Policy learning in regions: the potential of co-generative research methodologies to help responsible innovation

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1. Introduction

Due to an increasing awareness of the major challenges that societies face in terms of economic, social and environmental sustainability, regions are urged to broaden the scope and aims of their policy actions for innovation and development. Concepts such as transformative innovation policies (Steward, 2012) and responsible innovation (Owen et al., 2013) are now entering the academic and policy scenes and providing frameworks for thinking about the social and environmental implications of innovation. These concepts also provide a perspective on the potential of innovation and innovation policies to help develop responses to various social challenges.

Reframing regional innovation policies in these terms to include broader societal goals requires policy learning, which is one of several mechanisms for explaining policy changes and evolution. 'Policy learning' refers to the use of knowledge in policy development (and, more concretely, to policymakers' learning processes within the policy process), which is rooted in a variety of sources, such as their own and others' experiences, data, and research inputs, and materializes in specific transformations.

Policy learning is one frame that can help in understanding why and how policies change. Such learning is commonly used in the regional development field to explain how regional development and innovation policies evolve. Scholars have developed theoretical and empirical works to set out how policy learning occurs in regions and to systematize different sources, types and outputs of learning, as well as examining which capacities a region needs for different types of learning (Borrás, 2011; González-López, 2019).

In our view, two dimensions related to policy learning require further exploration, especially in light of new rationales for rethinking innovation: policy learning for responsible innovation and researchers' roles in such learning. Responsible innovation requires a change in the rationale of innovation policies; that is, it requires a paradigmatic change. Paradigmatic change, as previous studies have shown, requires social learning, a type of learning that produces a change in the hierarchies of the rationales and goals that shape policies. Although policies tend to develop in an evolutionary way and require time, in our view, approaches that actively seek to make deep changes in policies and practices can contribute to the adoption of a responsible innovation framework.

One question that immediately arises when addressing this issue is: what is researchers' responsibility in the regional innovation policy field regarding social learning and responsible innovation? Although the role of research and researchers in policy learning

within regions has not received much attention and has seldom been studied, we believe the topic requires further attention to improve our understanding of how research can increase its impact within regional policies. While the scarce impact of research in policy can be explained by putting more weight and responsibility on researchers (since the stereotype is that they do not understand the policy world) or on policymakers (since they are purported to lack the capacity to absorb research), several scholarly voices in the field– including ours – have raised awareness of the need to better understand the interaction between the two.

With this aim, and based on a co-generative learning spirit, this chapter provides insights gained from four in-depth interviews conducted with policymakers in the Basque Country. The interviewees express their views on the interaction between research and policy, on the usefulness of research, and on their own capacities in policy learning. The finding of this chapter is that paradigmatic change will require new forms of social research that integrate dialogue and deliberation. Based on the experience of the authors in facilitating (Karlsen and Larrea, 2014a, 2018) and analyzing (Arrona, 2017) action research (AR) processes, we consider that the regional innovation policy field can potentially transform itself based on the field's principles, but by integrating dialogical and deliberative dimensions from fields such as AR. In this chapter we share an exploratory attempt at such a goal.

Our framework for exploring this idea is action research for territorial development (ARTD), which is an AR approach developed in the regional innovation policy field – more specifically, in the field's intersection with AR. The ARTD framework proposes knowledge co-generation between policymakers and researchers as a specific form of policy learning. Indeed, even though co-generation as a research methodology is seldom used in the regional development and innovation field, we believe that regional innovation policy can have an impact in the development of responsible innovation by complementing existing research approaches using co-generative methods.

The remainder of this chapter is structured as follows. First, we provide a general theoretical background on policy learning that shows the diversity of perspectives on such learning, followed by a review of specific literature on policy learning in the field of regional innovation in which we address the challenge of responsible innovation. The next section covers regional policy learning, which is the concept that best fits with the approach to policy learning described in this chapter. We then present two sections on ARTD and the field's approach to policy learning. Bearing the previous material in mind, we then end the chapter with a discussion of how AR and other co-generative frameworks can contribute to the challenge of developing responsible innovation, and our conclusions.

2. Policy learning: an elusive concept with diverse interpretations

Heclo (1974) was the first to introduce the concept of policy learning and the idea of knowledge as an explanatory factor of policy change, in opposition to conflict- and power-based theories (Bennett and Howlett, 1992; Grin and Loeber, 2007). Since that time, learning in public policy has become a key theme of analysis in diverse fields (see Goyal and Howlett, 2018) and a central factor in most policy process frameworks. Policy learning may even be considered as a lens and theory in the policy process (Dunlop and Radaelli, 2018).

