



## Review

## Social learning research in ecological economics: A survey

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## ABSTRACT

Social learning studies emerged as part of the ecological economics research agenda rather recently. Questions of how human societies and organisations learn and transition on the basis of environmental knowledge relate to the core ideas of ecological economics with its pluralistic understanding of human behaviour in contrast to the limited focus on incentive-driven behaviour. Our study analyses the emergence and thematic foci of social learning studies within ecological economics over the past 15 years. We selected and analysed 54 articles published after peer review in established journals adhering to the epistemological tradition of ecological economics. This study is guided by the interest in how social learning is conceptualised, how this research is positioned in terms of process dynamics, causal factors and outcomes of learning. Results show, that the number of related papers grew substantially in recent years. Also the role of formal or informal institutions has been found to be a strong causal factor for social learning and change processes vis-à-vis technological, economic or political factors. In addition, there is a growing awareness of social learning processes in various environmental policy fields such as biodiversity governance, water and land management, fisheries, and climate adaptation. We conclude that these insights can give new impulses to research on socio-ecological transition and to the related debate on societal change and transformation processes as core topics for ecological economics.

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## 1. Introduction

Research interest in change, transformation and renewal has grown strong in various fields of environmental and sustainability research. In the face of tremendous challenges, scholars have increasingly studied how, when and why change occurs and in which direction. The question stands how large-scale and lasting changes in current unsustainable practices emerge and which roles knowledge and learning play therein (e.g. Cornell et al., 2013).

Numerous scientific communities have contributed to this grand challenge so far. Drawing on long-established notions of policy learning (e.g. Sabatier, 1988; Bennett and Howlett, 1992; Rose, 1994), political scientists studied learning in environmental issue areas on the level of national governments and regulatory practices (The Social Learning Group, 2001). In natural resource

management, learning concepts have gained prominence in the analysis of adaptive co-management patterns between social and ecological systems or specific natural resources such as water (Armitage et al., 2008; Muro and Jeffrey, 2012). In this field, the focus is on how different types of interventions such as workshops and participatory processes influence transformative processes on community, organisational, or national levels (see Rodela, 2011, 2013). Recently, also in the field of climate adaptation, social learning has been introduced as a “new policy paradigm” (Collins and Ison, 2009) with a strong focus on stakeholder participation in the generation of knowledge and adaptive solutions to climate impacts and challenges emerging from extreme and uncertain events (see also Pahl-Wostl et al., 2007, 2008; Huitema et al., 2010).

A research field where learning-based transformative change has only recently gained greater attention is ecological economics. Already in the early programmatic debates in the formation of the field of ecological economics knowledge and learning were identified as topics in need of consideration (e.g. Costanza et al., 1991; Daly, 1990). Some thoughts were given to the educational implications of the new research field (e.g. Clark, 1991) as well as

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ethical claims and calls for a “moral growth” and preference changes (Daly, 1993). However, most academic enthusiasm of ecological economists later on was directed to other issues concerning the functional understanding of the interaction between economic and ecological systems. More recently, the perspective on fundamental change and transition towards more sustainable solutions has developed as a growing strand within ecological economics (Spash, 2013; Ingebrigtsen and Jakobsen, 2012). In this context, topics of when, where and how individuals, organisations and societies pick up and develop new knowledge about interactions with ecosystems and potential alternatives become crucial, in particular for a research field that builds on comprehensive concepts of human actors (Ingebrigtsen and Jakobsen, 2009; Becker, 2006; Siebenhüner, 2000). Surprisingly, there has been little conceptual debate within ecological economics on issues of learning, social learning and resulting processes of change compared to the field of natural resource management, even though in some aspects both fields overlap.

On the background of this growing presence of social learning studies, critical discussions emerged around learning concepts and the more precise meaning and use of social learning in particular (Armitage et al., 2008; Muro and Jeffrey, 2008; Reed et al., 2010). In addition, there are several papers reviewing research on social learning within economics (Mobius and Rosenblat, 2014), natural resource management (Rodela, 2011, 2013) and planning (Muro and Jeffrey, 2008). This paper, thus, sets out to analyse the use of social learning in ecological economics research contexts and seeks to identify whether some of these critical discussions have been reflected in recent studies in this field. To this end, we survey recently published papers from selected journals which adhere to the ecological economics research agenda. Thus, in Section 2 we sketch briefly the domain of ecological economics and then carve out five issues critically debated in the social learning literature. In Section 3, methodological detail is given and in Section 4 we present and discuss the results obtained. Section 5 concludes the paper with general findings and recommendations.

