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Policy learning type shifts during creeping crises: A storyboard of COVID-19 driven learning in Belgium

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Abstract

Understandings of different policy learning types have matured over recent decades. However, relatively little is known about their nonlinear and interactive nature, particularly within crisis contexts. In this article, we explore how two of the most prominent learning types (instrumental and social) shifted and interacted during the COVID-19 crisis. To do so, we created a policy learning storyboard of the Belgian COVID-19 policy response over 2 years (from early 2020 to late 2021). Our analysis highlights the relationships between different epochs of instrumental and social learning throughout the crisis and their implications for policy change. Furthermore, while extant policy learning literature often posits that social learning unfolds over relatively long periods (spanning a decade or more), our empirical account shows that within certain conditions, creeping crises can lead to the creation of long-term crisis policy-making paradigms and goals. At this level, accelerated social learning can take place and lead to paradigmatic shifts within relatively shorter periods than in noncrisis conditions. Theoretically, our findings enhance our understanding of policy learning

types and their relationships with policy change, particularly within crisis contexts.

KEYWORDS
COVID-19, crisis learning, Belgium, instrumental learning, policy change, policy learning, social learning

1 | INTRODUCTION

Policy learning is recognized by research and practice as a key mechanism for responding to complex policy issues (e.g., Baekkeskov, 2016; Dunlop, 2017; Haas, 1992; Nilsson, 2006). Policy learning processes generate lessons from past and ongoing experiences (e.g., Lee et al., 2020; Raudla et al., 2018), as well as help, decipher the logic of policy change (e.g., Bennett & Howlett, 1992; Dunlop & Radaelli, 2017). Accordingly, policy learning scholarship has burgeoned over recent decades, revealing a plethora of learning types. This includes, for example, organizational learning (e.g., Zito & Schout, 2009), political learning (e.g., Heclo, 1974), epistemic learning (e.g., Haas, 1992) among several others (for an account of different learning types, see Zaki et al., 2022). Throughout the long-standing policy learning literature, two main learning types were most frequently studied and played central roles in explaining the relationship between policy learning and policy change: *instrumental* and *social learning* (see Bennett & Howlett, 1992; Biegelbauer, 2016; Zaki et al., 2022).

Instrumental learning is primarily concerned with finetuning designs of policy instruments, their specific settings, and implementation techniques; thus, potentially resulting in "first order" policy change (e.g., Bennett & Howlett, 1992; Gerber, 2007; Pemberton, 2002). When effectively undertaken, this can enhance the understanding of conditions under-which policy instruments achieve their objectives, and improve their viability (see Bomberg, 2007; May, 1992). Social learning, on the other hand, is primarily concerned with policymakers' updating understandings of the social construction of policy issues, interests involved, and underlying dynamics (Bennett & Howlett, 1992). Here, and within the purview of our analysis, policymakers are considered to be the primary learners. This can result in "second order" policy change where new policy instruments are conceived, or third-order changes where policy paradigms and goals are adjusted (e.g., Farrell, 2009; Pemberton, 2002).[1]

While being two distinct learning types, instrumental and social learning are closely entwined. Choices of instrument settings, mechanisms, and calibrations on one hand, and prevalent social construction of policy issues (thus, goals) on the other can be often dualized. This is given their mutual relationship with political goals and policy objectives (see Biegelbauer, 2016; Howlett & Cashore, 2009). However, notwithstanding their theoretical and practical kinship, relatively little is known about the nonlinear and interactive nature of these learning types with one another (see Biegelbauer, 2016; Hudson & Kim, 2014), even less is known within crisis contexts where policy learning processes play a central role in informing policymaking (Dunlop et al., 2020; Zaki & Wayenberg, 2021).

Accordingly, in this article, we address this hitherto under-researched phenomenon by exploring *how and why did policy learning types shift and interact within the COVID-19 crisis*

context? To do so, we leverage the case of the Belgian COVID-19 policy response and create a policy learning "storyboard." This storyboard empirically traces variations and transitions between instrumental and social learning over a 2-year period from early 2020 until late 2021. The contribution of this article is twofold. *Theoretically*, we extend the leverage of policy learning theory by providing explanatory parameters for shifts in learning types and their implications for policy change, particularly within creeping crisis contexts. In doing so, we contribute to a better understanding of the often analytically "blurred" policy learning–policy change relationship (Borrás, 2011). *Empirically*, we create a novel account of policy learning-type behaviors during creeping crises such as COVID-19. While extant policy learning literature often posits that social learning unfolds over relatively long periods (spanning a decade or more), our empirical account shows that certain crisis conditions lead to the creation of long-term crisis policy-making paradigms and goals. At this level, accelerated social learning can take place within relatively shorter periods than in noncrisis conditions, and lead to paradigmatic shifts. Our findings also highlight how instrumental learning can be employed varyingly throughout the crisis leading to different levels of policy instrument change. These findings heed the call for empirical explanations that account for the nonlinearity and dynamism of policy learning processes, particularly during crises (e.g., Dunlop et al., 2020; Nilsson, 2006).

This article proceeds as follows: In Section 2, we theoretically situate our case within crisis learning. In Section 3, we construct our methodological and analytical frameworks. In Section 4, we present our case analysis. We offer an explanatory account of learning-type transitions in Section 5, followed by discussions and conclusions in Section 6.

2 | POLICY LEARNING AND CRISES: A CASE OF THE COVID-19 PANDEMIC

2.1 | The COVID-19 crisis as a policy learning context

The context where policy learning occurs shapes the learning process, the functioning of learning types, their trajectories, and outcomes (Zaki et al., 2022). As such, a clear account of the COVID-19 crisis as the policy learning context is a necessary precursor of our empirical study.

COVID-19 can be viewed as a "creeping crisis" (Boin et al., 2020). Creeping crises do not initially present themselves as full-on surprise shocks. They are *multidimensional*, that is, cut across different sectors and communities, *and can have different meanings* as they evolve, that is, for example, from initially presenting as a public health issue to a socioeconomic and political one (e.g., Zaki & George, 2021; Zaki & Wayenberg, 2021). As their meanings evolve over time, they generate varying subjective (and often divisive) threat perceptions. Unlike critical infrastructure or natural disasters (e.g., hurricanes, floods), creeping crises are not necessarily perceived at similar threat levels simultaneously by all key actors. Thus, while often requiring urgent attention, public consensus on the stringency and support of policy responses can be elusive. Moreover, these crises can have episodical recurring outbursts with varying intensity over extended periods, and they keep "simmering" (Boin et al., 2020). In Table 1, we outline key examples of how these features manifest within the COVID-19 context.

