**Chapter 1: Introduction to Policy learning**

1. **Policy learning: Background and overview**

Why do policy actors do what they do? Why and how does a policy change or remain immutable? Those are some of the most quintessential puzzles in public policy research and practice. Several theoretical approaches and frameworks endeavoured to solve these puzzles. For example, by focusing on changes in core beliefs (e.g., Sabatier, 1993), institutional arrangements (e.g., Ostrom, 2007), mechanisms of policy adjustment (e.g., Lindblom, 1959), patterns of policy change and the role of external events (e.g., Baumgartner, Jones, & Mortensen, 2018), or the role of policy entrepreneurs in coupling problems, solutions and political conditions, (Kingdon, 1984), among others.

While these different theoretical approaches provided substantial insights into the particularities of policy change, the “learning” approach has maintained its position as perhaps one of the most fundamental, and promising, often heralded as a potent approaches to explaining policy change and stability. This was built on the increasing recognition of policy learning, not only as a theoretical lens on the policy process, but also as an ontology of policymaking. In other words, its nature as a fundamental process that shapes individual and collective behaviour within the policy process (Kamkhaji, 2022; Zaki, 2024). This stems from the background understanding of policy learning as a fundamental problem-solving process in which policy actors seek and process information and knowledge about policy problems, aiming to develop viable solutions while considering how this interacts with existing cognitive and institutional structures in which problem solving occurs (Zaki, Wayenberg, & George, 2022). This process can then lead to cognitive outcomes where policy actors updated their knowledge and beliefs about policy problems, or behavioural products, such as different degrees of policy change (Dunlop & Radaelli, 2013). Accordingly, an ontological view of policy learning simply ascribes that, if we understand the key aspects of learning (i.e., who learns, what do they learn, from whom, how, and why), then we can better explain policy behaviours and policy outcomes . In other words, we can better explain why policy actors behave in a certain way, and the consequences of their actions, as a function of their learning processes (see Zaki, 2023).

This fundamental understanding of policy learning helped it develop, not only as a standalone theoretical lens, but also within the different aforementioned theoretical approaches to policy process. For example, integrating into the perspectives on belief change (e.g., Sabatier, 1988), technical and social understandings of policy problems (Bennet & Howlett, 1992), policy advocacy (e.g., Zaki & Dupont, 2023), levels of policy change (e.g., Heclo, 1974; Hall, 1993; Bennet & Howlett, 1992; Moyson, Scholten, & Weible, 2017), and policy entrepreneurship (e.g., Blum, 2017). In doing so, policy learning has gained prominence across the board throughout policy analysis scholarship (e.g., Bennet & Howlett, 1992; Albright, 2011; Dunlop & Radaelli, 2020

The theoretical status of policy learning, and its role in shaping policymaking processes and outcomes are rooted in empirical research. For example, research shows that if policy actors learn in an optimal manner (i.e., from the right sources, at the right time, employing adequate modes of learning), they have higher chances of developing effective solutions to policy problems, delivering substantive reforms, or improving policy performance (e.g., Wai Yip So, 2012; Stark, 2019). However, if learning is not optimally approached where expertise, knowledge, and learning modes are misidentified or misused, policy learning can become misdirected, leading to policy failures or “fiascos” (e.g., Dunlop, James, & Radaelli, 2019), or even value destruction (Zaki, 2024b). As a result, we increasingly see policy actors attempting to deliberately design and develop robust and effective policy learning processes (Zaki, 2024a). This manifests across a wide range of policy domains from public health to agriculture and food security, to crisis governance and beyond (e.g., Busetti & Righettini, 2023; Crow, et al., 2022; Beach, Schäfer, & Smeets, 2019; Albright, 2011).

So, what makes policy learning so central to policy analysis? At the heart the policy learning process lies the “fuel” of individual and collective behaviour, that is information and its processing, which constitute the raw material with which ideas, knowledge, beliefs and social construction of policy problems are built (Nowlin, 2021; Zaki, Wayenberg & George, 2022). Within learning, individuals and collectives exchange informational cues about policy problems, reconcile and process them within existing norms, heuristics, and beliefs. Accordingly, they develop updated understandings of these problems and their potential solutions, in turn guiding policymaking outcomes (e.g., Wagner & Ylä-Anttila, 2018; Beach, Schäfer, & Smeets, 2019). The manner by which these informational cues are exchanged, selected, and processed have a significant impact on what is learned, and the products of learning (e.g., Nowlin, 2021; Heikkila & Gerlak, 2013; Moyson, 2017).

However, despite being framed as key aspect of policy learning, especially over recent years, the role of information processing as a microfoundational dimension of policy learning is often undertheorized. This is despite that several decades ago, trailblazers in the field such as Herbert Simon (1947) and Karl Duetsch (1963) among others, pointed to the need for recognizing the cybernetic nature of policymaking and policy learning where the interaction between information and heuristics, biases, and reasoning paradigms substantively shapes policy outcomes. This relative scarcity of theoretical focus on information processing somewhat limits the field’s ability to explain the underlying causal mechanisms by which policy actors learn the way they do, and consequently explaining the outcomes of their learning. This is particularly problematic given the importance of integrating multilevel views of policy learning (micro, meso, and macro) in explaining how learning aggregates towards certain outcomes (see for example Heikkila & Gerlak, 2013; Dunlop & Radaelli, 2016, Zaki, Wayenberg & George, 2022).

