Necessary but not sufficient: Learning and public innovation in four Belgian collaborative networks

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ABSTRACT

Over the past thirty years, governments have been faced with complex public problems (or "wicked" problems) that cannot be managed by a single organization. To respond to these problems, the traditional hierarchy has given way to arrangements between multiple public and private actors, called collaborative networks. In this article, learning, understood as changes in the opinions, beliefs and knowledge of network members, is approached as a driver of public innovation. This relationship is examined based on the qualitative analysis of 51 semidirected interviews with members of four Belgian governance networks involved in public innovation.

We find, first, that learning is a necessary but not sufficient condition of public innovation. Relational learning, i.e., acquiring knowledge of other members of the collaborative network, serves as a basis for political learning, i.e., acquiring knowledge about the political context and strategies, and for policy learning, i.e., acquiring knowledge about the policy issues and solutions. The extent of learning within the network results from a right mix of different kinds of expertise among network members and depends on the degree of their prior knowledge. There are collective and structural conditions (e.g., atmosphere or the presence of a coordination team) that account for both learning and innovation, whereas there are exogenous conditions (e.g., political support) that account for the dynamic process linking learning to innovation. Last but not least, the transformation of learning into public innovation depends less on amounts or types of learning than on actual prospects of implementation. To conclude, we draw the theoretical, methodological, and practical implications of these results.

Key words: Belgium; Collaborative network; Learning; Policy; Public sector innovation.

Introduction

Over the past 30 years, public authorities have been confronted with increasingly complex problems (or "wicked problems': Head and Alford, 2015), such as climate change, natural hazards or pandemic influenzas. They are not always new, but a greater awareness of the multiplicity of their dimensions – environmental, economic, social, political, etc. – has grown. For this reason, they cannot be managed by a single public organization. To adapt to this evolution, the traditional, hierarchical organization of governments and their administrations has given way to more horizontal arrangements in which multiple public actors, e.g., federal ministries or agencies, regional or local authorities, etc., and private actors, e.g., citizen collectives, companies, interest groups, etc., collaborate to find innovative responses. These arrangements may be called "collaborative networks" (Agranoff, 2016;

Ansell and Gash, 2008; Doberstein, 2016; Klijn and Koppenjan, 2016). This article points to learning as a necessary but not sufficient condition for collaborative networks to produce public innovation.

Learning has often been cited as a possible driver of public sector innovation (e.g., Glor, 2021). In policy studies, learning has been defined as alterations (or reinforcement) of actors' knowledge, beliefs or opinions in policy studies (Dunlop and Radaelli, 2013; Heikkila and Gerlak, 2013; Moyson and Scholten, 2018). In collaborative networks, more specifically, it refers to the acquisition and dissemination of information among network members. The search for common solutions presupposes that interests that, often, are initially contradictory, end up converging. Such a convergence goes through a phase of adaptation that the theory of learning helps to clarify (Riche et al., 2021).

However, the learning–innovation relations remain unclear. On the one hand, when individual learning results in the reinforcement of existing beliefs, convergence and the identification of new solutions to complex problems is unlikely (Montpetit and Lachapelle, 2017). On the other hand, collective learning can converge to solutions that fail to address public problems effectively (Dunlop, 2017). In other words, public sector innovation in collaborative networks depends on whether participants learn. However, whether what and how much participants learn influence the types and amounts of collaborative outcomes remains ambiguous. To improve our understanding of learning–innovation relationships in collaborative networks, four Belgian collaborative networks are compared based on data collected through semidirected interviews with the participants in those networks and analyzed using NVivo software.

The added value of this article is twofold. Theoretically speaking, it contributes to a better understanding of learning dynamics in collaborative networks by elucidating the relations among their antecedents, processes and outcomes, with a focus on public sector innovation. Practically speaking, the results provide insights into how network managers, public officials and politicians can contribute to public sector innovation through collaborative governance.

This article starts with a discussion of theoretical relations between learning and innovation before a presentation of the methods of data collection and analysis. Then, learning and innovation dynamics in four Belgian collaborative networks are examined and discussed. To conclude, the theoretical and practical implications of these results are drawn.

Learning as a source of public innovation in collaborative networks

This section discusses the relationships between learning and public innovation in collaborative networks.

Public innovation in response to complex problems

Innovation was initially conceptualized in the private sector as a way to remain competitive by reducing costs or by being at the forefront of a market (Schumpeter, 1934). Broadly speaking, innovation is defined as "an intentional and proactive process that involves the generation and practical adoption and dissemination of new and creative ideas, aimed at producing a qualitative change in a specific context" (Sørensen and Torfing, 2011: 849). Public innovation, which transposes this challenge of constant adaptation to the evolution of

society to the public sector, refers to "the introduction of new elements into a public service, in the form of new knowledge, new organization and/or new management or processual skills. It represents discontinuity with the past" (Osbourne and Brown, 2005: 4). Novelty is central but relative: it is appreciated as such by the people within the environment in which it occurs. In other words, the context of the adoption matters more than the origin of the innovation (Anderson and King, 1993). The distinction between generation and adoption or implementation of innovation, in the public sector, is particularly relevant: it is relatively common for some actors – e.g., public officials – to elaborate creative ideas concerning public policies or public services, without these ideas to be transformed into actual decisions by other actors of the public sector – e.g., politicians or public officials in other agencies.

Innovation is not necessarily easy in the public sector. For example, it is necessarily hindered by fundamental principles of this sector, such as impartiality and respect for the law, and by a certain tendency toward institutionalization and routinization (Kelman, 2005). Furthermore, as administrations are oriented toward the pursuit of the general interest, they must offer their services to the whole population, unlike private companies, which prevents the development of niche services and policies and makes innovation more complex (Chen et al., 2020). In addition, the growth of central administrations, coupled with their hierarchical organization, has led to a division of roles in which each office has become autonomous from the overall conduct of some state affairs (Christensen and Laegreid, 2007). This so-called "siloization" has made it more difficult to deal with complex problems that lie at the junction of several sectors, each operating according to its own logic (Bouckaert et al., 2010). However, it is clear that public administrations have been able to address complex problems over the last few decades. For example, digitalization processes or citizen consultations are all innovative projects designed and carried out by administrations.

Innovation in process and innovation as a final product should be distinguished. *Innovation in process* refers to "any idea, practice or material artifact perceived to be new by the relevant unit of adoption" (Zaltman et al., 1973: 10). *Innovation as a final product* is the "emergence, import or imposition of new ideas which are pursued toward implementation [...] through interpersonal discussions and successive re-mouldings of the original proposal over time" (Andersen, 1990: 3). In other words, the generation and implementation of public innovation, e.g., through collaborative governance processes, can be considered independently. That said, innovation as a process is a precursor to innovation as a final product.

Public innovation is not a homogeneous phenomenon and covers very different types of innovation. Pupion's (2018) distinction among concepts, governance, process and product relevantly cover the types of innovation collaborative networks can generate. *Conceptual innovation* introduces new paradigms or cognitive frameworks that change public policy or service delivery. It is based on new worldviews that change the nature of public problems and their possible solutions. *Governance innovation* develops new pathways and processes to solve specific societal problems. It emphasizes public participation, cocreation or outsourcing of services. *Process innovation* addresses administrative or organizational routines. It focuses on the technological or administrative core of the organization. It involves, for example, the creation of new forms of organization, the introduction of new management or work methods and techniques or the introduction of new technologies. *Product innovation* creates new public services and new ways of providing services to the public or improves the quality of these services. An example of product innovation is the introduction of a one-stop shop for people with disabilities.