TABLE 1 COVID-19 as a creeping crisis

Feature	Examples
Multidimensionality and meaning shifts	Not an exclusively medical issue, the crisis has strong social, economic, and political implications across multiple sectors (e.g., Zaki & George, 2021). It also presents different meanings as it evolves. This ranged from being an issue of public health, state economics, and welfare infrastructure (e.g., Boin et al., 2020; Zaki & Wayenberg, 2021).
Reoccurrence and outbursts	Key determinants of crisis intensity (e.g., peaks/spikes in infection, hospitalization, and mortality rates) are cyclic and variable (i.e., come in "waves"). They are interspersed with relaxation periods where threat intensity and risk perceptions can decrease (e.g., Boin et al., 2020; DeLeo et al., 2021).
Subjective and conflicting threat perceptions	The crisis' nature creates conflicting social movements and political schisms among different groups arguing for varying approaches to tackling the pandemic from laissez-faire to highly stringent (e.g., Zaki et al., 2022a).

2.2 | Policy learning during a creeping crisis

Having established key features of the creeping crisis as the context for learning, we draw on crisis learning literature to highlight how policy learning is expected to take place therein. Policy learning and crisis governance literature frequently intersect. Crises of different types are often considered exogenous shocks, urgent threat situations, or focusing events that can—through different mechanisms—foster learning and potentially induce policy change (e.g., Birkland, 2006; Crow et al., 2018; Gerber, 2007; Kamkhaji & Radaelli, 2017). The learning-crisis nexus flows in two main streams: intercrisis and intracrisis learning (see Kamkhaji & Radaelli, 2017). The intercrisis learning stream mainly focuses on lesson types, the institutionalization of lessons, and their contribution to postcrisis policy and institutional changes (e.g., Hulme, 2012; Raudla et al., 2018). The intracrisis learning stream, on the other hand, focuses on actor interactions, learning dynamics, what lessons they produce, and how, within ongoing crises (e.g., Deverell, 2009; Kamkhaji & Radaelli, 2017; Lee et al., 2020; Zaki & Wayenberg, 2021). In this article, our case is situated in the intracrisis learning stream.

Thus, in this section, we draw on intracrisis policy learning literature to theoretically position our case. First, we elaborate on how the COVID-19 creeping crisis context creates the space for *inferential* rather than contingent learning. Then, we highlight how the inherent crisis features position *epistemic policy learning* as a highly functional and widely employed learning mode and establish how epistemic communities contribute to *instrumental* and *social learning* processes. We conclude this section by establishing how the creeping crisis context can induce *shifts* in policy learning types. This allows us to construct an analytical framework able to account for key interactions between *actors*, *knowledge* and *information*, and *advisory structures* involved in the policy learning context (Zaki et al., 2022).

2.3 | COVID-19 as a case of inferential learning

Using a case of the Euro crisis, Kamkhaji and Radaelli (2017) theorized and empirically drew distinctions between two forms of learning: *inferential* and *contingent*. To put it simply, inferential learning occurs when policymakers reflexively draw inferences based on experiences and learn using critical reflection and "resource intensive" cognitive processes (e.g., Bennett & Howlett, 1992; Hall, 1993; May, 1992). Contingent learning, on the other hand, occurs within certain crisis conditions and mainly refers to a state where surprise shocks produce behavioral or policy change via "fast-paced associative mechanisms." There, policymakers can act fast to avoid imminent harm, thus resulting in what resembles—yet is not—inferentially induced policy change. However, in contingent learning, the genuine reflexive learning process occurs later or postchange (Kamkhaji & Radaelli, 2017). Understandably, prima facie, one can expect that being an unprecedented crisis, COVID-19 would invoke contingent learning. However, in this article and given the scope of our research, we postulate that the COVID-19 crisis rather creates a context for inferential learning. The reasoning is motivated by two interlinked logics: The *scope conditions for contingent learning* and the *nature of COVID-19 as a creeping crisis*.

First, the scope conditions conducive to contingent learning were absent in our COVID-19 case. In the case of the Eurozone crisis, Kamkhaji and Radaelli (2017) point to key scope conditions that can facilitate the occurrence of contingent learning and hinder inferential learning. These include: the relative *absence of epistemic communities*, *lack of institutional entrepreneurship*, *uneven distributional effects of the crisis*, and the *crisis being outside policymakers' jurisdictions*. However, within the COVID-19 crisis, numerous highly certified epistemic communities with extended cognitive resources were at the forefront of the policy learning process, and had direct access to—and influence on—policymaking. As such, epistemic communities exercised strong sense-making roles through deliberate and critical reflection (e.g., Cairney, 2021; Zaki & Wayenberg, 2021). Institutional entrepreneurship was also salient throughout the crisis both at the national levels (e.g., through established institutional advisory bodies, and public health agencies) and at the supranational level (e.g., World Health Organization, The European Medical Agency). These institutions had relatively well-defined arenas and played influential roles in acquiring, translating, and disseminating evidence, and even making direct policy recommendations. Put together, epistemic, and institutional entrepreneurship over the extended crisis period helped deploy extensive cognitive resources and entailed systematic acquisition, accumulation, processing, and exchange of knowledge that enable inferential learning (see Kamkhaji & Radaelli, 2017). Moreover, the crisis impacts in our case were not uneven within the unit of analysis (i.e., nationwide). The crisis was within the national policy-makers jurisdictions. This substantially differs from the contingent learning setting of the Eurozone crisis, which from a European Union (EU) policymakers' standpoint occurred within a relatively fragmented scope (see Kamkhaji & Radaelli, 2017; Lefkofridi & Schmitter, 2014).

Second, the nature of COVID-19 as a creeping crisis did not strongly present a sudden shock event with a fast speed of development that facilitates contingent learning (see Kamkhaji & Radaelli, 2017; 't Hart & Boin, 2001). Rather, it had a creeping trajectory observable by expert communities and policymakers alike during the prepandemic weeks. Within the crisis, variations in infections, hospitalizations, and mortality were somewhat accurately modeled and predicted. As such, a series of sudden large-scale shocks that would create confounding stimuli, inhibit inferential learning, and invoke contingent learning, were largely absent (see Kamkhaji

& Radaelli, 2017). This was further assisted by policymakers and experts still having semblances of institutionalized lessons and preparedness plans from the past Middle East Respiratory Syndrome outbreaks (e.g., Baekkeskov, 2016), a factor that contributed to "dampening" the crisis being a shock event. Furthermore, as a creeping crisis, COVID-19 came in waves of varying intensity, thus often availed "cooling down" periods where policymakers could engage in intracrisis reflection leading to deliberate adjustments of policy learning and policy-making processes over time (i.e., adjusting advisory structures or policy stringency). As such, the extended crisis duration created space for a discursive and deliberative learning process.