In this element, we address this through synthesizing research on learning and information processing to offer insights on how information processing dynamics (i.e., attention to some information signals while ignoring or downplaying others) influences what is or isn't learned and how this contributes to changes in policy learning outcomes. Doing so advances the theoretical debate on learning by enshrining the microfoundational and fundamental information processing dimension within existing approaches to policy learning and plotting how they influence policy learning processes. This helps provide a more robust baseline for aggregating how learning takes place across multiple levels, and thus advances our ability to explain learning outcomes, and how learning contributes to policy change (see Dunlop & Radaelli, 2017; Moyson, Scholten, & Weible, 2017).

To do so, in chapter one, we begin by providing through overview of the foundations of policy learning as a field of study, and its development. Then, we showcase how these foundations developed into the contemporary sprawling landscape of policy learning research and its main analytical, theoretical and conceptual streams (i.e., types, forms, mechanisms, modes of learning, etc.). From there on, we discuss the different ontological approaches to policy learning while dedicating special attention to the role of information processing therein. In chapter 2 (For you Matt), we take a deeper dive into the microfoundations of the policy learning process, highlighting the challenges in reconciling the aggregation of learning across the individual and collective levels. In chapter 3, …

**1.2 Policy learning: History, roots, and branches**

Decades ago, the contemporary foundations of learning in public policy and administration research were laid by trailblazers such as John Dewey (1946), Karl Deutsch (1966), and Harold Lasswell (1970, 1951) among others. This was underpinned by the understanding of the practice of administration and policy as one that is existentially driven by the need to respond to novel unfolding societal challenges (e.g., Kaufman, 1969). This intellectual stream was fuelled by the conception of policymaking (i.e., the conduit of addressing societal problems) as a process of collective “awe” and “puzzlement” (see Heclo, 1974). As such, early learning scholarship sought to bring a disengaged society and a somewhat alienated scientific community closer to the puzzle board of societal problems. Hence, the main tenet of the then blossoming learning movement was a form of stakeholder togetherness, rooted in pragmatism, and aimed at discovering and pursuing ‘what works’ while avoiding what doesn’t (see Sanderson, 2009; Dunlop, Radaelli, & Trein, 2018). At the time, this collective action perspective on learning provided a supplementary view to a dominant “powering-based” understanding of policymaking and policy change, and thus introduced learning as new potent yet less visible explanatory dimension to policy analysis (e.g., Heclo, 1974; Hall, 1993; Zaki & Radaelli, 2024). This rather pragmatic solution-oriented foundation explains the explosive growth in policy learning research and practice in the post-partum decades of the contemporary learning movement. Accelerating technological and industrial advances, growingly connected ecologies, and increasing complexity gave way to new types of problems, such as wicked and super wicked policy issues, and crises of different shapes and forms. Such problems were notoriously challenging to define, continuously evolving, complex, stakeholder-dense, politically contested, and divisive (Head & Alford, 2013; Rittel & Webber, 1973; Boin, Ekengren, & Rhinard, 2020). These features have positioned inclusive, collaborative, and comprehensive learning processes (systematized and organic, individual, and collective) as key for developing solutions (Sanderson, 2009; Zaki, 2023).

This explains the boom in policy learning as a practice where different policy actors increasingly engaged in systematic policy learning processes. Hence, starting the 1970s we started to witness a steady growth in research on policy learning across different domains ranging from on the environment and climate change (e.g., Gerlak et al., 2018; Lee & Van de Meene , 2012; Rietig, 2019), to social welfare, economics and public health (e.g., Heclo, 1974; Shi, 2012; Crow, et al., 2022; Dunlop, 2017), crisis governance (e.g., Kamkhaji & Radaelli, 2017; Trein & Vagionaki, 2022; Taylor, Jeschke, & Zarb, 2023), and beyond. Frameworks such as the Open Method of Coordination (OMC), the European semester, and interservice consultations within the European Union were set in place to foster (among other objectives) benchmarking, cross-country learning, and multidisciplinary learning. Thematic networks such as the C40 network for climate action among others also pursued similar learning-oriented objectives (see Kerber & Eckardt, 2007; Borrás & Jacobsson, 2004; Lee & Van de Meene , 2012; Candel, Princen, & Biesbroek, 2021).

Interest in policy learning did not only manifest at the apex of governance architectures but was also omnipresent at the subnational levels. While we have seen policy learning take place at the European Union level and within other large scale international policy network, we have also seen it take place at the subnational levels in provinces, cities, and local communities (e.g., Ansell, Lundin, & Öberg, 2017; Busetti & Righettini, 2023; Zaki & Wayenberg, 2023).