The difference between governance innovation and conceptual innovation is that governance is about new ways of solving societal problems and solutions, while conceptual innovation is about new conceptions or reflections about the nature of the problem and the solutions themselves. Process innovation is less "abstract" and more about the organization of administrative work and the technologies embedded in that organization. Of course, other typologies do exist. For example, Chen et al. (2020) refer to the *locus* of innovation as external or internal to determine whether the innovation is directed outward from the organization, cocreating with citizens or other organizations, or whether the innovation is more internally oriented and carried out autonomously within the organization.

Learning and public innovation in collaborative networks

The literature is unanimous in observing that neither collaboration nor learning and public innovation can be taken for granted. Both the conditions for collaboration (e.g., Ansell and Gash, 2008; Scott et al., 2019) and the conditions for learning have been explored in depth (e.g., Riche 2020; for a review, see Riche et al., 2021). However, there is still considerable uncertainty as to which cases of collaborative networks with generated learning did or did not ultimately result in innovation. Therefore, we are interested in the collaborative conditions that explain the transformation of learning into actual innovation.

The innovation potential of collaborative networks

Collaborative networks have seen a resurgence of interest since the 1990s, both from researchers and practitioners. It is a governance device that aims to develop and manage public policies in a less hierarchical institutional mode that transcends organizational divisions (Emerson et al., 2012). Collaborative networks are defined as "more or less stable patterns of social relations between interdependent actors who cluster around a policy problem, a policy agenda and/or a set of resources" (Klijn and Koppenjan, 2016:21).

Networking has multiple benefits that arise from pooling the resources of all actors (Vangen and Huxham, 2010). Participants in collaborative networks are more inclined to share their knowledge, expertise and legal and organizational resources (Sørensen and Torfing, 2012). Collaborative networks also are said to facilitate exchanges, build trusting relationships between individuals and, consequently, reduce conflict (Innes and Booher, 1999). While these collaborative benefits help to solve complex problems and justify the hopes placed in collaborative governance, networks also can lead to less satisfactory results when issues such as conflicts of interest, power asymmetries, cultural differences, lack of political will or lack of communication (Sorensen and Torfing, 2011; Ansell and Gash, 2008; Doberstein, 2016) are not addressed properly.

To date, the literature has focused on the potential of collaborative networks to produce innovation mainly in the private sector (Gloor, 2005; Powell and Grodall, 2004). The intuition of networks as catalysts for innovation also has been studied, albeit more tentatively, in the field of public administration, where collaboration is expected to relax the inertial culture of administrations by making them more willing to take risks (Eggers and Singh, 2009; Sørensen and Torfing, 2012). Furthermore, opening the dialogue to many actors broadens the resource pool (Bommert, 2010), and the circulation of knowledge facilitates innovation within networks by allowing actors to learn individually and collectively (Riche, 2020). Learning thus seems to be a bridging concept between the establishment of a collaborative network and the innovation it can eventually produce.

Learning and innovation in collaborative networks

Collaborative governance processes generate and enable learning (Koebele, 2019), which refers to the acquisition and dissemination of information among network members. This learning leads, at the individual level, to changes or reinforcements of opinions, beliefs and knowledge and, at the collective level, to the intensification of their convergence or divergence among network members (Dunlop and Radaelli, 2013; Heikkila and Gerlak, 2013; Leach et al., 2014; Moyson and Scholten, 2018). By bringing together a diversity of actors, collaborative networks enable the creation of a space for the interaction and exchange of opinions, which supports the sharing and dissemination of ideas and creative solutions to complex problems (Riche et al., 2021).

There are different types of individual learning: they are classified according to various typologies depending on the subject matter. Following a literature review, Riche (2020) distinguishes three types of learning. First, policy learning refers to the acquisition of knowledge related to the subject matter of the public policy being addressed, which involves learning about the technical aspects of the policy, its scope and its wider objectives (May, 1992). Second, relational learning involves acquiring better knowledge of other members of the collaborative network, including their objectives, interests, resources or the constraints they face. Other authors equate this type of learning with the development of new relationships (Koppenjan and Klijn, 2004). Third, political learning is about acquiring knowledge about the political context and strategies. This relates to the ecosystem in which the collaborative network is located and the factors that enable the adoption and implementation of the outcomes of collaborative governance (May, 1992).

The potential for innovation in collaborative networks is closely related to individual and collective learning within these networks. In general, existing policy research pinpoints the role of learning in policy change (Moyson et al., 2017) and recognizes that learning is an important condition of policy transfer and diffusion (e.g., Shipan and Volden, 2008). In collaborative networks, individual and collective learning are conducive to knowledge circulation and, in turn, to policy outputs (Koebele, 2019) and public innovation (Sørensen and Torfing, 2012). That said, learning can be random, biased or even impossible (Dussauge-Laguna, 2012; Shipan and Volden, 2012: 201). Learning also can reinforce network participants' beliefs and lead to greater divergence and stalemates (Montpetit and Lachapelle, 2017).

The transformation of learning into public innovation in collaborative networks

Several conditions can facilitate or inhibit the transformation of learning processes into innovation. First, exogenous conditions include not only developments in the political, economic or media context but also technological developments or developments in the societal debate around the object of the network (Koebele, 2019; Heikkila and Gerlak, 2013). The importance of exogenous factors also is emphasized by authors who seek to understand innovation without necessarily mobilizing the concept of learning. For example, Pupion (2018) highlights the importance of the political and societal contexts. As innovation does not seem obvious for the public sector, he considers that prior administrative reforms (e.g., New Public Management) and specific policies are needed. The presence or absence of prospects for implementing the decisions made by the collaborative network, including commitments to implement the conclusions of the work, also is an exogenous factor.

Second, the collaborative network is characterized by certain structural conditions, including the presence or absence of informal norms that provide space for creativity and

consensus, formal rules governing the exchange of information, the size of the network (diversity, centralization and density), the more or less hierarchical nature of the relationships between participants and the degree of *a priori* trust (e.g., Ulibarri and Scott, 2017). Similarly, organizations can have structural and cultural characteristics, especially a culture of caution, hierarchy and procedures, which can be (less) conducive to innovation (Pupion, 2018).

Third, collective conditions, i.e., the structure of social relations within the network, can prevent individual learning from transforming into collective learning and public innovation. The collective characteristics of the network include the diversity of participants, the use of consensus, deliberation, communication, fairness in the procedures followed to reach an administrative decision (procedural fairness), the existence of scientific certainty, interpersonal trust and the intensity of social relations (Koebele, 2019; Leach et al., 2014). For example, although network members learn new information from each other, inadequate communication rules or lack of fairness in the procedures will probably complicate opinion convergence and, thus, decisions and innovation (Riche et al., 2021).

Fourth, there are individual conditions that include the demographic variables of the participants (age, gender and education), as well as their expertise, seen as a level of scientific and technical competence. Network participants also have different attitudes toward the notion of consensus: they are more or less willing to listen, change their minds or stick to extreme positions. The variation in the duration of their participation also is related to individual characteristics, as is their greater or lesser inclination to innovation (e.g., Leach et al., 2014; Siddiki et al., 2017).