This reasoning is in line with recent findings from Ladi and Tsarouhas (2020) who found that within the COVID-19 crisis at the EU level (where some policymakers displayed signs of contingent learning at the crisis onset), inferential double-loop learning involving the modification of policy norms and objectives has also taken place. However, this does not necessarily mean that no contingent learning took place during the COVID-19 crisis. Perceptions of crises are constructed (see Boin et al., 2020), as such; it is plausible that other stakeholders or actors in different contexts might have engaged in contingent learning given their particular positioning.

Operating within the realms of inferential learning, we now draw further on policy learning theory to identify the most prominent modes and types of learning within this specific context.

2.4 | The COVID-19 crisis: A case of epistemic policy learning triggering instrumental and social learning

Dunlop and Radaelli (2013) identified four main modes of policy learning: *Epistemic*, *hierarchal*, *reflexive*, and *bargaining oriented*. The suitability (and often prevalence) of these modes within a certain policy issue is determined by high-low combinations of two main scope conditions: Issue tractability (an issue of technical complexity and high uncertainty is of low tractability) and certification of actors (existence of socially certified "teachers" endorsed to sit at the policy table). COVID-19 is a novel technically complex policy issue, being a predominantly medical—later seen as also a complex socioeconomic—one (Zaki & George, 2021). As such it is of low analytical tractability. Second, highly certified actors (i.e., scientific experts) existed within this policy domain. As such, this positioned epistemic policy learning, i.e., learning from experts (epistemic communities) with authoritative claims to policy-related knowledge and access to policymakers, as a key within-crisis learning mode (Dunlop & Radaelli, 2013; Haas, 1992; Zaki & Wayenberg, 2021). Knowledge and expertise coming from these epistemic communities are infused in the policy-making process, potentially serving different functions: *Instrumental*, *legitimizing*, and/or *substantiating*[2] (Boswell, 2008). Public organizations and policymakers leverage these epistemic policy learning processes to enhance performance, meet objectives, and align priorities in response to changes in the policy-making context. This can lead to two learning types coming to the fore: *Instrumental learning* where knowledge from epistemic communities is used to adjust and finetune policy instrument settings (e.g., Goyal & Howlett, 2020; Kourtelis, 2020), or *social learning* where expert communities are leveraged to enhance sensemaking and facilitate deeper understandings of policy issues leading to adjustments or transformations of policy goals (e.g., Haas, 2000; Stone, 2002). With our COVID-19 case positioned within the broader policy learning literature, in the next section, we establish why shifts in policy learning types can be expected to occur.

2.5 | Policy learning type shifts during the crisis

Policy learning is a nonlinear, context and time-sensitive process (see Ingold & Monaghan, 2016; Nilsson, 2006; Zaki et al., 2022). Accordingly, literature and practice tell us that learning types are neither constant nor mutually exclusive. Policy learning types can shift within one policy issue, influence and lock in one another, particularly with shifts in issue construction or perturbations in the policy-making context (e.g., Dunlop et al., 2019; Dunlop & Radaelli, 2016; Kamkhaji & Radaelli, 2017). The creeping nature of the COVID-19 crisis exacerbates the likelihood of these shifts, particularly as the crisis presents itself with different meanings, varying intensity, and scale over time. Furthermore, due to the divisive risk perceptions this crisis creates, there is more room for politicization and contestation, particularly during interspersing periods of calmness and uneven threat perceptions (see Boin et al., 2020). This creates perturbations in the policy-making context, often necessitating different approaches to engaging with knowledge and expertise (e.g., Boswell, 2008; Trein & Vagionaki, 2022), and changes in policy issue construction necessitating different types of learning (e.g., Dunlop & Radaelli, 2013). These conditions make it likely that settings and calibrations of existing policy instruments require frequent finetuning to match the evolving crisis nature (e.g., May, 1992), or that understandings of policy issue construction are adjusted to align with its evolving meanings. The latter would also entail adjustments to policy instruments (see, Bennett & Howlett, 1992; Capano & Howlett, 2020; Hall, 1993; Howlett & Cashore, 2009).

However, before concluding our theoretical arguments, another theoretical nuance is warranted vis-à-vis why are we tracking or expecting social learning to take place within a relatively short period of 2 years? Policy learning literature studies social learning over relatively long periods, often a decade or more. Social learning involves society-wide learning moments (i.e., large-scale collective puzzlement), critical interrogation of priorities, paradigms, and general policy orientations (e.g., Bennett & Howlett, 1992; Hall, 1993). In this process, policymakers exert deliberate efforts to understand why some policies fail or succeed. This often takes place with looming policy failures threatening a near fragmentation or weakening of authority (i.e., loss of control), often accompanied by—or accelerated by—the emergence of external threatening/pressuring forces (e.g., Feindt, 2010). The key constitutive elements of this process involve *intensive communication and argumentation between multiple actors* (e.g., media, societal and political actors, etc.), at a *society-wide level* (e.g., Fiorino, 2001; May, 1992; Van Gossum et al., 2010). It also involves *deliberative and critical reflection on experiences*, where *intensive cognitive resources* are deployed (e.g., Hall, 1993). The fruition of this learning process (regardless of the quality of its outcomes) is policymakers operating within *updated "normative cognitive scripts"* indicative of new *paradigms* (Alcantara, 2009). However, are these long periods a necessary precondition for social learning to occur? Here, we postulate that they are not. If so, then why is social learning often studied over such long periods? Drawing on policy literature shows that this is mostly a matter of policy learning's context embeddedness (see Zaki et al., 2022). Under "normal" or stable conditions, the sequence of mechanisms underlying social learning (i.e., depreciation of policy instruments effectiveness, threats to consolidated formal authority, collective puzzlement, society-wide dialogues, intense communication between various stakeholders, to the intensive and collective deployment of cognitive resources, leading to paradigm shifts) does indeed take a long time to unfold.

However, our analytical context here is relatively unique. COVID-19 as a creeping crisis creates an accelerating context for social learning to occur and for its aforementioned

constitutive elements to manifest. First, the crisis involved an intensive deployment of collective cognitive resources (e.g., institutional, epistemic, and public). The societal debate was substantive in depth, that is, it involved reflection on principle societal values. This included debates around personal freedoms and rights (e.g., Cassani, 2021; Louwerse et al., 2021), societal inequalities, rights, and access to healthcare (e.g., Bibler et al., 2021; Zaki et al., 2022b), constitutional and legislative values (e.g., Parrado & Galli, 2021; Popelier, 2020), among others. It was also substantive in breadth (i.e., in terms of stakeholder groups and arenas). This was a society-wide process that included parliamentary discussions, constitutional, and state council arbitrations (e.g., De Ridder, 2021; Popelier, 2020), media, and televised debates (e.g., Galindo, 2020b). This is in addition to continuous large-scale public discursive movements whether through litigation or mass protests (e.g., Heinze & Weisskircher, 2022) and large-scale society-wide indications on attitudes, opinions, and preferences regarding government policies (Google Mobility Report, 2021; Six et al., 2021). The policy-making context also featured significant pressures from the opposition, and threats to government authority (e.g., Meijen, 2021). In response, the government leveraged institutional and epistemic structures to support learning, make sense of evidence and engage in dialogues with policymakers and the public (e.g., Zaki & Wayenberg, 2021).

