Research Paper

Unlearning in managing wicked biodiversity problems

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ABSTRACT

Unlearning is drawing attention in sustainability research. Unlearning old beliefs and assumptions is needed to tackle wicked problems and to make space for learning. We introduce a framework for examining the potential of unlearning as a group process for transformational change. We integrate conceptual elements of unlearning with framing research and analyze 1) factors that facilitate unlearning, 2) the moments of doubt where unlearning and reframing takes place and 3) how unlearning can be operationalized in the analysis of discussion material. We demonstrate the framework by using a conflict situation – the conservation of Siberian flying squirrels in the Tampere urban region in Finland – as a case study where the participating actors had to unlearn dominant beliefs and assumptions to make space for a more strategic, comprehensive and proactive approach to collaborative conservation. A predictive habitat model of the regional flying squirrel population helped the process, but the decisive support for unlearning was a facilitated dialogue process with diverse assignments. The framework is tailored to experimental group processes by which innovative unlearning and reframing can be initiated and supported for organizational and interorganizational change.

1. Introduction

In urban biodiversity conservation, a shift is needed from single solutions to cross-sectional governance within cities and urban-rural landscapes (Elmqvist et al., 2013). Transformation requires institutional innovation, regional collaboration, and adaptive governance; ultimately, it is a process of deep change in identity and goals, feedback processes, structure, and functions (Wilson, Pearson, Kashima, Lusher, & Pearson, 2013). Such a profound shift likely strengthens the features of wicked problems (Rittel & Webber, 1973) in urban biodiversity governance. Wicked problems refer to planning and design problems that defy technocratic solutions, and attempts to resolve them can lead to unintended consequences. Typical features are indeterminacy in problem formulation, non-definitiveness in problem solution, non-solubility, irreversible consequentiality, and individual uniqueness (Xiang, 2013).

Our aim in this paper is to complement recent research on wicked problems in socio-ecological systems (see the Special Issue of Landscape and Urban Planning, 2016, vol. 154) by focusing on unlearning. Unlearning as a research concept is seldom used in studies of socio-ecological systems, and if used (Cumming, Olsson, Chapin, & Holling, 2013; Rogers et al., 2013), these studies typically lack empirical analysis on unlearning. The perspective of unlearning is better known, and increasingly adopted, in the research of organizations, industry, management, and business. We examine unlearning in the context of urban biodiversity governance.

Our argument is that unlearning certain existing routines and beliefs may be the necessary first step in tackling wicked problems in complex socio-ecological systems. The purpose of unlearning is not to solve the problem (because wicked problems are unsolvable), but to expand the problem space so a wider range of options for action emerges (Rogers et al., 2013). We consider both organizational (Tsang & Zahra, 2008) and individual (Hislop, Bosley, Coombs, & Holland, 2013) unlearning important in this effort and examine how these two interconnected but different processes work in a facilitated project of collaborative conservation. We first introduce a framework for the action-oriented research of unlearning. The framework is constituted by tools for building an unlearning context and examining the potential of unlearning as a group process for transformational change.

We use the case of the conservation of the Siberian flying squirrel (*Pteromys volans*) for an empirical examination of unlearning in urban biodiversity governance. This fairly common animal in urban and rural forests in the southern part of Finland is strictly protected by the EU Habitats Directive. All breeding sites and resting places of this mobile and nocturnal animal are protected from deterioration and destruction (92/43/ETY, implemented in Finland by the Nature Conservation Act 1096/1996). The conservation procedure was specified in legislation and official guidelines, resulting in reactive single-site conservation through

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formal cooperation between regional stakeholders. Such conservation procedure did not resolve the problem but often led to, and still leads to, lock-in situations and land use conflicts (Haila, Kousis, Jokinen, Nygren, & Psarikidou, 2007). This set of strict standards and routines, put in place in the mid–2000s did not even protect the species (research concerning the forestry sector: Jokinen, Mäkeläinen & Ovaskainen, 2015; Santangeli, Wistbacka, Hanski & Laaksonen, 2013). These guidelines were renewed in 2016 (Ministry of the Environment, 2017; Tapio, 2016), allowing more flexibility and local deliberation, but the practical outcomes remain unknown. Forest management, land-use planning, and other responsible formal institutions still operate on a sectoral basis when participating in a large-scale modification of the landscape. This makes it harder to form deliberative collaboration and flexible solutions arising from the scale of the urban region (Manring, 2007).

These features of a long-term conflict, connected to the habits of the animal show that flying squirrels are deeply intertwined with human activities in urban regions in Finland. Any action or non-action of conservation intertwines with a bundle of other human activities and contributes to wicked complications and to prolonged conflict situations (see Haila et al., 2007). In the unlearning literature, such complications refer to a knowledge crisis or "environmental turbulence" of an organization, which may promote unlearning by questioning old routines and beliefs (Akgün, Byrne, Lynn, & Keskin, 2007). However, intervention is usually needed because of the defensive routines and old logic that inhibit unlearning (Becker, 2010). A specific unlearning context can be created to trigger unlearning and relearning (Akgün et al., 2007). We created a collaborative learning space for stakeholders to transform the guiding idea of flying squirrel conservation from site-by-site implementation to network governance over the whole urban region. To trigger unlearning, we combined three tools that we believe were crucial in this case for transformational change: external actors (researchers) as initiators and facilitators, the dialogue method, and a predictive habitat model for use in dialogue workshops. The habitat model was presented as a map showing the forest habitats suitable for the flying squirrel in the urban region. We selected these three tools based on our extensive interviews and previous dialogue workshops with the stakeholders, which we conducted during a research project focusing on the collaborative flying squirrel management in the urban region (see Jokinen, Nikula, Nygren, Tersa, & Haila, 2010).