Research context, data collection and data analysis

This paper compares the learning and innovation processes in four collaborative networks (Table 1) (Riche, 2020; Verhoest et al., 2018) at the Belgian federal level in four different sectors: health (Durflab), social services (Experts by Experience), sustainable development (Federal Plan for Sustainable Development) and the environment (Invasive Alien Species). The networks were composed of officials from federal, state and local governments and agencies, representatives of interest groups and, in two cases, individual citizens who generated more or less learning and produced public innovations. One of them (Experts by Experience) was concerned with innovation in process, while the others were devoted to innovation as a final product. These networks produced various types of public innovation. All four networks primarily involved federal structures and officials. At the same time, the sector, the phase of policy or public service development, the financial resources, the size, the political support, the duration or the degree of implementation of the innovation differed[1]. In other words, the similarity of the institutional context makes the networks comparable, while the significant variation in their characteristics increases the degree of generalizability of the results (Landman, 2008). In the remainder of this section, we provide several details about the objectives, membership, and story of each collaborative network before turning our attention to the methods of data collection and analysis.

[1] It should be noted that these characteristics have been reported as perceived by the network participants, based on the interviews. In other words, for example, it is possible that the perceived amount of financial resources in a first network is reported as lower than in a second network for achieving their respective objectives, whereas the absolute amount of resources is actually bigger in the first than in the second network.

Table 1: Characteristics of the Collaborative Networks

Network	**Durflab**	**Experts by Experience**	**IAS**	**FSDP**
Sector	Health	Social	Environment	Environment
Type of innovation	Process (and governance) innovation	Product and process innovation	Governance innovation	Product innovation
Phase	Evaluation	Adjustment	Implementation	Formulation
Financial resources	Important	Average	Average	Low
Size	Large	Small	Small	Large
Political involvement	Questioned	Absent	Present	Absent
Implementation	No	Yes	Yes	No
Duration	5 years	5 years	2-3 years	2-3 years
Number of interviews	16	7	11	17

Durflab is a collaborative network created at the initiative of a federal agency (Administrative Simplification Service) after learning about the problems faced by parents of disabled children. It was developed at the local level by the city of Kortrijk. The motivation for this experience was to simplify the administrative procedures for those parents. To do so, it was deemed necessary, on the one hand, to work beyond the administrative frontiers and organizations to increase coherence among the multiple regulating actors of the sector. On the other hand, the public servants were willing to enlarge their perspective to include the living experience of parents ('stand on the other side') rather than solely the perspective of the regulator. Concretely, a public servant from the welfare service (accessibility) of the city of Kortrijk together with the head of the mayor's office organized a kick-off event in July 2014. The event was public, and relevant sectoral actors were invited, such as the federal, regional and local authorities, the bus transportation company, the health insurance funds and the local social action center. Approximately 50 people attended the discussions and concluded the need to raise awareness, reduce the institutional burden, create an intersectoral one-stop shop and constantly listen to the experience of parents. During the following year and a half, a group of approximately 20 committed individuals met regularly in workshops. Sixteen of them were interviewed. The network did not have a full-time coordination team, but the participants identified one particular person who played this role (sending out reports, reminders, etc.). The process ended by the end of 2015 with the definition of four possible solutions simplifying administrative procedures, such as the creation of a 'single contact point' whereby parents could find useful information about existing caring structures, activities and application forms. However, their implementation remained limited.

The Experts by Experience network was initiated by the Federal public planning service (or Ministry) for social integration in 2005 to improve access to public services for people experiencing poverty and social exclusion. The project contends that those individuals have a concrete experience of poverty that should be listened to and used to improve public services. To do so, approximately 40 citizens who had experienced poverty were hired as

'Experts by Experience' and sent to 16 other federal government services to advise them. They observe the functioning to point out issues and formulate recommendations to change organizational procedures to improve the accessibility to and the experience of citizens facing social exclusions. Regarding feasibility, the network under scrutiny here is composed of 13 members in four departments, their supervisors in the departments and members of the coordination team. This translated into the realization of 7 interviews. This network regularly met to share their experiences and their new best practices. As an example of solutions to improve inclusivity, the network devised measures to lower thresholds for citizens in poverty to go to these services, as well as to improve communication toward this population. This collaborative innovation has been ongoing for approximately 15 years and continues to structure and uniformize.

The Invasive Alien Species network (IAS) came into existence in the context of the implementation of the 2014 EU Regulation on the prevention and control of invasive alien species[2] in Belgium. It required the elaboration of a cooperation agreement among Belgian federal entities. After consultation with colleagues who participated in the drafting of the EU directive, a public servant of the federal administration submitted a proposal to create a working group through the Interministerial Conference on Environment (ICE) in February 2015. The ministers agreed on the idea and mandated the working group to elaborate the cooperation agreement. The IAS network gathered 11 members who were expert civil servants from the three regions (Brussels-Capital, Flanders, and Wallonia) and the federal state, as well as jurists. Its goal was to develop the aim, mission, and structure of the cooperation agreement, ensuring it was consistent with the EU directive, as well as with federal and regional law. More concretely, this cooperation agreement had to organize the information exchange across jurisdictional levels to develop a more comprehensive and effective policy to prevent and control alien species. They met regularly from February 2015, sometimes in expert or jurist subgroups, and landed on a final draft by the end of 2016. The cooperation agreement was adopted in June 2020.

The network who worked on the Federal Sustainable Development Plan (FSDP) is an indirect emanation of the 1997 law on the coordination of the federal sustainable development policy that contends that a national sustainable development plan must be adopted every five years. To elaborate the plan covering the 2015-2020 period, a network was created on the initiative of the Interministerial Commission on Sustainable Development (ICSD). The FSDP network was composed of 44 representatives from most of the federal public services and public planning services, of whom 18 were interviewed. It existed formally within the administrative structure of the federal organization and was coordinated by a representative of the Federal Institute for Sustainable Development. Over three years, they met regularly to elaborate the FSDP, sometimes in thematic subgroups. Concretely, they had to develop new actions and agree upon a list of actions to be implemented by the federal administrations to reach international and national objectives. The network involved external stakeholders to define the guidelines by organizing workshops with civil society. The FSDP network particularly worked in an interorganizational logic, designing actions to be undertaken jointly by at least two federal administrations. Its actions included, but were not limited to, the creation of new, multiorganizational governing bodies and the development of

[2] Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species.

a new tool to help industry consider biodiversity in its strategic decisions. In 2015, the FSDP draft was adopted by the ICSD. However, it has never been adopted by the government and therefore never implemented.

As far as the methods are concerned, an exploratory interview with the network facilitator, followed by semidirected interviews with each identified member of the network who responded positively to the request, was conducted. The interview focused on the meta-governance of the network, the organizational context, the measurement of learning, the individual characteristics of the participants and the collective, structural and exogeneous characteristics of the networks.

Verbatim summaries of participants' perceptions of the concepts/types and conditions of learning and innovation were coded by the two first authors using NVivo based on a common codebook. For example, to operationalize the structural characteristics of the networks, the presence (or absence) of informal norms such as "room for creativity" or formal rules such as "information exchange" had to be coded, among other things. In addition to the use of simple codes, a first interview was coded by the two authors: the comparison of the results allowed us to clarify the codebook where needed, following a "negotiated agreement", to increase the "discriminant capability" of the codebook (Campbell et al., 2013).

The analysis combined two approaches. On the one hand, the qualitative information provided by the interviewees was used to reconstruct and compare the conditions and dynamics of learning and innovation within each network (cf. Appendix A). On the other hand, co-occurrences between the variables of the analytical framework – i.e., how frequently they appear together – were reported and used to discuss the relations between them. In other words, we tried to make the best of case-oriented and variable-oriented approaches (Porta, 2008: 202-208).

Learning and innovation in four Belgian collaborative networks

In this section, four Belgian collaborative networks are examined with a focus on the conditions of learning and public innovation.