The drive for more learning in practice has fuelled theoretical development of policy learning, contributing to what Dunlop, Radaelli, & Trein (2018) call “the family tree of policy learning” blossoming. What has started at the roots as a processes of collective puzzlement in search for solutions through knowledge utilization (e.g., Weiss, 1986), engagement of publics in problem solving (e.g., Dewey, 1946; Lasswell, 1970), developing negotiated solutions (e.g., Lindblom, 1959), reasoning of information within government and societal networks (e.g., Simon, 1947) grew into various theoretical branches. Some focusing on the role of ideas in learning (e.g., Ettelt, Mays, & Nolte, 2012), the migration and mobility of policies through transfer, diffusion, convergence (e.g., Dolowitz & Marsh, 2000), information processing (e.g., Nowlin, 2021; Zaki, Wayenberg, & George, 2022), the use of evidence (e.g., Sanderson, 2009), and typological views of learning aimed at achieving different types of actor objectives (e.g., Dunlop & Radaelli, 2013; Biegelbauer, 2016). Following Dunlop, Radaelli & Trein’s family tree metaphor, these theoretical branches fed into different outcomes or fruits. There, we see different utilizations of learning to investigate or shape policy dynamics. For example, design-based approaches to learning (e.g., Zaki, 2024), causal approaches to policy and belief change (e.g., Dunlop & Radaelli, 2017; Sabatier, 1988), and learning as a lens on the policy process itself (see Dunlop, Radaelli, & Trein, 2018; Heikkila & Gerlak, 2013). Now that we have briefly mapped the history and development of policy learning as a field of study, we next move to outlining some of its main analytical, theoretical, and ontological approaches.

* 1. **Policy learning: Key conceptual, analytical, and theoretical approaches**

***Conceptual approaches to learning***

The increasing recognition of policy learning as a key lens on policy analysis resulted in a flurry of research. While this has enriched our understanding of different aspects of how policy learning takes place, it has also resulted in a vast array of conceptual approaches and theoretical descriptors with overlapping contours, often without arrangement or mapping. Furthermore, the multilevel and implicit nature of policy learning and its normative appeal have contributed to it being relatively conceptually ambiguous and challenging to identify. This rendered policy learning something of a “hembig”, i.e., a hegemonic yet excessively scoped concept, thus leading to issues of conceptual stretching, ambiguity, challenges in systematizing and cross-comparing findings. That was the concoction of issues that led Jack Levy (1994) to liken the study of policy learning to sweeping a conceptual minefield. Consistently, recent reviews of learning literature have pointed to the existence of ‘conceptual jungles’ of overlapping contours where it becomes hard to reach consensus over one way to define learning (e.g., Borrás, 2011; Gerlak et al., 2018).

This state of affairs stimulated calls for theoretical and conceptual syntheses upon which further development of the field can be established (see Zaki, Wayenberg, & George, 2022; Dunlop & Radaelli, 2018; Goyal & Howlett, 2018). This being considered, before delving deeper into the information processing aspect of policy learning, it is of utility that we first lay out the field’s key conceptual and theoretical approaches therein. The objective of doing so it twofold. First, is to provide a succinct synthesis of the sprawling field of policy learning, and second, lay a robust foundation to build to map out the dynamics of policy learning and information processing.

First, we begin by a discussion of what policy learning is. Interest in learning has led to the emergence of diverse approaches to understanding what it is, often distinguished by their underlying ontological orientations (see Dunlop & Radaelli, 2017). These approaches spanned a spectrum of ontological-epistemological perspectives, including mechanistic, positivist, interpretivist, social constructivist, and discursive-institutionalist paradigms (Grin & Loeber, 2007; McCann & Ward, 2012; Oliver & Pemberton, 2004). For instance, the constructivist interpretivist approach emphasizes learning as a social process involving the negotiation of problem definitions, communication, interpretation, understanding, and assessment of solutions (Grin & Van de Graaf, 1996). Conversely, other perspectives examine how actors process new information, but primarily through the lens of pre-existing coherent belief systems (see Sabatier, 1988; Dudley, Parsons, Radaelli, & Sabatier, 2000).

This diverse ontological-epistemological foundation has also spilled over to the field’s conceptual landscape where it came to boast a vast array of definitions and conceptual approaches. According to a recent review by Zaki, Wayenberg & George (2022), there are over 30 distinct definitions of learning in public policy literature, most prominent of which follow the Advocacy Coalition Framework approach by Sabatier (1988) viewing learning as enduring changes in thoughts, beliefs, or behavioural intensions regarding policy problems (Sabatier, 1988). Other scholars such as Hall (1993) view learning as a deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information. On the other hand, we also have definitions that leverage policy learning as an umbrella concept for several similar phenomena encompassing the general mobility of ideas covering varieties of emulation, transfer, and lesson drawing where knowledge about policies, solutions and administrative arrangements are flow across time and/or space (e.g., Giest, 2017). Furthermore, there are also approaches that view policy learning as a general increase or update of knowledge about policy problems (e.g., Corbett et al., 2018), rational reflections on public policy using acquired knowledge and information (Newman & Bird, 2017), or the acquisition, translation, and dissemination of information among actors with diverse knowledge bases (e.g., Heikkila & Gerlak, 2013). This is in addition to conceptual approaches that view learning as a decision-making paradigm, or an approach to policymaking where policy decisions are made on the basis of knowledge and past experiences and future expectations (see Karlsen & Larrea, 2016). Put together, conceptual approaches to learning can be viewed across three main directions: mechanism and process-oriented, ideational, paradigmatic, and outcome-oriented as shown in table 1.