Learning in public policy may be understood in different ways, depending on what such learning entails and what its outputs are (Dunlop and Radaelli, 2013; Dunlop et al., 2018; Freeman, 2006). For example, knowledge and learning can be seen as instrumental to the

policy process, as an evolutionary and incremental process that depends on previous beliefs, or as a collective and interactive phenomenon that begins with practice and views policy as being emergent (Freeman, 2007).

Various scholars have sought to systematize the vast work on policy learning. One of the most-cited attempts is that of Bennett and Howlett (1992), who identified different ways of understanding and using the concept in previous works, based on learning agents (state officials, policy networks or policy communities), the content of the learning (process-related issues, instruments or ideas) and the results of the learning (organizational change, changes in programmes or paradigm change). Thus, the change produced by learning depends on the object of learning and whether the learning occurs among a bounded set of actors or in the wider community.

Several developments and changes have occurred since Bennett and Howlett's (1992) seminal work. Among these changes, a shift has occurred from individual-focused learning to a collective conception of learning and a widening of the scope of learning agents (Grin and Loeber, 2007). A wider and more diverse body of work now exists with different underlying assumptions and approaches to learning and policy – such as rationalist, institutional and constructivist (Freeman, 2007) – as well as various approaches to learning that are linked to different uses and relationships with governance, such as instrumental, gaining of power, legitimacy and democracy and the gaining of power (Gilardi and Radaelli, 2012).

How we understand and approach learning has various implications, because the mechanisms, logics and benefits vary accordingly (Dunlop and Radaelli, 2013, 2018). For example, whereas an instrumental type of knowledge – that of solving concrete problems – can be produced by teaching, a conceptual reflexive type of learning involves deliberation.

Learning in general, and policy learning in particular, is also widely considered a key aspect in regional development and innovation. The relevance of tacit knowledge and interactive learning in fostering regional development is fundamental within place-based approaches and regional innovation policies (Dotti, 2014; Laranja et al., 2008; Moulaert and Sekia, 2003; Uyarra, 2007; Uyarra and Flanagan, 2010). Learning is also vital for innovation policymaking (Aranguren et al., 2017; Chaminade and Edquist, 2010; Flanagan and Uyarra, 2016; Koschatzky and Kroll, 2007; Mazzucato, 2016; Nauwelaers and Wintjes, 2002) and has emerged as an axis of innovation policy governance (Borrás, 2009; OECD, 2005).

Studies on policy learning in the regional development and innovation field have provided insights on, among other things, policy change in regions, mechanisms and sources of policy learning, and the organizational capacities required for different types of learning in the innovation field (e.g. Borrás, 2011; González-López, 2019; Nauwelaers and Wintjes, 2008). Policy learning, however, is usually focused on an instrumental type of learning (an updating of beliefs that occurs through trial and error or through others' experience), which centres on analytical capacities fostered through peer reviews, monitoring exercises, benchmarking and personal mobility (e.g. Borrás, 2011; Nauwelaers and Wintjes, 2008). As we argue in the next section, the adoption of rationales such as responsible innovation, which implies changing the logics of regional innovation policies, requires going beyond such types of instrumental learning and adopting a more reflexive approach to learning that is (1) based on practice, (2) occurs in interactions and (3) addresses underlying assumptions. Following Freeman (2006, p. 369), it is 'the way we think about learning which determines how well we do it'.

3. Policy learning in the regional innovation field: challenges of responsible innovation

In this chapter we want to focus on the need for innovation policy to face large-scale societal challenges. This debate has entered the field through the concept of responsible innovation (among others), which requires an overcoming of the instrumental dimension of policy learning. For this reason, we present in this section the concept of social learning as a type of policy learning that overcomes the instrumental dimension and AR as an approach to social learning.

We borrow a definition of 'responsible innovation' from the field of responsible research and innovation (RRI) as a 'transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products in order to allow a proper embedding of scientific and technological advances in our society' (Von Schomberg, 2011, p. 50).