Durflab

The Durflab Kortrijk network was formed around the desire of a federal agency to simplify administrative procedures for parents whose child has a disability. In 2014 and 2015, the project took place at the local level (the city of Kortrijk in Flanders). The actors involved represented the federal and local administrations, as well as institutions dedicated to people with disabilities and parents of children with disabilities.

The network did not have a full-time coordination team, but participants identified one particular person who played this role (sending out reports, reminders, etc.). Moreover, the network was formed primarily through the personal network of this coordinator. A first meeting (called a *kick-off meeting* by the participants) took place and was attended by approximately 50 people. Parents were invited, and some of them initially agreed to take part in the discussions, although the number of participants decreased over the process.

Innovation - Durflab produced innovation through four scenarios of administrative simplification (*process innovation*). The participants also reflected on a "holistic approach [to

the delivery of public services], in the sense that you don't look at just one aspect of people but at the whole context" (*governance innovation*). Last but not least, Durflab involved "looking beyond institutions and taking a holistic approach to public action" (*conceptual innovation*).

Learning - Although most Durflab members knew each other beforehand, relational learning was central. A climate of trust was established among the participants, which facilitated information exchanges: "I'm sure that, when you listen to people, when you listen to the stories, you also feel how good it is for cooperation and for getting to know each other". The participants were comfortable telling about their daily lives, which seemed to foster cooperation: "I learned a lot from the parents and their problems. It made me pay more attention to them. You start to work together in a certain way". Relational learning was the foundation for *policy learning* or *political learning*. The participants were able to better map the actors involved in the issue and understand their respective roles: "I didn't know the concrete functioning of these schools or institutions. I got to know them better". This also held for the administrative procedures parents encounter. They developed a different, "broader vision of the disability issue". Policy learning and political learning remained limited within this network, however, because many of the participants were already familiar with the issue, either from their own experience or from their profession: "It's not that I had a complete idea, I feel empathy for how difficult it is for these people... but I wasn't like, 'Oops, I didn't know that''. Overall, the participants reported less learning in this network than in the others. *Relational learning* was described more often (5 or 31% of 16 interviewees) than *political learning* (3 or 19% of 16 interviewees) or *policy learning* (2 or 12% of 16 interviewees).

Exogenous conditions – The Belgian institutional landscape was an obstacle to the ambition of providing a transversal service (described as a one-stop shop) to parents of a child with a disability. The distribution of competences among different levels of power can create financial competition ("they fight for the same money") or organizational issues ("people from a certain level want to work together and want to help others, but at a certain point their institution competes with another"). Legislation and administrative procedures and design also represent obstacles to transversality and, therefore, to innovation: "I have often found that many organizations don't know each other and stay in their own corners and that often you only look within your sector and not outside your sector. […] People look everywhere... but they don't have the time and they stay in their own procedures and ways of working". Another major reason for the limited success of this network was the lack of support and lack of human and financial resources. A collective intelligence consultant was financed, but the mandate was unclear. At some governmental levels, network participants with actual influence within their administrations and support of their hierarchy also were missing, especially as some of these administrations were new or in the process of reforming.

Structural conditions – These conditions were partly responsible for the loss of momentum in the Durflab network. First, the participants reported a big turnover, which slowed down the coconstruction process: "there were also a lot of new people, so that... especially new users... so that the process had to be repeated a little more each time". In addition, the number of participants gradually decreased because the working hours of the civil servants were not always convenient for working parents. Second, the coordination of the project experienced difficulties in passing stages and setting milestones. The slowness of the process created frustration and affected participants' interest in the project: "it was not a concrete project". The departure of the coordinator was a definite blow to the smooth running

of the project, according to several participants. Thus, although there was learning, the outcome of the innovation was impacted by these structural factors.

Collective and individual conditions – The exogenous and structural constraints were partly compensated by the proximity among participants, which created an atmosphere that was described as "pleasant", "respectful", and where "everyone was on an equal footing". Preexisting links were strengthened within the network, and several participants reported that they still see each other. A common vision also is regularly mentioned ("everyone was moving in the same direction").

Synthesis – Durflab has produced limited conceptual, process and governance innovation. Relational learning was important, although most of the network members knew each other beforehand, which in turn generated further learning, including but to a more limited extent, political learning and policy learning. The pleasant atmosphere and common vision shared by the participants did not compensate for the institutional and structural obstacles to innovation.

Experts by Experience

Experts by Experience refers to a project that was set up more than ten years ago by the Federal Public Service or Ministry of Social Integration. The Experts by Experience are citizens who were beneficiaries of the administration because of their situation of poverty and social exclusion in their life course. Forty experts were hired by the Ministry and distributed to sixteen federal administrations, where they were associated with a civil servant and asked to report on problems faced by users confronted with poverty and exclusion and to make proposals for addressing these problems (e.g., misinterpretations of some forms that can lead to nonaccess). The network is composed of the coordination team of the Ministry, the experts, and the civil servants with whom they work. Experts by Experience is our only case of innovation in process.

Innovation – Integrating Experts by Experience involves a *process innovation* that translates into an obligation to create a specific employment contract with particular missions, new recruitment methods (particular profiles must be sought and hired) and different ways of communicating with civil servants. Other innovations have followed, sometimes very concrete, e.g., installing a water fountain in a waiting room (*product innovation*).

Learning – While the Experts by Experience regularly reported a need to prove themselves, the experts also could perceive civil servants negatively: they have been beneficiaries of social services and sometimes feel a sense of injustice toward them. Getting to know each other, i.e., relational learning, helps to overcome these preconceptions, which was facilitated by setting up a mediation unit: "they are rigidly functional, and Experts by Experience is there to bring another vision. Sometimes it's a bit of an opposition, but then each party has to make an effort to collaborate. There are rules, and then there are friendly relations, the feeling". Being involved in administrations also allowed the experts to develop *policy learning* and *political learning*. In some departments, training was provided for experts to better understand the regulations and administrative processes. Their work allowed them to "get to the other side of the fence". Experts regularly identified this learning as essential to their work: "I used to help users without really knowing why the regulations were needed. And now I've been able to draw a parallel. Because sometimes, we say to ourselves, it could be easier like that, but behind it, there is a whole infrastructure which is organized like that.

So, if you don't understand the structure, you won't be able to propose improvements". However, learning is not limited to this civil servant–expert duo. Political learning extends to the other participants in the network, including the coordinators, who show a better understanding of the issues because of getting to know the Experts by Experience (relational learning): "I'm never an expert on the content itself, because I'm the coordinator. But of course, I am involved in it, and when I work with an expert in the field, I understand what he or she is saying, so I learn a lot". Overall, according to the figures, policy learning has been stronger (4 of 7 or 57% of the interviewees) than political learning and relational learning (3 of 7 or 43% of the interviewees in both cases). These figures are consistent with a network more dispersed among different administrations and with the exact quotations showing that the experts learned much about public administration and public policies.

Exogenous conditions – Transversality was pinpointed as an important condition to learning and innovation: "you can make contact, even if they are parallel departments, there is a real openness. I don't have to ask my superior to go and ask a question to the other department". Transversality, however, was sometimes challenging: "the institutions are very hierarchical, and everyone works on his or her own mission: you are in communications, which means that you are not in the legal department". The procedures that crystallized this rigidity had a negative influence on learning and inhibit innovation, which starts at the recruitment stage: "For Experts by Experience, we are looking for people who are a bit special. But Selor [the federal government's recruitment office] says: "Oh no, you have to go through the same procedure as everyone else". But this procedure means that the people we are interested in are overlooked". Job insecurity was another exogenous condition: currently, the experts are evaluated annually, and their contracts are renewed at the same time. This uncertainty prevents the experts from planning their personal lives and causes conflict situations in the workplace: "it's also very hard psychologically, the job, because there is this evaluation period every year, to say to yourself: will I still have a job or not?".