## 2. Conceptual background

### 2.1. Rationales for social learning research within ecological economics

Ecological economics emerged as a field of research where critical considerations have been articulated towards a type of positivistic scientific research based on oversimplifications of complex issues and aiming at methodologically questionable predictions (Røpke, 2004, 2005). A prominent angle of this criticism revolves around the rejection of key axioms about human behaviour in neoclassical economics (e.g. Ingebrigtsen and Jakobsen, 2012; Nadeau, 2015). While the attack against the reductionistic focus on self-interest and utility maximisation as well as on notions of rational decisions was central from early on (Daly and Cobb, 1994; van den Bergh et al., 2000), the assumption of a fully informed economic actor was systematically questioned more recently. This debate involved a thorough reflection about processes of knowledge generation, communication, and its application—often conceptualised as parts of a learning process.

A frequently cited description of ecological economics defines it as a field that investigates “the relationships between ecosystems and economic systems in the broadest sense” (Costanza, 1989, p. 1). Aligned with that positioning, many have provided analyses and descriptions with the objective to bridge the long held divide between the two realms for the purpose of transitioning to a more sustainable co-existence and development of both systems. However, this common objective gave way to different approaches of how to become practically relevant. As Spash (2013) suggests,

ecological economics follows three discussion lines, namely pragmatic approaches to ecological problems, resource economics targeting at market-based solutions, and those concepts that stress the need to address the social and value dimension in order to transform unsustainable economic and social practices. While all of them seek to resolve practical problems, they build on different understandings of whether and how humans change their behaviour. In particular under a social and value-oriented perspective, elaborate concepts are required how humans and societies learn for and within processes of change and transition.

Ecological economics textbooks remain relatively silent about learning, whether and how actors might acquire knowledge or what role learning and knowledge can play in instigating behavioural or societal change (see e.g. Costanza et al., 1997; Common and Stagl, 2005; Shmelev, 2011). Also in her overview of papers on the emergence of ecological economics, Røpke (2004, 2005) does not mention issues of learning. A prominent exception to this is Vatn's (2005) book on the institutional approaches in ecological economics, where learning is seen as a central capacity of human actors and societies to develop institutions further.

The second concept connected to ecological economics is evolutionary economics where learning plays a role for creating paths and routines of individuals and collective bodies towards sustainability (see Norgaard, 1994; Gual and Norgaard, 2010). In this tradition, a few papers addressed the issue of cultural and social learning such as those by Jackson (2002), Norgaard (2004), Buenstorf and Cordes (2008), Manner and Gowdy (2010). However, as this paper shows, a broader interest for social learning seems to be developing within ecological economics.

### 2.2. Lines of discussion in social learning research

Looking into studies of social learning in the context of sustainable development, one finds a broad variety of conceptualisations and a diverse set of methodological approaches. While a variety of perspectives and positions may offer opportunities to expand the research, scholars have argued for more convergence. For example Reed et al. (2010) state that there is a set of open conceptual questions that require further debate if studies of social learning are to be rendered meaningful, and comparable. This topic is addressed in the analysis by Armitage et al. (2008, p. 87) where the authors defend the position that “the value of learning as a normative goal and process is recognised, yet vague notions of learning are often encouraged in the absence of careful examination of the factors that determine if, who, how, when and what type of learning actually occurs”. On the other hand, Ison et al. (2013) view the variety of social learning concepts and the metaphors used as fruitful for governance practice, while Muro and Jeffrey (2008, p. 333) in their review indicate that “evidence substantiating the main claims put forward in the literature remains limited”. Thus, our analysis starts off from the set of recurring issues and questions (see also Parson and Clark, 1995; Cundill and Rodela, 2012) that have been identified in this literature on social learning (mostly outside of ecological economics) in order to identify central categories for the subsequent analysis.

#### 2.2.1. What is social learning and what should be learned?

First, there is the central question of what is social learning. Irrespective of the discussion of whether we need a convergence or a variety of concepts of social learning (see Reed et al., 2010), there is a need to be explicit about what constitutes social learning as a process and what outcomes social learning processes can or should have. Thus, a distinction has to be made between the use of social learning as an analytical concept to study social process dynamics and its practical application as a governance instrument (Ison et al., 2013). The term “social learning” has been used across several

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