|  |  |
| --- | --- |
| Perspective | Conceptualization |
| Mechanism and process oriented: Focused on the processes and mechanisms underlying how learning takes place | * The acquisition, translation, and dissemination of information among actors with diverse knowledge bases (e.g., Heikkila & Gerlak, 2013) * The transmission of policy knowledge between political actors (e.g., Legrand, 2012) * A deliberate and critical reflection on prior knowledge (Rietig & Perkins, 2017) |
| Paradigmatic: Learning as a decisional-approach or a policymaking style | * An approach to policymaking where policy decisions are made on the basis of knowledge and past experiences and future expectations (e.g., Karlsen & Larrea, 2016) * A deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information (e.g., Hall 1993). |
| Outcome oriented: Focused on the products of learning such as cognitive updates and changes in policy positions | * Enduring changes in thoughts, beliefs, or behavioural intentions regarding policy problem (e.g., Sabatier, 1988) * The general increase in knowledgeabout policies (e.g., Corbett et al., 2018) |
| Ideational: learning as the mobility of ideas and policies across time and space | * A process whereby knowledge about policy in one jurisdiction is acquired and utilized in decisions regarding the development of policies in another (e.g., Newman & Bird, 2017) * Drawing lessons from experiences, and using knowledge to inform policy action (e.g., Motta, 2018) |

Table 1: A non-exhaustive synthesis of conceptual approaches to policy learning

One way of navigating and systematizing the large amount of definitions in learning literature is by looking at the background and systematized levels, where we can understand what a concept is inherently really about (see Adcock & Collier, 2001). There, policy learning can be broadly understood as an iterative problem-oriented process where policy actors seek and process information about policy issues aiming to update their understanding of how they can be solved (see Zaki, Wayenberg, & George, 2022). This can lead to different outcomes: *Cognitive*, i.e., the development or updating of ideas and beliefs about policy problems and potential solutions. These products can sometimes lead to *behavioural* outcomes, i.e., implementing political strategies, adjusting, or changing policies to address problems (Heikkila & Gerlak, 2013).

Adopting this overarching and fundamental information processing-based view of learning where clear analytical dimensions exist (i.e., information and knowledge, actors, learning structures, policy problems, and contexts), can help in the identification and analysis of learning across different conceptual approaches. For example, policy transfer and lesson drawing could be broadly understood as involving the mobility of policy ideas from one jurisdiction or past experience to another (Rose, 1991; Dolowitz & Marsh, 2000). The information processing background approach to learning can help structure analysis of lesson drawing and policy transfer by pinning down the key dimensions of such processes. This can be done by analyzing the sources of information used, actors, as well as the cognitive and governance structres involved.

With the conceptual foundations and streams briefly presented, we then turn our attention to key theoretical perspectives in policy learning. Namely, we focus on: analytical perspectives, theoretical descriptors such as forms, mechanisms, modes, and types of learning.

***Key analytical approaches: Learning as levels of analysis***

As discussed, several approaches have emerged to describe the growing literature on policy learning and capture diverse learning phenomena. At the most basic level, the very concept of learning itself, can be used to provide different analytical perspectives on the policy process as shown in table 2. There, learning was positioned to explain different policy and organizational behaviours across multiple levels of analysis: micro, meso, and macro.

|  |  |
| --- | --- |
| Learning as levels of analysis | Examples |
| Micro-level studies  (Focus on individuals and cognitive foundations) | Learning as a cognitive micro foundational process (e.g., Beach, Schäfer, & Smeets, 2019; Dunlop, 2020), behavioural perspectives moderating learning (e.g., Zito & Schout, 2009), the role of individual beliefs and information flows in learning (e.g., Pattison, 2018; Moyson, 2016; Nowlin, 2020), biases and heuristics (e.g., Wagner & Ylä-Anttila, 2018; Malkamäki et al., 2019). |
| Meso-level studies  (Focus on organizational units and networks) | Learning as interactions with information and beliefs within and across advocacy coalitions (e.g., Sabatier, 1988), learning as an interaction within and with expert communities (e.g., Haas, 1992), learning within networks (e.g., Howlett, Mukherjee, & Koppenjan, 2017), learning within organizations (e.g., Borrás, 2011; Zito & Schout, 2009; Zaki & Dupont, 2023). |
| Macro-level studies  (Focus on systems) | Learning and deliberation in transnational policy issues and crises (e.g., Dunlop, James, & Radaelli, 2019), Collective puzzlement and the role of ideas and paradigms (e.g., Heclo, 1974; Hall, 1993), learning as an inter-system transfer and diffusion of ideas (e.g., Dolowitz & Marsh, 2000; Marsh & Sharman, 2009), learning and systemic convergence towards certain policy ideas (e.g., Bennett, 1991). |
| Multidimensional and non-linear learning  (Focus on cross-level interactions) | Learning as a multidimensional and interactive process between micro, macro and meso levels (Dunlop & Radaelli, 2017), interaction of learning types over time, learning type shifts and interactions over time (Zaki, Pattyn, and Wayenberg, 2023; Biegelbauer, 2016). |

Table 2: Learning as levels of analysis

[Hi Matt, do you propose any specific analytical perspectives to add other than levels]

With the different key analytical perspectives in policy learning literature established, next we turn our attention to the different theoretical descriptors of policy learning.

***Key theoretical perspectives: Disentangling theoretical descriptors of learning***

So, with a rich and diverse epistemological-ontological foundation, contributing to conceptual pluralism, how can we theoretically describe or unpack learning? As the field grew, a barrage of theoretical descriptors of learning emerged based on empirical analyses. Recent reviews by Gerlak et al. (2018) and Zaki, Wayenberg & George (2022) take stock of over 60 different theoretical descriptors of learning, often aggregated under the label of “types of learning”, often without clear definitions or dimensions that enable identification or differentiation. For the sake of conceptual and theoretical clarity, in this element, we disentangle these theoretical perspectives, pointing to types of learning, modes of learning, forms of learning, mechanisms of learning, and degrees of learning as shown in table 3.