Structural conditions – Clarity was considered important for the smooth running of the collaboration, especially in terms of tasks and planning. When civil servants did not understand the role of the expert (e.g., they may think it is extra labor), the collaboration did not go well and led to frustration. In other words, learning may happen but go wrong. For this reason, an agreement framing the collaboration and clarifying the roles of each party was always signed. A coordination team dealt specifically with the experts. This team organized working groups on a regular basis to clarify the objectives, establish contacts and organize meetings with other institutions. The participants were mostly positive about these groups: "Our task is to maintain the network of experts. It is important that they work together as much as possible. They don't see each other very much, they are seconded to the different public services. […] I think that this is what helps prevent demotivation". This was complemented by a steering committee monitoring and evaluating the project on a regular basis. The minister was represented in this group. It is this committee that carried out regular evaluations of the project.

Collective and individual conditions – The individual conditions of learning and innovation played a great role in this network because expert–official relationships were central. Some officials were more spontaneously open to the program, whereas others were more reluctant: "There is an idea, but afterward, it still has to be executed, and people must also adhere to this new practice, and this sometimes poses a problem when people have been used to work, for example, for 10 years according to the same rules, and then you come along and start something new, they are more resistant to change". Part of this reluctance was

related to the perceived workload, e.g., in terms of training, that the program involves. Finally, the personal background of the experts influenced the collaboration: "We noticed that we have a number of people who are still in poverty, which makes it very difficult to do basic things like stand up, be present, trust people. If you don't have that, it is of course very difficult to work together".

Synthesis – Experts by Experience was a collaborative network involving collaboration among people (the "experts") who had experienced poverty and public officials, supervised by a coordination team and a steering committee. This process innovation sometimes led to very concrete, product innovations in the delivery of public services. Exogenous conditions related to the culture and hierarchy of administration, as well as structural conditions resulting from the work of the coordination team, were central to facilitating relational learning among people who were not used to working together, which, in turn, allowed both the experts and the civil servants to learn more about the administrations and the public services and to adapt them.

Invasive Alien Species

In 2014, an *ad hoc* working group was launched by a representative of the Federal Public Service (or Ministry) of Health, Food Chain Safety and Environment to implement the European Directive on the prevention and control of invasive alien species (IAS). It brought together lawyers, scientists, citizen associations and civil servants from the three regional governments (Brussels, Flanders and Wallonia), as well as the Federal State.

Innovation – The aims of the network were to generate a cooperation agreement between the federal and regional governments for the implementation of the directive – an EU requirement, since the competences related to sustainable development are shared among those entities in Belgium – and to create a new institutional arrangement at the federal level that organizes information circulation among the administrations dealing with IAS policies (*governance innovation*). At the time of the interviews, after three years of consultation, the institutional arrangement had been implemented, but the cooperation agreement had not yet been published.

Learning – Relational learning was important in the IAS network. On the one hand, the network involved a diversity of governmental levels: "we had to take into account the others. We had to take into account the federal level, we had to take into account the regions, and you also have to exchange a lot of information, even if for a big part there are obviously things you can do without communicating with the others". On the other hand, the network was composed of a diversity of professional profiles: "they [the lawyers] take more time to make sure that the legal basis is correct so they can start working from there. And this is a step that is often completely forgotten by the scientists"; "it was very formative because I had never really interacted with the lawyers". The meetings were a source of *political learning*, particularly with regard to understanding the Belgian institutional landscape: "I also understood better what the needs of the regions were because we do not do the same work at all. We do border control and they do all the work, especially on the ground, which is not done here at the federal level"; "I learned a lot. How the administration works in Wallonia, for example [...], it is completely different in terms of organizing one's work, in terms of flexibility, how to work [...]". *Policy learning* was administrative and policy-related, including at the European level: "we were not at all aware of the way in which it has to be ratified, it is particularly cumbersome, the signature by all the ministers, by the parliaments... It was the first time that I had come into contact with this kind of thing"; "It was during the

drafting of the agreement that I really got to grips with European regulation". Overall, 9 (82%) of 11 interviewees reported *relational learning* and *political learning,* while 8 (73%) reported *policy learning*.

Exogenous conditions – Political will was strong in the IAS network, which ensured strong support and substantial subsidies. The stakes were low for the politicians, while the network was seen as a tool by the researchers. However, it was sometimes slowed down due to management and cumbersome internal procedures in some administrations.

Structural conditions – The objectives of the network were quite clear for most participants, and the process was always centered on discussion. For example, no formal rules were established to regulate the discussion, but one person acted as a facilitator: "there were no *a priori* rules that were put in place". The meetings were held in subgroups (scientific and legislative) that facilitated discussion but could sometimes complicate collaboration when pooling them: "In part, yes, because it was effective in putting things on paper in my opinion. And partly not, because sometimes we didn't understand each other very well and afterward we had to discuss things that were very clear to one or the other and when we put them together we didn't understand where they came from or we had the impression that we had already discussed them".

Individual and collective conditions – At the collective level, in addition to a friendly atmosphere, the participants reported that a common solution was always sought rather than sticking to "who is right". In other words, differences in profiles and skills were not too much of an obstacle to collaboration, learning, and innovation. Although the individual conditions were not much discussed in the interviews, the participants explained that basic training could have influenced collaboration and thus contributed to learning being transformed into innovation.

Synthesis – IAS led to governance innovation involving mechanisms for exchanging information about invasive alien species between the different entities of the Belgian federation. This required learning about the Belgian institutional "mille-feuille" (*political learning*), as well as a better understanding between lawyers and biologists (*relational learning*). The collaborative process was politically driven and benefited from a cooperative atmosphere among members with a sufficient level and a right mix of initial expertise. Combining subgroups of scientists and lawyers with plenary sessions sometimes fostered learning and sometimes did not.

Federal Sustainable Development Plan

Over a period of three years, officials from different federal administrations developed the Federal Sustainable Development Plan (FSDP), which was then adopted by the Interdepartmental Commission for Sustainable Development in 2015.

Innovation – The network participants had a positive feeling about the plan resulting from consultations and considered it an innovative public policy. The FSDP is a set of measures that could have been taken to achieve objectives in terms of sustainable development (*product innovation*). However, it was not adopted by the government and therefore never implemented.

Learning – Some of the interviewees reported that they were "among friends", while others did not know anyone beforehand and reported that they made new contacts. Joint and

subgroup meetings were held regularly to exchange views: "the meetings were sometimes long and people left after them. Afterward, when there were plenary sessions, it was more complicated, but there also were smaller groups to discuss in greater depth, and yes, there were exchanges that took place". *Relational learning* therefore developed relatively more within these subgroups. The mix of different administrations was above all a source of *policy learning* and *political learning*: "everyone was encouraged to speak on the other's theme. The debates were an intellectual enrichment for everyone"; "it doesn't mean that we are experts in the other's subject, but in any case we have a more in-depth vision than at the beginning". This also allowed the participants to understand better the role of other administrations: "I also learned, not necessarily about their priorities, but also about what they could do, because sometimes it is not very clear"; "in terms of competence, it is especially about saying who is competent for what and saying: "can I hang biodiversity in this framework or not?" This was an interesting point in the discussions". Overall, *relational learning* was particularly strong in the FSDP network, as all interviewees reported having learned about each other. *Political learning* also was very strongly mentioned (14 or 80% of 17 interviewees), whereas *policy learning* was much less so (5 or 29% of 17 interviewees).