RRI has gained currency as a key term in the policy learning literature (Bardone and Lind, 2016; Fisher, 2018; Rip, 2014). Scholars have proposed several different approaches and definitions of the concept (Stilgoe et al., 2013; Von Schomberg, 2013; Rip, 2014). The common aim of RRI is to guide research and innovation practice towards societal acceptability while fostering and shaping technological innovation. RRI is an attempt to reach a broader vision of research and innovation as a public good (Bardone and Lind, 2016; Felt, 2014). According to Bardone and Lind (2016, pp. 2–3), RRI is based on four pillars. The first is that research is a resource for society in order to address 'grand challenges' of our time, where some challenges are also created by the research fields themselves. The second pillar is participation, or the importance of engaging the citizenry and all other concerned parties (such as stakeholders). The third is a shift from outcomes to processes: research and innovation are inherently open-ended types of pursuit, which implies that the path and the possible outcomes cannot be predicted before the process is started. This is therefore a more realistic approach to the challenges that can arise during a given process. The fourth and final pillar is reflexivity, where broader issues concerning underlying elements, such as purposes, motivations, potential impacts and assumptions – but also the unavoidable fact of our ignorance and finitude – inevitably characterize individuals and institutions.

Bardone and Lind (2016) conceptualize responsibility as care, which is a promising approach that builds on the process pillar. This approach emphasizes the relationship between theory and practice. The concept can be interpreted as practical wisdom and refers to those situations where we as humans take action (i.e. where we apply knowledge in action). The idea of care, in particular, hints at the fact that RRI cannot be devoid of the very act of taking care of the process to which research and innovation belong (Burget et al., 2017). Nor does the idea distinguish the institutional from the personal, and it requires that individuals engage with personal responsibility for their own actions at the same time as reinforcing institutional responsibility for setting policy and providing redress (Wilford, 2018). This situation implies engagement, and engagement cannot be fully formalized, since it relies on personal commitment (Bardone and Lind, 2016) and responsibility in action. This idea connects RRI and responsibility as care to AR and responsibility in policymaking processes, especially for paradigmatic change. In order to make such changes, both researchers' and policymakers' values must be explicit in the policymaking process.

The main challenge with the practice of RRI is that the field has not managed to reach its ambitions. In practice, RRI has often ended up as mere tick-boxing activities of filling in research proposal forms or, in somewhat futile participatory activities, as ends in themselves (Bogner and Torgersen, 2018). The following two comments from the policymakers interviewed for this chapter both describe a situation in which people are aware not only of the relevance of the concept but also of the concept's low level of actual transformation of policymaking:

> The way the concept of responsible innovation has reached us is still insufficient. It's a new concept that we probably haven't internalized enough yet, though we are aware that it is relevant for the future and that we should consider it.
>
> As for responsible innovation, we have to think of it in terms of the future, but the answers are not evident… Today we don't integrate it into our policymaking – we don't know how.

The policymakers were also open to considering research as part of the strategy to integrate responsible innovation into their policy process:

> [Elected politicians and civil servants] need spaces for reflection that aren't necessarily linked to direct actions, but to help think, to get out of our daily routines.
>
> We don't have reference frameworks… we would need someone to present us with a menu of different options to decide what's the right combination.

Fitjar et al. (2019) pose the need to adapt the RRI concept to the regional scale and they take a step forward in this direction since they propose a framework that integrates RRI within the main regional innovation policy framework, namely, research and innovation for smart specialization. We share their interpretation that adopting a responsible innovation perspective puts divergent voices and interests, as well as the power dimension, conflicts, tacit assumptions and normative values, at the centre of the innovation policymaking. We bear these features in mind when we rethink how we approach policy learning and social research for policy learning and change.

4. Regional policy learning: towards responsible innovation

Adopting a framework such as responsible innovation in practice, which requires us to reflect and act on the effects of innovation in economic, social and environmental terms, implies questioning existing policies and practices and prioritizing some goals over others. Doing so thus implies questioning the underlying assumptions behind existing policy action and even addressing the power dimension involved in any transformation (Loeber et al., 2007). In other words, a change such as that required for rethinking regional policy action in order to face social challenges requires us to foster a type of learning that, as previously stated, is reflexive, involves deliberation (Freeman 2006, 2007; Gilardi and Radaelli, 2012; Dunlop and Radaelli, 2013) and affects and changes policy goals and practices.

An interesting concept for thinking about these terms is Benz and Fürst's (2002) concept of regional policy learning, which is 'a special case of policy learning: it is a process of collective learning geared to a strategy of regional development with those actors participating who contribute to regional development' (p. 22). Regional policy learning is a collective process of learning rooted in the territory, where both individual and collective learning occurs that affects the cognitive dimensions and structures of actors' interests, thus leading to structural changes and the reallocation of resources. Such learning involves a

process that goes beyond instrumental learning and affects policy goals and the actors involved.