Put together, the creeping crisis context availed space for the constitutive elements of social learning to occur over relatively shorter periods. However, nuances are warranted in terms of the "level" at which this social learning process takes place. The crisis' long period nudges policymakers out of the conventional relatively temporary crisis management structures. Unfolding for over 2 years, this creeping crisis had a form of permanence and required sustained attention (see Boin et al., 2020). Accordingly, policymakers did not continuously operate under short-term crisis response modes (e.g., as opposed to in cases of natural disasters). Rather, they established longer term crisis policy-making paradigms and goals, that is, ways of understanding the world that continuously shapes policymaking throughout a set of conditions that requires intervention (see Daigneault, 2013). As such, the process of social learning we trace in this article is at this particular level. Hence, years after the crisis, other social learning processes are likely to instill longer term and higher level paradigm shifts regarding investments in healthcare systems, social welfare, or even definitions of what constitutes personal freedoms (i.e., built into law or constitutional frameworks for example).

3 | METHODOLOGICAL FRAMEWORK

In this article, we adopt a case study approach. Case studies are suited to explore the dynamics of policy learning and learning outcomes within well-defined contexts (see Zaki et al., 2022). Our case selection strategy is instrumental, and thus focuses on identifying cases able to best explore the phenomenon in question (Stake, 1995). Three logics motivate our selection of the Belgian case: *First*, given the central role of epistemic policy learning, the Belgian case features several influential epistemic advisory structures, consistent with its consensus-style advisory tradition with neocorporatist traits (Pattyn et al., 2019). *Second*, the federal Belgian policy and governance system are dense, with a wide range of political actors at various levels (see Pattyn et al., 2020; Van Overbeke & Stadig, 2020). Additionally, a transition from a caretaker to a more permanent government amidst intense political negotiations during the COVID-19 crisis (see Kuhlmann et al., 2021) creates a political landscape that allows us to account for the influence of political contestation on the learning processes. *Third*, the Belgian COVID-19 context has

witnessed several key turning points. While the country initially had one of the highest mortality rates per capita, it managed a transition into significantly improved epidemiological conditions and later included regions with some of the world's highest vaccine uptakes (Vanham, 2021). This allows us to better trace the shifts in policy-making paradigms and the relationships between policy learning processes and their potential outcomes. These factors put together provide a suitable environment for identifying, tracing, and analyzing shifts in policy learning over time. We focus our analysis on the national (federal) level as for almost the first 2 years of the crisis, this is where the bulk of crisis management and learning took place.

As answering our research question pivots the identification of two key types of learning, we draw on extant policy learning literature to synthesize an operationalization and identification scheme for instrumental and social learning as shown in Table 2.

To empower our analysis, we employ data source triangulation drawing on data from 44 official expert advisory reports, parliamentary inquiries, official government reports, policy stringency and mobility data, and media coverage in the period between January 2020 and December 2021. This form of triangulation allows us to gain a deeper understanding of the phenomenon in question, particularly within learning studies (see Zaki et al., 2022).

In constructing our methodological and analytical frameworks, we dedicate special attention to one of the emblematic challenges of analyzing and identifying instances of policy

TABLE 2 Operationalization of instrumental and social learning

Type of learning	Analytical focus	Prima facie indicators
Instrumental learning	– Policy Instruments as identifiable tools, techniques, and methods of structuring collective action to address public problems. This includes governing logics, mechanisms, and calibrations (see Acciai & Capano, 2019; Howlett & Cashore, 2009; Vedung, 1998).	– Changes or calibrations of existing policy instruments or the introduction of new policy instruments. – Changes are introduced with overall policy goals remaining unchanged (Alcantara, 2009).
Social learning	– Crisis policy paradigms as "normative and cognitive structures held by policy actors." They span principles, assumptions, and values that allow policymakers to interpret and understand the world and take meaningful action (see Daigneault, 2013). – Policy goals: For analytical coherence, we view goals as clearly articulated general ideas and principal orientations that govern policy development (relatively high abstraction) or more specific avenues that policies aim to address (relatively lower abstraction) (see Howlett & Cashore, 2009).	– Society-wide debates, critical interrogation of societal core values and principles, and deployment of critical cognitive resources. – Changes in policy paradigms and understandings of policy issue construction. – Policy goals redefined or reformulated. – New policy instruments are conceived, or existing instruments are recalibrated to match new goals

Source: Authors synthesis based on Bennett and Howlett (1992), May (1992), Vedung (1998), Howlett and Cashore (2009), Daigneault (2013), Biegelbauer (2016), and Acciai and Capano (2019).

learning. Policy learning can be challenging to identify and capture (Knoepfel & Kissling-Näf, 1998). Thus, in several cases, there is a tendency to identify policy learning through policy change, this is despite both phenomena not being necessarily connected as in many cases policy changes can occur without genuine learning taking place (e.g., Kamkhaji & Radaelli, 2017; Nilsson, 2005). This risks empirical analyses potentially becoming overinclusive, as such; accounting for "learning-like" phenomena rather than genuine learning. We maneuver this issue by accounting for interactions between key constitutive dimensions of the policy learning processes. This involves tracing the circulation and consumption of policy-related information and knowledge among key actors, within established advisory and governance structures in an evolving policy context (see Zaki et al., 2022). In this analysis, we establish an empirically grounded relationship between the microfoundations and key drivers/sources/actors involved in the policy learning process (i.e., epistemic communities and expert advisory groups), on the one hand, and the outcomes of this learning process reflected in policy adjustments (at the instruments, social construction, and policy goals levels) on the other. This allows us to emphasize plausible causal mechanisms that better ascertain particular instances of learning as causes of changes in policy (see Dunlop & Radaelli, 2020).

In the next section, we begin by tracking the two key types of learning. This is followed by an analysis of how these modes shifted during the period of concern.