Exogenous conditions – Politics did not provide incentives for learning and innovation. Generally, the network members felt that the political representatives – of a government composed of parties from the center and the right wing – did not care about the process. The collaborative network suffered from both a lack of financial resources and a lack of political involvement. This weakened participants' involvement and motivation. More specifically, the lack of political support was a brake on collaboration and on the process itself: "to me we had a plan with quite pragmatic and reasonable ambitions, and so I am even more surprised that it was blocked politically when to me there is very little that is problematic". Finally, while the network was working in accordance with the legislation in force at the time of its start, legislative changes disrupted this collaborative work.

Structural conditions – The initial objective of the collaborative process was clear. Cross-cutting roundtables were organized, and clear procedures guided the collaboration, without any overly formal rules: "there was a document that set out the different stages, the way of working, and that was endorsed by everyone". Furthermore, the project was organized around thematic sheets, which was appreciated by the participants: "the principle of the sheets as such is not bad, so yes, it obviously forced us to work with the other people who were working in these areas as well, so in our case, it was easy". In other words, learning was facilitated by the structural conditions of the collaborative process. However, the rigidity of certain participating administrations had a negative influence on innovation: "in administrations, there is already self-censorship which we find difficult to understand. [...] I think that the structure and culture of the organization do a lot […]. In the Ministry of Social Security, the president controls everything. Here, I am very free. I can come with a draft that has already been discussed and validated without having to have everything validated".

Collective and individual conditions – A good understanding among the participants, regular exchanges, and consensus-based decision-making undoubtedly contributed to facilitating learning: "everyone comes with their ideas, we discuss them, we share them, we debate them, we criticize them openly without taboos, without animosity, in a spirit of camaraderie and good understanding". The role of participants' expertise was important. Where expertise was present, it was reported to support the collaboration and contribute to innovation. When it was lacking, collaboration stopped: "there are themes that had been tackled via the thematic workshops at the very beginning and that we had to put aside

because we did not have the knowledge and we had not found the experts to develop specific actions on this". Finally, self-censorship regarding suggestions perceived as innovative also was pinpointed by some interviewees: "I think that the people around the table censored themselves a little and therefore stayed with things that they considered acceptable, and so we stayed with themes that we know".

Synthesis – In the FSDP network, strong relational learning, political learning and, to a lesser extent, some policy learning contributed to product innovation (the FSDP draft). The structural and collective conditions of the collaborative process strongly facilitated learning. The role of individual conditions (personal expertise) in the learning–innovation relation was more equivocal, and the exogenous conditions (in particular, political ones) were a strong obstacle to both learning and innovation.

Discussion

We follow two steps to discuss the results of the research. First, we look at learning as well as at learning-innovation relationships in the four collaborative networks. Second, we discuss the conditions mediating these relationships.

Learning and Learning-Innovation relationships

According to the number (and proportion) of interviewees reporting on learning and public innovation in each network (Table 2), learning occurred more often than innovation. A horizontal comparison of the networks confirms that there was more learning in some (e.g., IAS and FSDP) than in others (e.g., Durflab). A vertical comparison of the types of learning reveals that the proportion of interviewees reporting on relational learning is roughly equal to or higher than those of the other types of learning, whereas the proportion reporting policy learning is equal to or lower than both relational and political learning (with one exception, Experts by Experience).

Table 2: Number of Interviewees Reporting Learning and Innovation in Each Network

	Durflab (16 interviews)	**Experts by Experience (7 interviews)**	**IAS (11 interviews)**	**FSDP (17 interviews)**	**TOTAL (51 interviews)**
Innovation					
Conceptual innovation	2 (12%)	0 (0%)	0 (0%)	1 (6%)	3 (6%)
Governance innovation	1 (6%)	0 (0%)	1 (9%)	1 (6%)	3 (6%)
Process innovation	0 (0%)	4 (57%)	1 (9%)	1 (6%)	6 (12%)
Product innovation	5 (31%)	4 (57%)	2 (13%)	0 (0%)	11 (22%)
Learning					
Policy learning	2 (12%)	4 (57%)	8 (73%)	5 (29%)	19 (37%)
Political learning	3 (19%)	3 (43%)	9 (82%)	14 (82%)	29 (57%)
Relational learning	5 (31%)	3 (43%)	9 (82%)	17 (100%)	34 (67%)

Learning was always present, but its intensity varied depending on the backgrounds of the participants. As far as relational learning is concerned, some participants were already related to each other, but sometimes these relations were strengthened, and new acquaintanceships were made during the collaborative process. Political learning and policy learning were linked to the members' basic expertise: the more a participant knew about the issue when he or she joined the network, the less learning took place. Again, this does not mean that no learning occurred. The participants did not necessarily discover the topic, but

they refined their knowledge: they gained a better understanding of the institutional context, the internal routines of other organizations, or the legal settings, for example. None of the networks showed an absence of learning.

Relational learning served as a basis for the other forms of learning. The different networks showed that participants entered networks with their own expertise (acquired through experience or skills). To innovate, however, they needed to get to know each other (relational learning). By creating links, participants gradually understood who is who, who does what and what is possible (depending on legislation, levels of power, etc.) (political learning and policy learning).

Far from being a hindrance, diversity was an asset for learning. Both in Experts by Experience, through civil servant–expert duos, and in IAS, through the mix of lawyers and scientists, learning occurred among participants with different backgrounds. While relational learning was important in these networks because the participants had to get to know each other, policy learning and political learning also were rich. In fact, in Durflab and FSDP, where participants' backgrounds were more similar, the themes were dealt with more on the surface and some self-censorship occurred, according to the interviewees. Meeting a new person with a different background meant adapting to them, which allowed the participants to get to know each other better—their experience, their job, their workplace, their constraints, etc.

To enable exchanges among participants, it was important to facilitate meetings and contacts not only between different people but also between departments and organizations. Transversality[3] was regularly mentioned in the interviews as an important driver of innovation, but it also was important for learning. For example, the participants in Experts by Experience favoured situations where they met someone from another department who could answer their questions without having to go through too many line managers (political learning and policy learning). Relational learning laid a foundation for both policy and political learning to take place and continues to develop through interactions among network members.

Learning can cautiously be considered a necessary condition of innovation in collaborative networks, based on the small-n study presented in this article. Indeed, only collaborative networks which actually led to some sort of public-sector innovation have been selected in this study. The interviews confirm that at least several participants in each collaborative network considered at least some sort of public-sector innovation was generated (Table 2). Similarly, learning was always present, which suggests that it is necessary for innovation to occur.

Another lesson of the results is that no learning type seemed more particularly related to some types of innovation than the other types. While the members of the Durflab and Experts by Experience networks concur that they generated product innovation more than in the other networks, in contrast, no learning type was more particularly reported in these networks. Similarly, the characterization of innovation as conceptual, in the Durflab and FSDP networks, did not seem related to specific learning dynamics. Other comparable examples could be provided. Another way of making this point is to say that all learning

[3] In mathematics, transversality is **a notion that describes how spaces can intersect**; transversality can be seen as the "opposite" of tangency, and plays a role in general position. It formalizes the idea of a generic intersection in differential topology. https://en.wikipedia.org/wiki/Transversality_(mathematics)

types are necessary for innovation of any type to be generated – which makes sense as far as learning types are related to each other.