Starting with types, the most commonly used theoretical descriptor of learning, a *learning type* refers to the intended outcome or orientation of a learning process, pointing to the object of learning, or what is being learned about. Some of the most prominent and clearly defined learning types include: instrumental learning, focused on updated understandings of policy instrument calibrations and viability (e.g., Lee & Van de Meene , 2012), and social learning focused on the evolving social construction of policy issues through discursive and reflexive processes (Hall, 1993). Another widely studied learning type is political learning, concerned with policy actors updating their understanding of strategies and techniques required to advance the political viability of their policy positions, preferred solutions, and interests (e.g., Zaki & Dupont, 2023). There are also tens of other learning types, including organizational learning, focused on updating organizational structures, norms, and procedures (e.g., Zito, 2009), strategic learning focused on learning about policies and procedures that fulfill compliance mandates or externally generated objectives (e.g., Common & Gheorghe, 2019), and managerial learning focused on updated understandings of policy implementation arranagements (e.g., Biegelbauer, 2016). Another fundamental approach to unpacking learning is using *Modes of Learning which refer to* the way *by* learning interactions take place. This includes epistemic learning involving learning from socially endorsed subject matter experts, hierarchical Learning involving learning within formal organizational structures by means of top-down communication and the dissemination of knowledge, bargaining-Oriented Learning involving negotiation, trade-offs and strategic interactions between policy actors. Last, there is reflexive learning, involving the utilization of knowledge aiming to deepening discussions, and facilitating argument (see Dunlop & Radaelli, 2013).

*Mechanisms of learning* refer to the process by which learning materializes, pointing to the series of interactions by which learning occurs. Learning identifies two main learning mechanisms: inferential and contingent (see Kamkhaji & Radaelli, 2017). In inferential learning, policy actors are faced with a problem, then resort to critical and deliberate reflection on priors, leading to updated understanding of policy problems and viable solutions, and potentially policy change. In contingent learning on the other hand, surprise (systemic shocks or crises) trumps critical reflection on priors. In this case, policy actors undertake rapid behavioral changes through associative mechanisms with the aim of avoiding imminent harm. This means that when policymakers encounter unexpected situations, they quickly adapt their behaviors and policies in response by drawing on a reservoir of cue-outcome association. Once the crisis shock dissipates, critical reflection on priors occurs and further policy adjustments or lock-ins take place. Accordingly, policy change occurs before learning.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Types of Learning | Modes of Learning | Mechanisms of Learning | Forms of Learning | Degrees of Learning |
| Instrumental (May, 1992)  Social (Hall, 1993)  Political (Heclo, 1974)  Policy-oriented (Sabatier, 1988)  Organizational/Institutional (Nilsson, 2006) | Epistemic  Hierarchal  Reflexive  Bargaining-oriented (Dunlop & Radaelli, 2013) | Contingent (Kamkhaji & Radaelli, 2017),  Inferential (Hall, 1993) | Lesson drawing (Rose, 1991)  Policy Transfer and imitation (Dolowitz & Marsh, 1996; Toens & Landwehr, 2009) | Single and double loop  (Argyris & Schon, 1978)  Triple loop (Tosey, Visser, & Saunders, 2012)  Quadruple loop (Lee, Hwang, & Moon, 2020) |

Table 3: A non-exhaustive account of theoretical descriptors of learning

*Forms of learning* concern the “actualization” or the process identity of learning, its shape, structure and form (following the Aristotelian principle of defining forms). For example, learning can occur in the form of Lesson drawing where policy actors learn from the experiences across jurisdictions to address similar issues in their own contexts through critically analyzing and adapting successful policies or programs to fit local needs (Rose, 1991). It can also occur through policy transfer where policies, administrative arrangements, institutions, and ideas travel from one political setting to another. That is a process that can include both voluntary and coercive transfers, where policies are adopted either by choice or due to external pressures (Dolowitz & Marsh, 1996). Last is the *degrees of learning,* referring to the ‘depth’ or extent of learning. Here, literature offers four-scale gradient. Single loop learning focuses on identifying adjustments within existing policy instruments without questioning the underlying assumptions or objectives. Mostly attempting to achieve better outcomes within the current policy framework. Double loop learning delves deeper by reflecting on and questioning the underlying policy goals, assumptions and strategies. A process that involves potential changes in fundamental principles and approaches underlying policies (see Argyris & Schön, 1978). Triple loop learning involves reflecting on the learning process itself, mainly by challenging existing rules and norms, leading to changes in how knowledge is acquired and put to use in the learning process (see Tosey, Visser, & Saunders, 2012). The fourth and deepest level of learning is Quadruple loop learning. This occurs when broader social, political, and contextual factors are incorporated in the learning process, leading to continuous adaptations of norms, values, procedures, and learning procsses structures (e.g., Lee, Hwang & Moon, 2022). It is important to note here that these degrees of learning are often mapped against orders of change where single, double, and triple loop learning are associated with first, second, and third order change respectively (see Heclo, 1974; Hall, 1993; Zaki, Pattyn & Wayenberg, 2023).