We posed the following questions: (a) How do these three tools help to question the old assumptions and thereby facilitate unlearning among stakeholders? (b) What are the mechanisms of unlearning? (c) How can unlearning be operationalized and analyzed in the group discussion material? In the remainder of the paper, we present our framework of unlearning and how the experimentation started to expand the problem space in the flying squirrel conservation. During the process, we identified that unlearning created additional choices for stakeholders to reframe the regional collaboration, but at the same time unlearning questioned the stakeholders' identities and relationships. Our conclusion is that both organizational and individual unlearning, although in tension with each other, are needed to tackle wicked problems in urban socio-ecological systems. In the case of flying squirrel conservation, we argue that transformation through unlearning is needed to make urban biodiversity conservation more experimental and to improve its performance.

2. The conceptual background—unlearning and reframing

We believe that unlearning is an essential phase in reaching transformation because it makes space for learning. Without unlearning old assumptions, it would often be impossible to create conditions for the necessary innovations. Unlearning is an adaptation process that serves as a catalyst to a dynamic change (Akgün et al., 2007; Becker, 2005).

In most organizational studies, unlearning is defined to mean discarding old knowledge, beliefs, and routines that no longer meet the current challenges (Akgün et al., 2007; Tsang & Zahra, 2008). It is a

deliberate, conscious, and intentional process, as opposed to the unintentional process of forgetting. Without unlearning, an organization is not able to adapt to its changing environment (Hedberg, 1981). Three subprocesses of unlearning are "destabilization of old routines", "discarding them" and "learning something new" (Fiol & O'Connor, 2017). In this cycle, learning and new knowledge emerge instantly after unlearning or are simultaneous with it (Becker, 2010). The process starts from individual unlearning, as organizational or group unlearning–learning is impossible without individual actions. Unlearning requires both personal willingness and systemic support and can be facilitated by the creation of awareness that there is a new way of understanding a specific phenomenon (Becker, 2010).

Unlearning facilitates change, innovation, and learning (Tsang & Zahra, 2008); however, it does not mean completely discarding all old routines and practices, but rather adopting new beliefs by way of discarding previous beliefs, which then may lead to an iterative and interactive process of unlearning (Fiol & O'Connor, 2017). Unlearning can happen slowly over years or much faster. Both ways are important in adaptive governance and transformational change, although in this paper we concentrate on the relatively fast unlearning that happened in the dialogue workshops. Unlearning is not necessarily irreversible or permanent but needs maintenance. It is important to also note that unlearning does not necessarily mean that the knowledge or behaviors being given up are in some way inferior to new knowledge or behaviors (Hislop et al., 2013).

The research on organizational unlearning is strengthening its connection with psychology, cognitive science, and individual unlearning (Fiol & O'Connor, 2017; see criticism by Howells & Scholderer, 2016). Another research line focuses primarily on individual unlearning. Individual unlearning can be an emotional, challenging and painful process (Hislop et al., 2013; Macdonald 2002; Manring, 2007), especially when it concerns core beliefs and not superficial routines (see Hislop et al., 2013). Unlearning beliefs requires effort and is usually not linear, but rather spiral (Macdonald, 2002), and initially it often leads to a state of uncertainty and anxiety (Fiol & O'Connor, 2017). Deep unlearning is a radical form of unlearning and, similarly to a radical innovation (Bessant, Öberg, & Trifilova, 2014), it requires disruptive change. Deep unlearning can also be fast or slow, permanent or temporary. Some recent research findings show that unlearning may support the management of wicked problems, as it enables the actors to co-create knowledge (Antonacopoulou, 2009), to unlearn reductionist habits in tackling wicked problems (Rogers et al., 2013), or to see the situational benefits of not knowing and non-action (Brook, Pedler, Abbott, & Burgoyne, 2016; Pedler & Hsu, 2014).

Our focus is on moments of deep unlearning in a group process. We identify these situations as moments of doubt and changes in the frames, in other words, reframing (Fig. 3) (Laws & Rein, 2003, p. 175). By frames, we mean the different understandings and interpretations that are the basis for both discussion and action—they are a particular way of representing knowledge, facilitating interpretation, and guiding action (Laws & Rein, 2003; Rein & Schön, 1993; Wagenaar, 2011, p. 222 & 227). Framing can concern issues, identities and relationships, or interaction process (Dewulf et al., 2009), and reframing unavoidably involves the component of unlearning. Moments of doubt arise when accepted stories are challenged and when the loss of stability in these moments is unsettling or even threatening (Laws & Rein, 2003, p. 175). Reframing, for us, is then a group process, an interactional co-construction (Dewulf et al., 2009, p. 158 & 159, 166) supported by unlearning. Reframing is always hindered by different kinds of institutional and other forms of inertia (Gray, 2004); unlearning is necessary to overcome this inertia. It means letting go of old beliefs and framings. The moments of doubt we have analyzed are a sign of an ongoing process of deep unlearning. Thus, we provide a qualitative methodological tool for studying unlearning in empirical material.

By introducing the concept of unlearning, we can also contribute to the frame analysis literature: we analyze how old frames are discarded