Research and policy approaches that are based on fostering multi-actor collaboration and social learning could indeed be a source for regional policy learning. The literature on consensus building, collaborative planning and social learning has already shown that collaboration and facilitated dialogues that explicitly address underlying assumptions and conflicting views, promote a review of actors' rationales and reflect on their role in policy practice may promote deep and long-term capacity building and system changes (Ansell and Gash, 2008; Fischer and Mandell, 2012; Grin and Van de Graaf, 1996; Innes and Booher, 2010; Loeber et al., 2007). ARTD is a research approach that aims to foster this type of learning for regional development and innovation. We thus propose an exploration of the potential of AR as an approach that can help integrate responsibility within policy learning.

5. ARTD: a methodology for social learning

ARTD has been interpreted both as a strategy for territorial development (Karlsen and Larrea, 2014a) and as a methodology for research (Karlsen and Larrea, 2018). In this chapter we focus on ARTD as a methodology for research that can be used for policy learning and, more specifically, regional policy learning. ARTD emerged at the intersection of the regional innovation policy field with AR and has been applied by a trans-local research community in the Basque country (Spain), Agder (Norway), and Rafaela and Tierra del Fuego (Argentina).

The methodological core of ARTD is its proposal of dialogical processes between policymakers and researchers in order to co-generate knowledge in the context of policy processes. The participants are usually elected politicians and civil servants, but other territorial actors with a stake in the specific policy process (such as firms, vocational training centres and the like) participate as well. The learning process is oriented towards a policy problem that is agreed on by all participants. Researchers facilitate reflection processes in which they contribute their field, process and experiential knowledge; the policymakers do the same. After the reflection process, policymakers make specific decisions followed by actions. The process continues cyclically, continuously defining new problems.

One of the core concepts in ARTD is collective knowing, a learned pattern of collective action that can be interpreted as the capability of territorial actors to solve problems together. Thus, through ongoing cycles of reflection and action for solving concrete problems, the use of ARDT generates a collective capability that is embedded in the territory. We can appreciate some features of ARTD in the words of policymakers who have experienced the process:

> I think that in processes like this, there is a learning that goes beyond the process… in our case, we're learning a lot of things to apply in other projects – for example, the facilitation work.

Collective knowing is developed through interactions in the long term; the following comment refers to this approach as well:

> I think that it's important that there is a permanence of people [researchers and policymakers] in the learning process. This doesn't mean that projects or scenarios should be the same, but the people should remain… [this way] we understand each

other – our limitations, interests and priorities – and we know what we can ask for; that habit brings about learning.

ARTD's approach to policy learning (Karlsen and Larrea, 2014b) is rooted in praxis and in a co-generative (and thus non-linear) view of the interaction between research and policy, as well as in the need to address ideological positions in learning and policy processes.

Praxis is interpreted in ARTD as a specific type of relationship between theory and practice in which concepts and frameworks are continuously tested in practice, either to make them more robust (if they help solve problems) or to discard them (if they do not). The framework focuses on the concept of praxis in order to distinguish between linear modes and co-generative modes of policy learning. In the linear mode, policymakers first reflect on what they are going to do; next, they decide on and plan the entire process before beginning any action; finally, they implement what they have already decided on.

The following comments on this type of approach were made by the policymakers we interviewed. They recognize that the way to integrate knowledge from research in their policy processes has traditionally been linear, and they doubt the effectiveness of that approach:

> [Research outputs] can always have a value, but the risk is they might not be so linked to the needs, and then the usability is limited. I wouldn't give up on them, and we keep that path, because we're used to that. But, yes, there is a risk that those research works will have little impact.
>
> If you write a report for me, in the best cases I'll read it and make my own conclusions, but without a chance for interaction and feedback, it will end up being just paper.

One of the interviewees missed research outputs having a more explicit goal in terms of policy learning:

> These projects [i.e. regarding the linear approach to research] don't have an established goal in terms of our learning: we fund the agents' scientific goals, but there are no specific goals in terms of the territory.

However, the same policymaker recognized that policymakers often lack the mechanisms to learn from the research outputs they have access to in linear ways:

> We don't have a systematic evaluation of the recommendations that research reports and papers make, which reduces the chances for us to innovate.