The above review of the vibrant policy learning literature shows a landscape sprawling with a wide range of ontologies, conceptual and theoretical approaches, that continuously grows on the basis of empirical analyses across a wide range of policy domains. While this literature continues to provide insights into policy processes an outcomes, the persistent issue of how learning aggregates across the micro, meso, and macro levels, from individuals to collectives remains scarecely theorized, and challenging to address (see, Jones, 2017; Dunlop & Radaelli, 2017). In chapter 2 of this element, we turn our attention to this issue, outlining the microfoundations of learning, its aggregation across multiple levels of analysis and the challenges therein.

# Bibliography

Adcock, R., & Collier, D. (2001). Measurement Validity: A Shared Standard for Qualitative and Quantitative Research. *American Political Science Review, 95*(3), 529–546. Retrieved from https://www.jstor.org/stable/3118231

Albright, E. A. (2011). Policy Change and Learning in Response to Extreme Flood Events in Hungary: An Advocacy Coalition Approach. *Policy Studies Journal, 39*(3), 485-511. doi:10.1111/j.1541-0072.2011.00418.x

Ansell, C., Lundin, M., & Öberg, P. (2017). How learning aggregates: a social network analysis of learning between Swedish municipalities. *Local Government Studies, 43*(6), 903-926. doi:10.1080/03003930.2017.1342626

Argyris, C., & Schon, D. (1978). *Organizational learning: A theory of action perspective.* Reading, MA: Addison-Wesley.

Baumgartner, F., Jones, B., & Mortensen, P. (2018). Punctuated equilibrium theory: Explaining stability and change in public policymaking. In C. Weible, & P. Sabatier (Eds.), *Theories of the policy process* (pp. 55– 104). New York: Routledge.

Beach, D., Schäfer, D., & Smeets, S. (2019). The Past in the Present—The Role of Analogical Reasoning in Epistemic Learning About How to Tackle Complex Policy Problems. *Policy Studies Journal, 49*(2), 457-483. doi:10.1111/psj.12372

Bennett , C. J., & Howlett, M. (1992). The lessons of learning: Reconciling theories of policy learning and policy change. *Policy Sciences, 25*, 275-294. doi:10.1007/bf00138786

Biegelbauer, P. (2016). How different forms of policy learning influence each other: case studies from Austrian innovation policy-making. *Policy Studies, 37*(2), 129-146. doi:10.1080/01442872.2015.1118027

Blum, S. (2017). The Multiple-Streams Framework and Knowledge Utilization: Argumentative Couplings of Problem, Policy, and Politics Issues. *European Policy Analysis, 4*(1), 94-117. doi:10.1002/epa2.1029

Boin, A., Ekengren, M., & Rhinard, M. (2020). Hiding in Plain Sight: Conceptualizing the Creeping Crisis. *Risks, Hazards, & crisis in Public Policy, 11*(2), 116-138. doi:10.1002/rhc3.12193

Borrás, S. (2011). Policy learning and organizational capacities in innovation policies. *Science and Public Policy*, 725–734. doi:10.3152/030234211X13070021633323

Borrás, S., & Jacobsson, K. (2004). The Open Method of Co-Ordination and New Governance Patterns in the EU. *Journal of European Public Policy, 11*(2), 185-208. Retrieved from https://doi.org/10.1080/1350176042000194395

Busetti, S., & Righettini, M. S. (2023). Policy learning from crises: lessons learned from the Italian food stamp programme. *Policy & Politics, 51*(1), 91-112. doi:10.1332/030557321X16678318518550

Candel, J. J., Princen, S., & Biesbroek, R. (2021). Patterns of coordination in the European Commission: an analysis of interservice consultations around climate change adaptation policy (2007–2018). *Journal of European Public Policy*. doi:10.1080/13501763.2021.1983008

Common, R., & Gheorghe, I. (2019). Assessing strategic policy transfer in Romanian Public Management. *Public Policy and Administration, 34*(3), 287-307. doi:10.1177/0952076717730427

Corbett, J., Grube, D. C., Lovell, H., & Scott, R. (2018). Singular memory or institutional memories? Toward a dynamic approach. *Governance, 31*(3), 555-573. Retrieved from https://doi.org/10.1111/gove.12340

Crow, D. A., DeLeo, R. A., Albright, E. A., Taylor, K., Birkland, T., Zhang, M., . . . Cage, C. (2022). Policy learning and change during crisis: COVID-19 policy responses across six states. *Review of Policy Research*. doi:10.1111/ropr.12511

Deutsch, K. W. (1963). *The nerves of government: Models of political communication and control.* New York: The Free Press of Glencoe.

Dewey, J. (1946). *The public and its problems: An essay in political inquiry.* Chicago: Gateway Books.

Dolowitz, D. P., & Marsh, D. (2000). Learning from abroad: The role of policy transfer in contemporary policy-making. *Governance, 13*(1).

Dolowitz, D., & Marsh, D. (1996). Who Learns What from Whom: a Review of the Policy Transfer Literature. *Political Studies, 44*(2), 343-357.