4 | A CASE OF THE BELGIAN COVID-19 POLICY RESPONSE

4.1 | The COVID-19 context in Belgium

Initially, Belgium had some of the world's highest infection and mortality rates, rendering initial government responses subject to intense debate (see The Economist, 2020). The first waves of infections battered the country's healthcare system to its breaking point with tens of thousands of infections as shown in Figure 1. This resulted in substantial increases in excess mortality.[3]

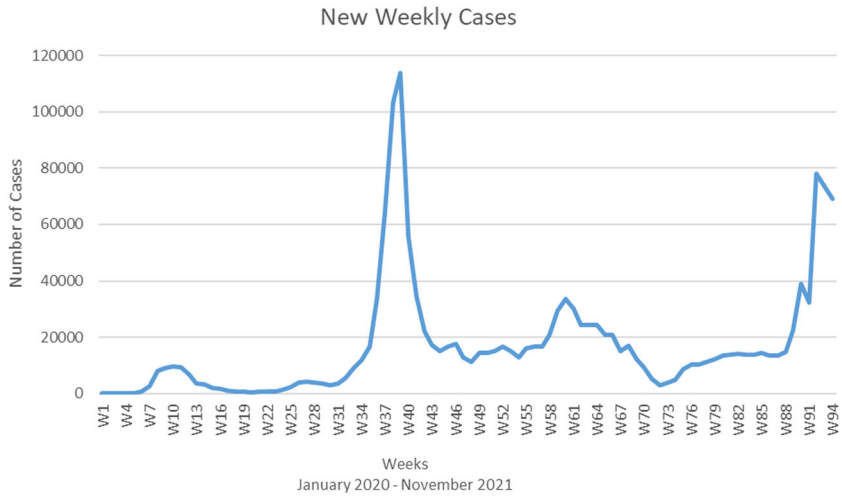

FIGURE 1 New weekly cases (February 2020 to November 2021)[4]

The first wave of the pandemic created a significant societal disruption, with images of overflowing healthcare facilities, and particularly high excess mortality in elderly care homes. The scrutiny was exacerbated by concerns over the government's mismanagement of personal protective equipment strategic stocks, which were in short supply at the crisis onset (see Zaki & George, 2021). Belgium incurred heavy losses during the first wave of the pandemic. This, in turn, has encouraged the government to adopt what was at the time some of the most stringent COVID-19 measures (see University of Oxford, 2020). These measures were fostered by reliance on medical experts who contributed to the government's initial policy goal of suppressing the pandemic.

4.2 | Indications of instrumental learning

From a knowledge and expertise perspective, the onset of the COVID-19 pandemic was marked by a high degree of uncertainty. As a new contagion, relatively little was known about COVID-19 (Zaki & Wayenberg, 2021). This rendered scientific consensus on long-term crisis-response strategies relatively challenging, particularly with a scarce and relatively splintered evidence base (Van Dooren & Noordegraaf, 2020). With uncertainty, a relative lack of foresight, and a lack of vaccines, the country's main goal (as that of most countries, with very few notable exceptions) was to *reduce viral transmission*, *maintain healthcare systems operationally*, and *limit pandemic-related mortality* (RAG, 2020a).[5] Policy instruments aiming to suppress transmission were the main focus of this stage. This included non-pharmaceutical interventions (NPIs) such as physical distancing, wearing masks, updating hygiene guidelines, and suspending general assemblies (Li, et al., 2020; Six et al., 2021). There, Belgium was a forerunner with a range of progressively stringent measures including obligatory face-covering, suspending public assemblies, and mandating remote work starting February 2020 (RAG, 2020c; University of Oxford, 2020). As the crisis continued, through the Easter and summer periods policymakers were faced with depreciated compliance to NPIs. This manifested in nonessential travel flares (e.g., Brzozowski, 2020; Google Mobility Report, 2021), illegal public assemblies, mass violations of restrictions (e.g., Rankin, 2020; VRT News, 2020), and later a sharp rise in infections (Zaki & Wayenberg, 2021). These conditions urged policymakers to engage in an instrumental learning process aimed at finetuning NPI-driven policy instruments in response to depreciating effectiveness and publishing pushbacks (i.e., through the instrumental use of expertise, according to Boswell, 2008). This led to recalibrations of NPI-driven policies to match changing epidemiological conditions. This included, for example, changes to the number of home visitors, “social bubbles,” “contact budgets” amended shopping rules, limiting access to certain cities (The Brussels Times, 2020c), enforcing localized lockdowns (Euronews, 2020), and suspending nonessential international travel (University of Oxford, 2020). Marred by fears of a second deadly wave, especially given Belgium's tragic experience with the first wave of the pandemic (Fessenden, 2020), this phase of crisis policymaking employed policy learning processes where the main goal was to suppress the virus and reduce mortality through finetuning NPI-driven policy instruments. The instrumental NPI-focused learning was highlighted in several expert official advisory reports (e.g., RAG, 2020a). Within this learning setting, experts acted as “producers of standards” in a bid to refine policy instruments through technical insights such as those on social distancing parameters or hygiene standards for contact professions (e.g., see GEMS, 2020a, 2020b, 2020c, 2020d; Sciensano, 2020). This goal-instrument configuration was also evidenced by an

almost exclusive reliance on epidemiologists and medical experts in official advisory committees and policymakers favoring medically driven policy advice over others (see Heynderickx, 2020; Zaki & Wayenberg, 2021).

4.3 | Social learning: Crisis policy-making paradigms

As the crisis raged with no definite end in sight, psychosocial, and socioeconomic implications rose to center stage in the public debate towards the last quarter of 2020. This was fueled by increasing access to emerging knowledge from COVID-19 research and anecdotal evidence, which in turn expanded the debate arena to include a larger set of actors. At that time, these aspects were hitherto somewhat overlooked by the government (Zaki & Wayenberg, 2021). Attention to these concerns was driven by an ongoing depreciation of public compliance to policies, protests against COVID-19 measures, and outcries over their legitimacy and socioeconomic implications. (Armstrong, 2020; Galindo, 2020a; Popelier, 2020; The Brussels Times, 2020a). This is in addition to a steady stream of studies directly informing the government on the social implications of crisis responses (e.g., Antwerp University, 2021). The central arguments in this debate emphasized the perception of government responses being at many points too restrictive and inconsiderate of the crisis' societal nature (e.g., Six et al., 2021). Consistently, the government's ability to implement stricter measures when infections spiked again towards the end of the year was constricted (Moens & Gijs, 2020). This, in turn, reduced the viability of existing NPI-driven instruments and rendered the "suppressing the pandemic" goal rather untenable. Put together, policy issue evolution and external pressure exerted on the government (e.g., The Brussels Times, 2020a), increased public access to crisis-related information, growing political contestation and politicization (e.g., Meijen, 2021), legitimacy concerns (e.g., Popelier, 2020; Van Overbeke & Stadig, 2020), and the depreciating effectiveness of NPI-driven policies have nudged the government to redirect its learning process.