Beyond learning types, in general, the numbers presented in Table 2 do not suggest any relationship between the amount of learning and the extent of innovation in a given network. Only 12% (43%) to 31% (57%) of the respondents reported learning whereas up to 31% (57%) of them reporting some type of innovation in the Durflab (Experts by Experience) network. In contrast, up to 82% (100%) of them reported learning whereas only 0% (0%) to 13% (6%) of them reported some type of innovation in the IAS (FSDP) network. In other words, more or less learning does not lead to more or less innovation, suggesting that learning-innovation relationships depend less on the type and amount of learning than on conditions that mediate these relationships.

Conditions Mediating the Learning-Innovation Relationships

In line with our initial intuition, the relationship between learning and innovation was indirect and mediated by a series of conditions that we had grouped into four categories: exogenous, structural, collective, and individual. Table 3 reports the number of interview extracts referring to each category of conditions in each network.

Table 3: Conditions of learning and innovation: number of extracts in each network

	Durflab (16 interviews)	**Experts by Experience (7 interviews)**	**IAS (11 interviews)**	**FSDP (17 interviews)**	**TOTAL (51 interviews)**
Exogenous conditions	14	5	7	15	41
Structural conditions	16	7	8	13	44
Collective conditions	18	6	10	16	50
Individual conditions	12	5	3	4	24

Learning and innovation were influenced by each category of conditions in a differentiated way. The roles of the individual conditions are equivocal. Appropriate initial expertise and training facilitated information exchange among participants. At the same time, too much initial knowledge limited the learning potential.

Collective and structural conditions facilitated relational learning that occurred in the four collaborative networks of this study. Respectful listening, friendly dialogue and an atmosphere of trust were factors that facilitated learning. Similarly, the presence of a secretariat or coordination team facilitated collaboration and information exchange, leading to innovation. They were, therefore, conditions for both learning and innovation.

Most exogenous conditions can be interpreted as intermediate variables between learning and innovation. Political will and support, such as the interest and participation of political actors in the project or the allocation of human and financial resources, and administrative support by the hierarchy to the participating officials or the flexibility of procedures within public organizations or the legislation in force constitute the "background" of the network that facilitated the transformation of learning dynamics into innovation dynamics when they were present (or, conversely, complicated it when they were absent). Broadly speaking, they did – e.g., Experts by Experience and Invasive Alien Species – or did not – e.g., Durflab and FSDP – offer a concrete perspective of implications, which accounts for participants' motivation to collaborate and learn effectively and even more for their willingness and ability to transform new knowledge into new policy preferences, options, and

solutions. Of course, the dynamics of learning and innovation in collaborative networks and prospects for implementation are similar to the chicken and the egg: the dynamics are negatively affected by the absence of a prospect, but the absence of dynamics is unlikely to lead to the implementation of anything. Both are needed.

The categories of conditions also interact with each other. For example, administration support and financial resources (exogenous conditions) allowed the organization of coordination teams and processes (structural conditions) that facilitated, in turn, learning and innovation. Similarly, political will and support (exogenous conditions) influenced participants' perceptions about the collaborative network and process (individual conditions). For example, in Experts by Experience, the hierarchy and culture of the administrations (exogenous conditions) played a central role in accommodating the work of civil servants and, in turn, their perceptions of the program (individual conditions) and their willingness to exchange with experts (learning) and implement their suggestions (product innovation).

Finally, neither innovation nor implementation is an end in itself. When implemented, innovation leads to new learning and innovation. For example, within Experts by Experience, developing the recruitment and integration processes for new profiles of experts (process innovation) required learning. This innovation, in turn, involved learning between experts and public officials, which led to adaptations in the delivery of public services (product innovation).

Conclusion

Over the past thirty years, governments have been faced with complex public problems (or wicked problems) that cannot be managed by a single organization. To respond to these problems, the traditional hierarchy has sometimes given way to arrangements among multiple public and private actors, called collaborative networks, in which interactions between network members are central to providing innovative responses to these problems. In this article, learning, understood as changes in the opinions, beliefs and knowledge of network members, has been approached as a driver of public innovation. Based on the qualitative analysis of 51 semidirected interviews with members of four Belgian governance networks involved in public innovation, learning–innovation relationships have been examined.

We found, first, that learning occurred in each network. *Relational learning* seemed to be the first to develop, through the interactions that took place within the network. By getting to know each other, the participants learned about each other and from each other. In turn, in many cases, *political learning* and *policy learning* occurred. The extent of learning within the network resulted from a right mix of different expertise among network members and depended on the degree of prior knowledge of the participants – little or too much prevented learning from happening. Second, collective and structural conditions, such as respectful listening, friendly dialogue and an atmosphere of trust, and coordination efforts and care about interactions among network members, accounted for both learning and innovation. Third, the effects of learning, as such, seemed undefined: the amount and types of innovation could not be related to the types or amounts of learning in collaborative networks. Instead, exogenous factors beyond participants' control conditioned the dynamic process linking learning to innovation. These conditions included the provision of human and financial

resources, political support, and the presence or involvement of key players in the hierarchy of political cabinets or public administrations. Fourth, the lack of implementation prospects led to loss of interest, demotivation and even self-censorship of participants toward the network. Furthermore, implementation involved feedback loops: when implemented, innovations involved new issues that generated new dynamics of learning and innovation.

Theoretically speaking, these results confirm that learning is a necessary condition of public innovation in collaborative networks (Koebele, 2019; Sørensen and Torfing, 2012). At the same time, learning–innovation relations are nonlinear and depend on a set of multilevel conditions. In other words, learning is not a sufficient condition for public innovation. To clarify these relations, first, relations among types of learning should be examined more thoroughly. Of course, this study is not the first to distinguish learning types (e.g., May, 1992) or demonstrate that they are conditioned by specific triggers (e.g., Dunlop and Radaelli, 2018), especially in terms of (policy) innovations (e.g., Koebele, 2019). The results, however, suggest that the links *among* learning types should be examined more thoroughly because these links account for relations between learning triggers and learning outputs. In addition to further qualitative inquiries, structural equation modeling (Thakkar, 2021) of quantitative data could support this prospect.

Second, the diversity of innovation types (conceptual, governance, process, and product innovation (Pupion, 2018) produced by the collaborative networks examined in this research increases the generalizability of its results. This diversity is, among other things, a result of a case selection oriented toward positive instances of collaborative innovation (which were confirmed by the interviews). Whether or not learning leads to innovation could be demonstrated more strongly with a study including collaborative networks intending to innovate but failing to do so – with the hypothesis that the absence of learning would lead to this failure.

Other comparisons could be considered. On the one hand, cases of product innovation and cases of process innovation should be contrasted. Specific lessons about triggers of learning and innovation have been drawn from the analysis of the only case of process innovation examined in this study, which suggests that this kind of case deserves more attention. In particular, in line with the idea of policy feedback (e.g., Béland and Schlater, 2018), the analysis suggested that process innovation creates new conditions for learning and innovation as a final product. On the other hand, the research focused on collaborative networks that all led to innovations perceived, at least partially, as successes according to the participants, whereas learning may lead to "failures" (Dunlop, 2017). Overall, future research should look at more collaborative networks involving successes and failures of various types of collaboration and innovation.