Dunlop, C. (2017). The irony of epistemic learning: epistemic communities, policy learning and the case of Europe’s hormones saga. *Policy and Society, 36*(2), 215-232. doi:10.1080/14494035.2017.1322260

Dunlop, C. A., & Radaelli, C. M. (2013). Systematising policy learning: From monolith to dimensions. *Political Studies, 61*(3), 599–619. doi:10.1111/j.1467-9248.2012.00982.x

Dunlop, C. A., & Radaelli, C. M. (2017). Learning in the bath-tub: the micro and macro dimensions of the causal relationship between learning and policy change. *Policy & Society, 36*(2), 304-319. doi:10.1080/14494035.2017.1321232

Dunlop, C. A., & Radaelli, C. M. (2020). Policy Learning in Comparative Policy Analysis. *Journal of Comparative Policy Analysis: Research and Practice*. doi:10.1080/13876988.2020.1762077

Dunlop, C. A., Radaelli, C. M., & Trein, P. (2018). *Learning in Public Policy: Analysis, Modes and Outcomes.* (C. A. Dunlop, C. M. Radaelli, & P. Trein, Eds.) Palgrave Macmillan.

Dunlop, C., James, S., & Radaelli, C. (2019). Can’t get no learning: the Brexit fiasco through the lens of policy learning. *Journal of European Public Policy, 27*(5), 703-722. doi:10.1080/13501763.2019.1667415

Ettelt, S., Mays, N. B., & Nolte, E. (2012). Policy learning from abroad: Why it is more difficult than it seems. *Policy & Politics, 40*(4), 491-504.

Gerlak, A. K., Heikkila, T., Smolinski, S. L., Huitema, D., & Armitage, D. (2018). Learning our way out of environmental policy problems: a review of the scholarship. *Policy Sciences, 51*, 335–371. doi:10.1007/s11077-017-9278-0

Giest, S. (2017). Overcoming the failure of 'silicon somewheres': learning in policy transfer processes. *Policy & Politics, 16*, 39-54.

Hall, P. A. (1993). Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. *Comparative Politics, 25*(3), 275-296.

Head, B. W., & Alford, J. (2015). Wicked Problems: Implications for Public Policy and Management. *Administration & Society, 47*(6), 711–739. doi:10.1177/0095399713481601

Heclo, H. (1974). *Modern Social Politics in Britain and Sweden: From Relief to Income Maintenance.* New Haven: Yale University Press.

Heikkila, T., & Gerlak, A. K. (2013). Building a conceptual approach to collective learning: Lessons for public policy scholars. *Policy Studies Journal, 41*(3), 484–511. doi:10.1111/psj.12026

Kamkhaji, J. C. (2022). *Policy learning and the Euro: The EU's responses to the sovereign debt crisis.* Cham: Palgrave Macmillan. doi:10.1007/978-3-031-04264-5

Kamkhaji, J. C., & Radaelli, C. M. (2017). Crisis, learning and policy change in the European Union. *Journal of European Public Policy, 24*(5), 714-734. doi:10.1080/13501763.2016.1164744

Karlsen, J., & Larrea, M. (2016). Moving context from the background to the forefront of policy learning: Reflections on a case in Gipuzkoa, Basque Country. *Environment and Planning C: Politics and Space, 35*(4), 721-736. doi:10.1177/0263774X16642442

Kerber, W., & Eckardt, M. (2007). Policy learning in Europe: the open method of co-ordination and laboratory federalism. *Journal of European Public Policy, 14*(2), 227-247. doi:10.1080/13501760601122480

Kingdon, J. (1984). *Agendas, Alternatives, and Public Policies.* Boston: Little Brown.

Koebele, E. A. (2019). Policy learning in collaborative environmental governance processes. *Journal of Environmental Policy & Planning, 21*(3), 242-256. doi:10.1080/1523908X.2019.1623661

Lasswell, H. D. (1951). The Policy Orientation’. In D. Lernerand, & H. D. Lasswell (Eds.), *The Policy Sciences: Recent Developments in Scope and* (pp. 3-15). Stanford: Stanford University Press.

Lasswell, H. D. (1970). The Emerging Conception of the Policy Sciences. *Policy Sciences, 1*, 3–14. doi:10.1007/BF00145189

Lee, T., & Van de Meene , S. (2012). Who teaches and who learns? Policy learning through the C40 cities climate network. *Policy Sciences, 45*, 199-220. doi:10.1007/s11077-012-9159-5

Legrand, T. (2012). Overseas and over here: policy transfer and evidence-based policy-making. *Policy Studies, 33*(4), 329-348. doi:10.1080/01442872.2012.695945

Levy, J. S. (1994). Learning and Foreign Policy: Sweeping a Conceptual Minefield. *International Organization, 48*(2), 279-312. Retrieved from http://www.jstor.org/stable/2706933

Lindblom, C. (1959). The Science of "Muddling Through". *Public Administration Review, 29*, 79-88.

Malkamäki, A., Wagner, P. M., Brockhaus, M., Toppinen, A., & Ylä‐Anttila, T. (2019). On the Acoustics of Policy Learning: Can Co‐Participation in Policy Forums Break Up Echo Chambers? *Policy Studies Journal, 49*(2), 431-456. doi:10.1111/psj.12378

Marsh, D., & Sharman, J. C. (2009). Policy diffusion and policy transfer. *Policy Studies, 30*(3), 269–288.