The new learning cycle aimed at better understanding the multiple dimensions of the crisis, and its societal embeddedness beyond abstract epidemiological dashboards. This reorientation of the policy learning process included a more deliberate focus on previously overlooked social and psychological aspects. Substantiating this transition was a concurrent shift in expertise underlying the policy learning process, which was previously perceived as overly medical (Zaki & Wayenberg, 2021). Expert groups were reformed to involve more interdisciplinary experts such as sociologists and behavioral scientists (Salimi, 2020; The Brussels Times, 2020b). Expert advisory groups and policymakers drew on—and engaged with—the society-wide debates, protest movements, and insights from large-scale surveys on citizen attitudes and perceptions of previous government policies and paradigms (e.g., Antwerp University, 2021; Armstrong, 2020; The Brussels Times, 2020a). This large-scale debate involved discussions of what constitutes personal freedoms, societal priorities, and the role of government within the crisis context. Consequently, interdisciplinary expert reports progressively stressed the need for integrative, psychosocial approaches (e.g., GEMS, 2020b, 2020c, 2020d), and offered recommendations on how to allow activities that yield the highest social and psychological rewards for minimal epidemiological footprints (e.g., GEMS, 2021). Enabled by insights from interdisciplinary sensemaking and nudged by public pushbacks and depreciating viability of "purely medical" NPI-based instruments, a crisis policy-making paradigmatic shift towards "living with the pandemic" became more evident (e.g., Chini, 2021a). This gave way to a new breed of policy instruments that better account for the balance between social and

psychological welfare on one hand, and epidemiological conditions on the other (e.g., Gijs, 2020). Examples included avoiding drastic social measures, particularly around socially upheld festivities, allowing activities with high social footprints (see De La Baume & Gijs, 2021), with the support of tools that allow safely maneuvering public assemblies, such as digital tracing applications (Cerulus, 2020). This was later consistently pursued by the newly appointed Prime Minister Alexander De Croo by focusing on creating "long term models" for living with the pandemic and was enhanced by the appointment of a "Corona Commissioner" (Chini, 2021a, 2021b). This approach to crisis policymaking was later sustained by a largely successful vaccination campaign which saw over 80% of the country's population fully vaccinated, leading to what the government termed as a "summer of freedom" and a return to "normality" (Belgian Government, 2021a, 2021b; Hope, 2021).

While an account of how policy learning types manifested during the first 2 years of the crisis shows some clear distinctions and features over time, the process has been far from linear and unidimensional. In the next section, we offer a fine-grained view of the type and time interactions of these instrumental and social learning processes.

5 | SHIFTS AND TRANSITIONS OF POLICY LEARNING TYPES: A STORYBOARD

The Belgian COVID-19 policy learning saga highlights indications of instrumental and social learning within the crisis policy-making period. Yet, how did these learning types interact and what influenced the transitions between them? To explore this, and to create a *policy learning storyboard*, we draw on four policy learning and evidence–policy interaction typologies: Boswell's (2008) modes of evidence use in policy, Dunlop and Radaelli (2013) systematization of policy learning modes, Boswell and Smith (2017) relationships between research and policy/politics, and Zaki and Wayenberg's (2021) on intra and interdisciplinarity of expertise. The storyboard highlights how policymaking "hopped" between types of learning. Here, by hopping we refer to a process by which learners activate different primary learning types across different phases of the crisis in response to stimuli in the policy-making context. However, first, a caveat: While some types of learning might prominently feature at certain periods of the crisis, others are not necessarily muted, rather they can brew in the background. For example, naturally, in periods where instrumental learning was prominent, the accumulation of knowledge of the policy issue and its multidimensionality continued in the background yet might not have been critically reflected upon to reconsider issue formulation until the policy learning context invoked such process.

5.1 | Instrumental learning Epoch 1.0

The onset of the crisis was marked by significant knowledge and issue uncertainty (Van Dooren & Noordegraaf, 2020). Over this period, initial policy goals (i.e., containment of the virus and maintaining a functional healthcare system) were forged considering issue formulation (as a largely and almost exclusively healthcare crisis) and led to a focus on clear performance targets (e.g., reducing community transmission, availing hospitalization capacity, etc.). With such radical uncertainty and the existence of certified groups of actors (mostly medical experts), epistemic policy learning was positioned as optimal to achieve those targets. Policymakers had

relatively little control over the means and objectives of the learning process, further entrenching experts in compelling and instructive roles (see Dunlop & Radaelli, 2013). This created a situation where epistemic uncertainty was recognized by the policy-making establishment, and policymakers had an intensive interest in integrating research and expertise in the policy-making process and instrumentally using knowledge to adjust decisions and outputs. Accordingly, the government was in an "action oriented" crisis response mode (see Boswell, 2008). This established a relationship where research was largely a driver of policy (Boswell & Smith, 2017). As the government attempted to maintain stringent crisis responses while fending off legitimacy concerns and public pushback, expertise was gradually employed to legitimize government action and justify relatively drastic measures (see Boswell, 2008). This was further evidenced by experts often being tasked with addressing the public on behalf of the government. Here, the medically driven (mostly precrisis) issue formulation and the drive for the instrumental utilization of knowledge led policymakers to rely on expert groups with relatively limited epistemic interdisciplinarity, largely medical (Zaki & Wayenberg, 2021). As such, learning at this stage addressed specific on-the-ground recalibrations of policy instruments (e.g., regulatory guidelines, updated standards, measurements, and case definitions, etc.) rather than refining higher level instrument logics and preferences or revisiting social construction of the policy issue (e.g., coercion vs. voluntary preferences, moral suasion, etc., see Howlett & Cashore, 2009).

5.2 | Transitioning to the social learning epoch

While this approach has evidently helped policymakers, whether the infection storm during the first half of 2020, its relative effectiveness was not long-lasting as overlooked societal implications were brewing below the surface. Towards mid-2020, compliance with conceived policy instruments depreciated, infections spiked to record levels and more drastic measures (e.g., large-scale local lockdowns) had to be taken (e.g., Zaki & Wayenberg, 2021). However, due to the social implications of early-on medically driven strict measures, the government's ability to reimpose needed restrictions was constrained (Moens & Gijs, 2020). This was exacerbated by the public pushback against restrictions (perceived as inconsiderate of social and psychological wellbeing) increased and as more indicators of social crises manifested (e.g., indications of depreciating wellbeing) with the debate around policy responses becoming politically contested (e.g., Meijen, 2021; Popelier, 2020). Additionally, increasing access to COVID-19-related information (whether those resulting from research, government's epistemic communities, or even widely circulating conspiracy theories) contributed to the entry of new epistemic (or pseudo-epistemic) actors into the debate, and discounted the social certification of epistemic communities. This dynamic largely resembles Dunlop's (2017) "irony of epistemic policy learning" where knowledge (partly created by epistemic communities) can contribute to the relative displacement of their authority. As such, in a quest to break free from the chackles of expert advice and push for more relaxed pandemic policies, political adversaries demanded that experts occupy less compelling roles towards being mere advisors or contributors rather than teachers or producers of standards. This created a unique tripartite public/political-policymaker-expert tension. Policymakers played boundary-spanner/broker roles between communities of experts on one side and the public/political adversaries on the other. This forced policymakers into a social learning process aiming to understand the multiple dimensions of the crisis. This learning process was underpinned and evidenced by a

