoretical and conceptual levels (Feldman and Ingram, 2009). Conversely, our work focuses on local environmental managers from an empirical level. We refer to a specific category of public managers, the directors of local environmental offices (EOs), investigating their attitudes towards different types of knowledge and dynamics of knowledge production, and how these elements are used in their work routines. The study was structured as a parallel survey, carried out in the municipal administrations in two different regions and countries – the region of Tuscany (TR), in central Italy, and Porto Alegre Metropolitan Region (PAMR), in southern Brazil. The data were analysed using multiple correspondence analysis (MCA). The findings show that EOs do not act as catalysts of knowledge co-production as their decisions on environmental matters are only based on technical knowledge. The paper is organised as follows. Section 2 outlines the theoretical and conceptual framework. Section 3 presents the methodological strategies and the related method. Results are presented and discussed in Section 4, while conclusions are drawn in Section 5.

2. Theoretical and conceptual framework

2.1. *Types of knowledge and dynamics of knowledge production in environmental policies*

2.1.1. *Types of knowledge*

Since environmental problems are determined not only by facts, but also by values, they cannot be defined objectively. Brugnach and Ingram (2012) report that among indigenous communities, there is no separation between the fact that a lake provides food and the high value assigned to its ecological protection. Local culture, local environment and local governmental mechanisms are all in a relation of reciprocal co-production (Jasanoff, 2004). Based on the concept that knowledge is socially constructed (Latour, 1999), public decisions cannot be founded exclusively on a scientific basis, but rather on the integration of different types of knowledge. Hence, the types and ways to produce knowledge are important issues for environmental governance. Jakubik (2007) observes that in the scientific literature there are many definitions of knowledge. From an ontological point of view – related to the question *what is knowledge?* (Guarino and Giaretta, 1995) – Kerkhoff and Lebel (2006) define it as a *justifiable belief*. From an epistemological point of view – related to the question *how is knowledge acquired?* (Polanyi, 1975) – Spender (1998) distinguishes between explicit and implicit knowledge, and between the individual and the social levels. Explicit knowledge at an individual level is a conscious conviction, while at a social level, it is objectified. On the other hand, implicit knowledge at an individual level is an automatic insight, while at a social level, it is a collective belief defined through routines (Spender, 1998). Our investigation tackles three types of knowledge: lay, expert and administrative (Edelenbos et al., 2011).

- Lay knowledge is implicit and based on common sense and casual empiricism (Lindblom and Cohen, 1979). Since it is embedded in the context (Petts and Brooks, 2006), it provides an understanding of local circumstances and relationships (Corburn, 2003). In a broad sense, lay people (Hogg and Williamson, 2001) can be identified as all those who are not professionals of a specific sector of theory or practice. We use the notion of ''lay knowledge'' interchangeably with ''citizens' knowledge''.
- Expert knowledge is explicit, produced within institutionalised contexts and through procedures and methods defined by communities of peers (Petts and Brooks, 2006), who share formal content bases, concerning theories and techniques. In this paper we use the term ''expert'' and ''technical'' interchangeably.
- Administrative knowledge is a specific type of explicit knowledge, related to implicit beliefs. While it is based on formal procedures (e.g. laws, norms, rules), it is also grounded in the understanding of relational and political dimensions of the social context. It draws upon scientific beliefs, which strive to be universal (Edelenbos et al., 2011), but it is also embedded in the local reality.