Motta, M. J. (2018). Policy Diffusion and Directionality: Tracing Early Adoption of Offshore Wind Policy. *Review of Policy Research, 35*(3), 398-421. doi:10.1111/ropr.12281

Moyson, S. (2017). Cognition and policy change: the consistency of policy learning in the advocacy coalition framework. *Policy and Society, 36*(2), 320-344. Retrieved from https://doi.org/10.1080/14494035.2017.1322259

Moyson, S., Scholten, P., & Weible, C. M. (2017). Policy learning and policy change: theorizing their relations from different perspectives. *Policy and Society, 36*(2), 161-177. doi:10.1080/14494035.2017.1331879

Newman, J., & Bird, M. G. (2017). British Columbia’s fast ferries and Sydney’s Airport Link: partisan barriers to learning from policy failure. *Policy & Politics, 15*, 71-85. doi:10.1332/policypress/9781447352006.003.0005

Nowlin, M. C. (2021). Policy Learning and Information Processing. *Policy Studies Journal, 49*(4), 1019-1039. doi:10.1111/psj.12397

Ostrom, E. (2007). Institutional Rational Choice: An Assessment of the Institutional Analysis and Development Framework. In P. A. Sabatier (Ed.), *Theories of the Policy Process* (pp. 21-64). Cambridge, MA: Westview Press.

Rietig, K. (2019). Leveraging the power of learning to overcome negotiation deadlocks in global climate governance and low carbon transitions. *Journal of Environmental Policy & Planning, 21*(3). Retrieved from https://doi.org/10.1080/1523908X.2019.1632698

Rittel, H. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*, 155-169.

Rose , R. (1991). What is Lesson-Drawing? *Journal of Public Policy, 11*(1), 3 - 30. doi:0.1017/S0143814X00004918

Sabatier, P. A. (1988). An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein. *Policy Sciences, 21*, 129-168. doi:10.1007/BF00136406

Sabatier, P. A. (1993). Policy change over a decade or more. In P. A. Sabatier, & H. J. Jenkins-Smith (Eds.), *Policy Change and Learning.* Boulder, Co: Westview Press.

Sanderson, I. (2009). Intelligent policy making for a complex world: pragmatism, evidence and learning. *Political Studies, 57*(4), 699–719. doi:10.1111/j.1467-9248.2009.00791.x

Shi, S.-J. (2012). Social policy learning and diffusion in China: The rise of welfare regions? *Policy & Politics, 40*(3), 367-385. doi:10.1332/147084411X581899

Simon, H. A. (1947). *Administrative behavior.* New York, NY: Macmillan.

Stark, A. (2019). Policy learning and the public inquiry. *Policy Sciences, 52*, 397–417. doi:10.1007/s11077-019-09348-0

Taylor, K., Jeschke, N., & Zarb, S. (2023). Analysing the contextual factors that promote and constrain policy learning in local government. *Policy & Politics, 51*(1), 113–130. doi:10.1332/030557321X16574892242428

Tosey, P., Visser, M., & Saunders, M. N. (2012). The origins and conceptualizations of ‘triple-loop’learning: A critical review. *Management Learning, 43*(3), 291–307. doi:10.1177/1350507611426239

Trein, P., & Vagionaki, T. (2022). Learning heuristics, issue salience and polarization in the policy process. *West European Politics, 45*(4). doi:10.1080/01402382.2021.1878667

Wagner, P. M., & Ylä-Anttila, T. (2018). Can policy forums overcome echo chamber effects by enabling policy learning? Evidence from the Irish climate change policy network. *Journal of Public Policy, 40*(2), 194-211. Retrieved from https://doi.org/10.1017/S0143814X18000314

Wai Yip So, B. (2012). Learning as a Key to Citizen-centred Performance Improvement: A Comparison between the Health Service Centre and the Household Registration Office in Taipei City. *Australian Journal of Public Administration, 71*(2), 201-2010. doi:10.1111/j.1467-8500.2012.00769.x

Weiss, C. (1986). Research and policy-making: a limited partnership. In F. Heller (Ed.), *The Use and Abuse of Social Science* (pp. 214–235). London: Sage.

Zaki, B. L. (2023). Practicing policy learning during creeping crises: Key principles and considerations from the COVID-19 crisis. *Policy Design and Practice*. doi:10.1080/25741292.2023.2237648

Zaki, B. L. (2024). Policy Learning Governance: A new perspective on agency in policy learning theories. *Policy & Politics, 52*(3), 412–429. doi:10.1332/03055736Y2023D000000018

Zaki, B. L., & Dupont, C. (2024). Understanding political learning by scientific experts: A case of EU climate policy. *Journal of European Public Policy, 31*(7), 1993-2025. doi:10.1080/13501763.2023.2290206

Zaki, B. L., & Radaelli, C. M. (2024). Measuring policy learning: Challenges and good practices. *Perspectives on Public Management and Governance, 7*, 37–46. doi:10.1093/ppmgov/gvae001

Zaki, B. L., & Wayenberg, E. (2021). Shopping in the Scientific Marketplace: COVID-19 through a policy learning lens. *Policy Design and Practice, 4*(1), 15-32. doi:10.1080/25741292.2020.1843249

Zaki, B. L., & Wayenberg, E. (2023). How does policy learning take place across a multilevel governance architecture during crisis? *Policy & Politics, 51*(1), 131–155. doi:10.1332/030557321X16680922931773

Zaki, B. L., Wayenberg, E., & George, B. (2022). A Systematic Review of Policy Learning: Tiptoeing through a Conceptual Minefield. *Policy Studies Yearbook, 12*(1), 1-52. doi:10.18278/psy.12.1.2

Zito, A. R. (2009). European agencies as agents of governance and EU learning. *Journal of European Public Policy, 16*(8), 1224-1243. doi:10.1080/13501760903332795