reformulation of expert advisory groups to include behavioral, motivational, and psychological experts; areas of expertise that were previously overlooked. This process did not occur briefly or behind closed doors. Rather, it unfolded through a society-wide debate reflecting on more than a year of pandemic experiences through expert group consultations (e.g., RAG, GEMS, and CELEVAL), public debates (e.g., Galindo, 2020b), and a steady flow of research and information on attitudes, perceptions, social and socioeconomic evolutions spanning millions of data points and respondents (e.g., of Antwerp University, 2021). Consequently, a new formulation of the crisis as a multidimensional socially embedded policy issue emerged. This led to finding "ways to live with the pandemic" and availing as many social freedoms as possible with the least possible epidemiological footprints. As such, this initiated a transition

TABLE 3 Synthesis of key epoch parameters

Key parameters	Instrumental learning Epoch 1.0 Recalibrations of policy instruments and updated technical standards	Social learning epoch Revisiting policy issue construction and issue reformulation	Instrumental learning Epoch 2.0 Revision of policy instruments at different levels: Logics, mechanisms, and calibrations
Initial triggers	– Crisis initiation – Preconceived crisis definitions	– Depreciation of instrument effectiveness – Public pressure – Crisis politicization	– Policy issue reconstruction
Underlying issue formulation	– Physical welfare – Public health crisis	– Socially embedded complex issue	– Public health, mental well-being, economic issue
Key goals	– Pandemic suppression – Maintaining functional healthcare systems	– Living with the crisis	– Availing more social freedoms with least epidemiological footprints – Resuming normal life as much as possible
Underlying expertise	– Limited interdisciplinarity – Dominantly medical	– Increased interdisciplinarity and intradisciplinarity of expertise – Medical, psychological, and economic	– Interdisciplinary and intradisciplinary expertise from social, behavioral, and epidemiological sciences
Knowledge–policy relationship	– Research shapes policy	– Autonomous Spheres – Political/public-policy-expertise tension	– Political/public-policy-expertise tension
Use of knowledge	– Instrumental – Legitimizing	– Instrumental – Legitimizing – Political	– Instrumental – Legitimizing – Political

into another cycle of instrumental policy learning aiming at the conception of new policy instruments coherent with the reformulated policy goals and fine-tuning existing ones.

5.3 | Instrumental learning Epoch 2.0

The emergence of a new policy paradigm that considers the multidimensionality of the crisis paved the way for a new epoch of instrumental learning. This entailed a more systematic integration of interdisciplinary expertise and gave way to changes in policy instruments at different levels from instrument logics to mechanisms, and technical calibrations (see Howlett & Cashore, 2009). Changes in instrument logic included the utilization of a mix of coercive measures such as the digital "COVID Safe Ticket" (CST) while launching awareness campaigns pivoting on moral suasion (e.g., Clapson, 2021). New mechanisms and tools were also set in place including a push for digital track and trace solutions and focusing on tracking clusters of infections with a rigorous travel testing policy (Cerulus, 2020). On-the-ground recalibrations concerning standards, infection thresholds, and varying approaches to CST application were also frequently undertaken (e.g., Chini, 2021b). In Table 3, we provide a synthesis of key parameters that marked the transitions between the three key learning epochs and their main features.

In Figure 2, we offer our storyboard synthesis that overlays the most prominent features of the policy learning epochs with one of the key intensity crisis markers (i.e., the number of weekly confirmed cases). Ceteris paribus, visually demonstrates how the evolution of crisis intensity over time and perturbations in the policy-making context can help explain the hops between different types of policy learning.

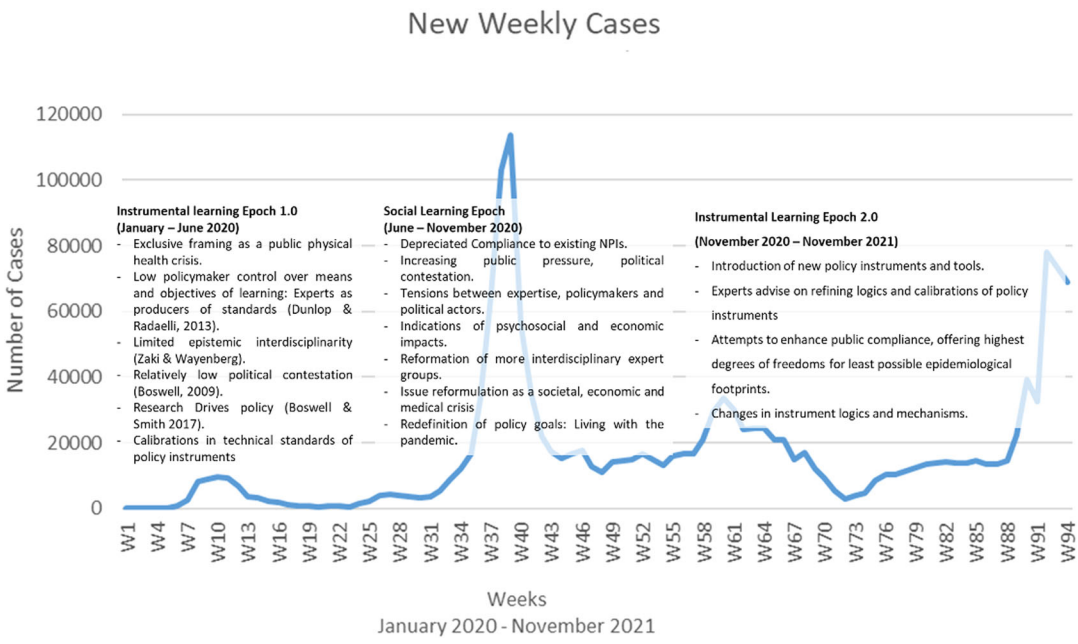

FIGURE 2 Policy learning epochs

6 | DISCUSSION AND CONCLUSION

The crisis' cyclic and recurring nature urges excursions into the dynamic nonlinear nature of policy learning types (Dunlop et al., 2020). Accordingly, in this article, we explored the hitherto under-researched phenomenon of policy learning type interactions over time within the creeping crisis context of COVID-19. While we created a learning storyboard by approximating relatively clear timeframes where different types of learning took place, this does not necessarily imply that transitions between learning types are razor-sharp. Our analysis highlights the most prominent learning types across different periods throughout the crisis while maintaining that other learning types were not "muted," but rather less engaged by policymakers in light of what the policy-making context requires.