Another policymaker underlined the limitations to learning:

> Our life cycle is usually a term. Priorities… change. The reports come to you, and … a term change [often occurs] at that point… thus it's not only an issue of the research side but also an issue of our reality.

ARTD was originally defined to complement this type of approach in regional innovation policy. ARTD proposes an alternative to the traditional linear approaches of policymaking through integrating research in policy in the form of praxis – cyclical (i.e. non-linear) processes in which reflections and actions continuously happen that transform the interpretations of the situation that policymakers and researchers had at the beginning

of the process.

The policymakers we interviewed had experience of ARTD processes as well as of linear approaches. They pointed out some advantages of ARTD:

> Action research is important because you construct the work process while extracting outputs, modifying, intervening… you learn things that were obvious, but you hadn't seen.
>
> Conclusions are better… and the results are more actionable… participants share the problem [and] the diagnosis, and that's an important value… it's important to be part of something bigger that transcends our ego.
>
> When a policymaker confronts a problem alone, the recommendation is already decided beforehand; in a participatory process it's not like that. Someone will make you think about something else, which is valuable.

The value of ARTD as a process of knowledge generation in the context of application can be perceived in the following comment as well:

> You understand problems not because of what you've read, but because of how you contextualize, and you contextualize from your own experience. That's the [key] to learning or not.

The interviewees also saw problems and disadvantages:

> The main problem in participatory policy-learning processes is urgency. Co-generative and participatory processes have different timing… I need to be a participant to understand, but without taking up too much time.

However, the framework does not exclusively address praxis, which is generally considered necessary but insufficient. Transformations derived from policy learning are categorized as social transformations and have to do with paradigm change. In these cases, policy learning requires integrating an ideological debate that is often avoided in innovation policy processes. Praxis in a context in which the ideological debate is omitted and the problems are addressed exclusively at the technical level can help to improve the efficiency of the programmes but will hardly achieve social change. Our interpretation of ideology and politics in this section has nothing to do with political parties or partisan positions. The ideology is derived from the position that each actor occupies in society, the territory or the world as well as the perspective that this position gives on the problems that are being addressed. The political dimension has to do with the consideration that, from this perspective, each actor has a different interpretation of what is desirable for the territory and will use power to make what is desirable happen. From this perspective, all territorial actors, including researchers, have ideological and political positions.

The policymakers also referred to power during the interviews:

> When you start working in collaboration, you're sharing your power. And that needs to be learned. Even though you might have made the political decision to collaborate, you need to learn… with researchers, for example, one thing we have learned is to make conflicts explicit.

Policymakers also shared their perspective on the role of researchers in policy learning.

Regarding policymakers' experience in co-generative policy learning in ARTD, one said:

> [Researchers] help us better diagnose the problem… then they go back to their world and bring inputs, reflections and references from around the world… which we've applied and have had results. Even more so, researchers don't come to us with a recipe, but we implement things together.

6. An analytical framework for policy learning in ARTD

Following the previous introduction to ARTD as an approach to policy learning from the perspective of both researchers and policymakers, we now present an analytical framework developed as part of ARTD that summarizes the different strategies for policy learning depending on how praxis and various ideological positions are approached.

The combination of different positions creates four possible approaches to policy learning. Option IV, social learning, represents the collective learning of the actors who make social change possible. We consider that social learning thus defined is the type of learning that can contribute to regional policy learning and responsible innovation.

Table 1. Contribution of research in policy learning

	Implicit political/ideological positions	**Explicit political/ideological positions**
Linear approach from theory to practice	**I.** Recipe book for policy	**III.** Political discourse
Non-linear approach to theory and practice	**II.** Improvement of programme efficiency	**IV.** Social learning

Source: Karlsen and Larrea (2014b).

By way of an introduction to the discussion later in this chapter, we provide a brief description of each approach below.

I. Recipe Book for Policy

Sometimes the contribution that research makes to policy encounters difficulties when moving from reflection to action. When the reflection does not include explicit ideological positions, the possibilities for social change diminish. In these cases, the results of research can be transformed into 'recipe books', which are compilations of normative recommendations for policies – that is, recommendations of what should be done that have already been thought out and that are apparently ready for implementation. Supplying solutions before implementation instead of constructing solutions with those who will be doing the implementing leads to recipes becoming difficult to use in practice. By not taking into consideration the political and ideological positions of those who are participating in the policy process, research cannot consider the potential conflicts that may arise, which then hinders the potential of policy learning for social change.