Methodologically speaking, while the respective roles of individual learning and collective learning have been theorized conceptually according to the current state of the literature (Gerlak and Heikkila, 2018), they have been analyzed together empirically. Future research could well be advised not only to build on the classical strengths and weaknesses of qualitative studies based on semidirected interviews (Paillé and Mucchielli, 2021) but also to examine learning–innovation relationships with a better differentiation between individual and collective dynamics. Another limitation of this research is that both learning and innovation were measured on the basis of participants' perceptions, which could be addressed using other methods in future studies (for suggestions, see Squevin, Aubin and Moyson, 2021).

Practically speaking, first, the composition of collaborative networks involving balanced and diverse initial expertise and combined subgroup sessions – to get to know each other – with plenary sessions – to blend expertise – should foster political learning and policy learning. Second, network managers should pay attention to the conditions of relational learning, as it serves as a basis for political learning, policy learning, and innovation. Clear objectives, roles, and information about the progress of the process, and a right mix of formal rules and informal norms to ensure a cordial atmosphere and effective collaboration, are promising measures. Third, political and administrative support that prevents self-censorship during the collaborative process and provides prospects for implementation, and financial resources devoted to coordination efforts within the network, seem important conditions for learning to occur and transform into public innovation.

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Funding:

This work was supported by the Belgian Research Action through Interdisciplinary Networks (BRAIN-be) of the Belgium Federal Science Policy under grant number BR/154/A4/PSI-CO.

Acknowledgments:

The analysis of the relations between learning and innovation presented in this paper is an extension of the PhD research about learning in collaborative networks conducted by Dr. Cécile Riche. The authors would like to thank all partners of the PSI-CO project from UAntwerp, KULeuven and ULiège in Belgium.

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Appendix A – Extracts from the interviews

Network	Type of innovation			
	Conceptual innovation	***Governance innovation***	***Process innovation***	***Product innovation***
Durflab	Looking beyond institutions and taking a holistic approach to public action	Laboratory to bring different 'parties' to test new methods		Willingness to set up an intersectoral one-stop shop with a free phone number for citizens Four theoretical scenarios imagined for the implementation of innovations Events for beneficiaries Existing community work enriched
Experts by Experience			Rethinking the hierarchy within administrations Psychological support for experts seen as innovative on IT modernization	Little product innovation Provision of a room where users can meet the SA in complete confidentiality Installation of a water fountain in the waiting room
IAS		The cooperation agreement allowed for an exchange of expertise The cooperation agreement is not sector-specific	Interest in legal/scientific collaboration, working together and separately	The agreement led to concrete provisions
FSDP	Central group system that enables innovation	The draft Federal Sustainable Development Plan 2015-2020 Interdepartmental cooperation sends a positive signal	Interest in the method used	

Network	**Type of learning**		
	Policy learning	***Political learning***	***Relational learning***
Durflab	Increased understanding of disability issues	Better understanding of the functioning of schools and institutions Better overall understanding of disability-related issues	Most of the participants knew each other before the network was established Mutual acquaintances increased Collaboration was strengthened among the participants Listening to and confronting other visions of the theme
Experts by Experience	*For experts:* Learning that understanding the laws allows for a better understanding of the structure and better help for the beneficiary; learning about the legislation that frames the work of the administration *For civil servants:* Better knowledge of the difficulties encountered by beneficiaries	Learning how the Belgian institutional landscape works Better understanding of the issues facing the administration Better understanding of the procedure toward the beneficiary, of 'who does what' Better understanding of how administrations work in general	Learning to work together Colearning and coconstruction learning
IAS	Learning about the Walloon and federal legislation in force Learning the European procedures related to a cooperation agreement Improving knowledge of European legislation Learning about invasive species	Learning about how other organizations work Learning to represent the interests of the different organizations and individuals involved in the cooperation agreement Sharing of scientific information related to the theme Better knowledge of the work of other administrations Learning or improving knowledge about the workings of the Belgian institutional landscape	The network members already knew each other before the project However, the mix of lawyers and scientists allowed new encounters, an exchange of knowledge and a good complementarity Establishment of contacts among federated entities Better understanding of each other's needs, interests and constraints Better knowledge of each other's way of working, better dialogue
FSDP	Better knowledge of the subject matter (however, some participants felt the debate remained too superficial) Learning about potential innovative solutions	Discovery of the inadequacy of certain public policies related to the theme Better knowledge of the Belgian institutional landscape Raising awareness of sustainable development Some stayed within their area of expertise and therefore did not learn much Better knowledge of other organizations involved in the topic and who is competent for what Better knowledge of how these other organizations operate	Variable learning by participants Occasional invitations to external experts allowed for new meetings

Network	**Conditions of learning–innovation dynamics**			
	Collective conditions	***Exogenous conditions***	***Individual conditions***	***Structural conditions***
Durflab	Diversity of partners Network initiators seek a cross-sectoral/inclusive/holistic vision Speech facilitated by a pleasant atmosphere Respectful exchanges between participants Avoidance of focus on 'who is right' to develop a common vision Participants' desire to move forward together Sustainable contacts between partners Changes in participants during the course of the project Frustration at not seeing anything concrete Difficulty in trusting partners from another organization Granting legitimacy to each partner facilitates collaboration	Belgium's institutional complexity Legislation that hinders transversality Need for political support around the theme Need to have this support at different levels of power Need for hierarchical support within the administration In the case of this network, there also was a difficulty in finding contacts within the administrations	Availability of participants to participate in the project Willingness of participants to step outside their knowledge and way of working	Presence of a coordinator who provides a framework, vision, follow-up and collaboration Use of the 'U Theory' Brainstorming sessions in mixed subgroups Participants' interest in facilitation activities with concrete materials that are used to bring out ideas Sense of moving toward something concrete Long meetings Leave room for experimentation
Experts by Experience		Influence of annual contract renewal Possibility of using European funding Government culture can influence innovation	Personal interest in the topic Willingness to innovate, willingness to work differently Constraint of innovation on the individual Language barrier Personal situation of the experience experts	Collaboration under an agreement Clarity or otherwise of the role of the experience expert within the service Planning of working groups Regular evaluations Support and monitoring of the hierarchy Fewer barriers between services Rigidity of the administration's structure hinders the implementation of innovation Rigidity of procedures limits the implementation of innovation and is passed on to the user Presence of a person/team to coordinate and structure the network Size of the organization Convincing others of the value of innovation is a matter of 'it works'

IAS	Avoidance of focus on 'who is right' to find a common solution	Funding for the coordination of activities Internal management barriers in some organizations Cumbersome internal procedures within administrations are demotivating and can inhibit collaboration Perception of the network's output as a tool for researchers but not a tool for policy-makers Platform depends on political will Uncertainty about contracts	Basic training	Processes where discussion is central No formal rules to regulate the discussion but one person plays a facilitating role Meetings in subgroups (scientific and legislative) Long meetings Spacing of meetings slows down the process Clear objective of the network Network initiative and collaborative process supported by a procedure applicable to all such cases Consensus method Information flow system
FSDP	Good understanding among participants, exchanges via discussion	No political incentives for innovation or lack of political support, which becomes a brake on innovation Change of legislation in the process Demand for a clear political mandate Friction between government and administrations? Need to have a partner with influence among decision-makers	Influence of personal expertise Constraint of innovation on the individual Willingness to implement innovation	Clarity of purpose Cross-cutting roundtables to establish the network Procedure that guides the collaboration but not too formal rules Discussions at the heart of the process Thematic card system appreciated by the participants Subworking groups Presence of a secretariat and a team that collects data and coordinates the network Transversality of administrations Support or not from the hierarchy Rigidity of the administration's structure No grip on implementation