Our policy learning storyboard shows that epistemic policy learning has been systematically utilized to inform crisis policymaking. It also served as a driver for instrumental and social learning. However, this learning process was highly context-sensitive. Due to the initial crisis conception, (as an exclusively medical issue) advisory structures had limited disciplinary variety leading to instrumental learning occurring narrowly and at the lowest levels of abstraction, i.e., calibrations of policy instruments (Zaki & Wayenberg, 2021). Consequently, resulting policies were not fully able to capture the crisis' multidimensional societal nature. This contributed to the depreciation of policy instrument effectiveness, and public pushback and expanded the space for political contestation. These forces strongly nudged policymakers to hop over to a deliberate social learning process. This process took place at the crisis policymaking and crisis governance paradigms level and aimed to reevaluate the social construction of the policy issue while drawing on insights from earlier in the pandemic. This transformation was marked and mostly driven by a change in advisory structures to include a diverse range of experts from social and behavioral sciences. The resulting updated issue formulation edged towards "living with the pandemic," subsequently ushering in yet another epoch of instrumental learning aimed at the reconception of new policy instruments. Driven by a wider epistemic base, this epoch involved a deeper form of instrumental learning with a wider set of changes in instrument choices, logic, mechanisms, and calibrations.

Now, what else can this storyboard tell us about policy learning during creeping crises? Here, we draw three main observations pertinent to: *the interdependence of learning types and its causal implications for policy change, social learning during creeping crises, and variations in intracrisis learning forms*.

First, within such crisis contexts, initial issue formulation creates a form of *learning path dependence*. Issue formulation influences the design of learning solutions (in our case the design of advisory structures), and consequently influences learning outcomes. This can potentially necessitate shifts towards more transformational learning types where policymakers think "maybe we missed something" or "maybe this is not exactly what we thought it is." Pressures resulting from crisis features and ramifications of initial learning designs can accelerate transitions between learning types. This leaves limited room for political maneuvers and the opportunity to engage in reflexive or bargaining oriented learning modes, as opposed to what can happen in smaller scale crises (see, e.g., Dunlop et al., 2019). Implications of initial approaches to learning can later restrict policymaker's ability to reintroduce measures when crisis intensity rises again. In other words, learning types, possible courses of action, policy goals, and outcomes are closely entwined. They interact and influence one another: how we

learn now influences how we will have to—and can—learn later. As such, policy learning types can "lock-in" each other in cycles.

Second, creeping crises have permanence. They persist for relatively long periods (Boin et al., 2020). Accordingly, policymaking within these contexts transcends traditional crisis response structures (e.g., emergency response systems to natural disasters). This permanence instills some relatively long-term policy-making paradigms and goals, that is, principles, orientations, and values for understanding the world, and structuring meaningful action within a certain (crisis) context (Daigneault, 2013; Howlett & Cashore, 2009). Our findings show that transformative social learning processes can happen at this level in relatively short periods of time, particularly accelerated by crisis features (e.g., society-wide crisis implications, variations in intensity, threat perceptions, and resulting public pressure). The concept of social learning has been often critiqued for not offering a clear image of how the process itself occurs (e.g., Feindt, 2010). Our findings contribute to this debate by showing that the social learning process can be driven by epistemic communities as consolidators and translators of evidence generated by society-wide movements, and emerging scientific research. From there on, epistemic policy learning processes are used to legitimize and substantiate goal transformations and somewhat relieve political pressure (see Boswell, 2008).

Third, contrasting our findings to others from emerging COVID-19 policy learning research reveals that different forms of policy learning take place in light of variations in policy-makers crisis perceptions. In our case, policymakers mostly engaged in inferential learning. However, at the EU level, Ladi and Tsarouhas (2020) find that policymakers at the top of the economic governance architecture perceived the COVID-19 crisis as a sudden shock existential threat, thus initially operated under mechanisms of contingent learning identified by Kamkhaji and Radaelli (2017). However, as the crisis unfolded, double-loop learning occurred through drawing inferences from earlier stages of the pandemic and the relatively recent eurozone crisis. What does this contrast tell us in terms of policy learning? Crisis and policy issue perceptions are largely "constructed" (see Boin et al., 2020; Kamkhaji & Radaelli, 2017). Accordingly, policymakers at different levels of the governance architecture, with different institutional mandates can engage in different forms (not only different modes) of learning within the same crisis. This calls on future research to consider avoiding normative and universal conceptions of a single crisis across different policy-making contexts. Future research might also need to pay special attention to offering refined understandings of the governance, institutional, and microfoundational factors surrounding policy learning and their role in shaping not only the process and outcomes of learning (e.g., Zaki et al., 2022), but the forms of learning employed.

Having said so, findings from this article paint a dynamic view of how policy learning was employed during an unprecedented crisis, they also decipher key logics of learning mode transitions and their implications for policy change. This emphasizes the potency of policy learning as an explanatory lens for the temporality of policy instruments' adoption, their trajectories, and linking the choice of policy tools to paradigmatic and ideational changes (Capano & Howlett, 2020). However, do these findings suggest that panacea policy learning solutions exist? Certainly not. The crisis' nature leaves no room for perfect solutions. However, what these findings suggest, is that policymakers need to consider the multidimensionality of creeping crises early-on, and continuously thereafter. There, a process of learning governance should coherently span the continuous interactions between evolutions in the policy-making context, policy issues, actors involved, emerging evidence, and policy learning structures.

Last but not least, future research can build on these findings in more than one way. First, the future scholarship can explore policy learning type interactions by constructing policy learning storyboards in different contexts (i.e., at different governance levels within the COVID-19 crisis or in other countries). Second, it would be interesting for future scholarship to explore what comes next. Will another social learning epoch follow? Or what disrupts/ends the cycle of policy learning type transitions? And how will the COVID-19 policy learning story continue after the crisis simmers down? Last, but not least, it may be interesting to investigate how transformations in crisis policy-making paradigms translate into long-term changes in general approaches to crisis governance and the extent to which those changes will be institutionalized.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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ENDNOTES

[1] This is distinct from the concept of "societal learning" often used to explain the dynamics of how society as a collective, changes behavior or transitions to different behavioral states and patterns through discursive learning processes (e.g., Binswanger & Oechslin, 2015; Vergragt & Brown, 2007).

[2] This is not to be confused with instrumental learning as a policy learning type. Boswell (2008) discusses the instrumental "use of knowledge" that helps organizations achieve their objectives or enhance performance.

[3] *Source*: Euromomo.

[4] *Source*: Our world in data.

[5] RAG is Belgium's main risk assessment group.

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