II. Improvement of Programme Efficiency

When working on policies through praxis, but without explicitly addressing ideological and political positions, people often make improvements to the efficiency of programmes,

which helps to do what they have already done, only making better use of the available resources. But this strategy is not enough for the challenges (such as responsible innovation) that regions face today, which require paradigm change. Paradigm change requires people to address the existing conflicts due to ideological and political differences.

III. **Political Discourse**

When people explicitly address ideological and political positions, but without praxis, the processes end up shaping political discourse. This type of speech helps the transformation of policy by marking a horizon for change and then legitimizing that change. Such speech is insufficient for transformation to occur, however. ARTD integrates the ideological and political dimensions in the process of dialogue, not only through discourse but also through the expressions of the ideology perceptible in habits rooted in practice. Therefore, the ideology is not made explicit exclusively in large-scale discourses; it also occurs in small-scale actions.

IV. **Social Learning**

When praxis and the explicit ideological and political dimension converge, possibilities emerge for a policy learning process with an impact on the societal challenges faced today and embedded in the concept of responsible innovation set out in this chapter.

7. Discussion: generating favourable conditions for co-generative policy learning

We began this chapter with an overview of policy learning, with a focus more specifically on policy learning in the regional innovation field and the concept of regional policy learning. In doing so, we addressed responsible innovation as one of the main challenges that the innovation policy field faces today. We have argued that this concept poses the need to overcome policy learning processes that are focused on technical problem solving in order to address paradigm change.

In the second section of this chapter, we proposed action research, more specifically ARTD, a branch of AR developed in the context of the regional innovation policy field, as a possible strategy for policy learning that integrates not only praxis but also the ideological discussion at the core of praxis. We combined our voices as authors with the voices of policymakers who have participated with us in ARTD processes in order to better share the different perspectives involved in policy learning in ARTD. It is now time to address the question that guides this discussion section: are policymakers and researchers in the regional innovation policy field ready to complement their actual approaches to policy learning with approaches based on AR or other co-generative approaches?

In the introduction to this chapter, we advanced two potential arguments for the poor impact of research on policy, and thus on policy learning. When we analyze research–policy dynamics, we can frame the problem differently, generally by rooting the problem on the researcher side, on the policymaker side or in the interaction between the two (Stone et al., 2001). As Stone et al. (2001, pp. 3–4) show, the problem of the lack of influence of research in policy can be defined in part because of 'the ignorance of politicians about the existence of policy relevant research, or the incapacity of over-stretched bureaucrats to absorb research', which, in our view, is an underlying idea that is present in many works in the regional development and innovation literature. But the problem can also be defined as poor policy comprehension of researchers concerning both the policy process and how research might be relevant to this process; this is an issue that several regional

innovation scholars, including ourselves, have pointed out as being relevant (e.g. Arrona and Zabala-Iturriagagoitia, 2019; Flanagan and Uyarra, 2016; Karlsen and Larrea, 2014a; Uyarra et al., 2017). In our view, these problems are significant, and co-generative approaches such as ARTD can bring these two communities together to generate better conditions for regional policy learning that will lead to responsible innovation. In order to combine our own voices with those of policymakers who have experience of co-generative policy-learning processes, we have constructed the discussion below based on comments extracted from the interviews.

Although researchers in the regional innovation policy field often interact with policymakers, co-generative research methodologies are still scarce, and sometimes a feeling of disconnection exists between the two communities.

> Generally speaking, researchers are used to working in a certain way, and you feel comfortable in your bubble, and among your papers.

Academia and criteria for excellence do not favour co-generative research, as co-generated knowing (such as knowledge in action) is more difficult to share in traditional academic formats. The policymakers we interviewed perceived that researchers might feel uncomfortable if they were brought out of their usual ways of approaching research and into co-generative methodologies.

> In the social sciences (competitiveness, political management, economics, etc.) without a doubt [co-generation] should be that way. . ..I guess it feels limiting

> … because in the other world [traditional research] they're freer…But I think the future should be like that [i.e. co-generative]: research should constantly enrich the work of public institutions.

We consider that the paradigmatic changes required by societal challenges and responsible innovation do not affect policymakers exclusively; they also affect researchers. Part of paradigmatic change points to more horizontal, participatory and democratic knowledge-creation processes, which in turn affect research methodologies. In this context, the policymakers we interviewed considered that the connection between policymakers and researchers should be examined:

> I believe… that research and policymaking should align. Maybe it's a dream, but it's very thought provoking.

> Policymakers are far from research, and researchers are far from policy. The solution is not that either of them sticks to the other; there should be successive approaching moves.

AR and co-generative research processes are, of course, not the only alternatives to more democratic knowledge-production processes, but they can serve as a test bed in the field of regional innovation policies. One interviewee proposed these types of research processes as a meeting point for researchers and policymakers:

> When there are new problems, new challenges, programmes related to change… you need co-generation, at different stages of the process: at design, at implementation and also at evaluation. And that way, different agents would learn: government, private agents, universities…

Following the previously presented idea of the need for absorptive capacity to understand the logics of the other community, we discussed with various policymakers what we refer to as the arrogance of both policy and research. In both cases, this refers to a sense of superiority derived from the feeling of having the 'right knowledge', which was not accessible to the other community. The participants recognized this phenomenon, saying that 'policymakers' arrogance comes from public legitimation, but society doesn't legitimate us to do anything we want'. As another policymaker stated:

> I would tell researchers that through our public policy we're continuously experimenting, and what researchers lack is the recognition that in our everyday activities, we're constructing knowledge. Sometimes it seems that knowledge only comes from the university.

One solution that an interviewee proposed to overcome the distance created by the lack of absorptive capacity on both sides was not one where the two communities would completely adapt to the other; as this interviewee said, 'We all have a partial perspective; we should meet each other midway.' Some of the interviewees saw the need to generate absorptive capacity to work with researchers in co-generative processes, but they recognized that it can be difficult to overcome the assumption that any time used in co-generative processes could be wasted time:

> We all have needs [of absorptive capacity], and policymakers [do] also . . . [but] we have a short-term view, and thus we have difficulties engaging in such [co-generative] methodologies, because people might think of them as a waste of time. And maybe, to a great extent, there's no capacity to see that this type of learning goes beyond…short-term results.

Some of the difficulties in engaging with co-generative policy learning processes are thus the inimical conditions created by requirements in the academic world and the daily pressures in the policy world to make short-term decisions. We also noted the recognition that policymakers must be aware of their need to learn in order to become involved in policy learning:

> Before absorptive capacity comes the [recognition of] the need to learn… [Politicians] have to change… and they have to be aware that they have to change ...If they feel that need, capacity will come afterwards.

ARTD should not necessarily be interpreted as an alternative to other research methods. Due to its dialogic nature, ARTD can be a good strategy for developing absorptive capacity, both in policymaking and research communities, concerning how to work together. This situation benefits not only further AR-based policy learning processes but also any policy learning process that involves policymakers and researchers in search of responsible innovation.

8. Conclusions

This chapter has addressed policy learning in the framework of the innovation policy field. After providing a general framework on this concept, we have focused on the development of a central idea. Innovation policy today faces a challenge in integrating sustainability and responsibility so that policy will be oriented towards facing societal challenges in a way that is socially desirable. This challenge affects policymakers, since they must rethink the goals of innovation policy and experiment with new ways of

policymaking that will ensure inclusiveness in order to negotiate such goals. As we have argued in this chapter, the incorporation of learning approaches that include reflexivity seems to be key for achieving the change of rationale involved in new ways such as this.

However, the challenge equally affects researchers, who are often encouraged through the concept of RRI to develop research that is socially beneficial. Instead of thinking along two parallel and separate lines, this chapter has addressed the responsibility dimension that RRI poses by looking at social researchers' contributions to the concrete challenge of adopting responsible innovation within regional innovation policies. In our view, researchers can play an active role – and thus develop socially beneficial research – in promoting social learning that will help policymakers adopt responsible innovation in practice. Specifically, this chapter has proposed AR as one possible strategy to do so and has illustrated, using the words of policymakers, the learning – and change – that co-generation can promote. Nevertheless, researchers' more direct involvement in policy practice challenges the traditional practices of researchers and policymakers alike and the ways in which they interact. Throughout this chapter, we have attempted to provide insights into these challenges so that we can gain an understanding of how to improve these interactions and promote learning. In our view, understanding and improving how regions can learn, and how regional innovation policies can adapt to building responses that will be responsible, inclusive and sustainable, should include a reflection of how the research and policy worlds can better interact in this collective challenge.

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