Policy Transfer as Learning – Capturing Variation in What Decision-Makers Learn from Epistemic Communities

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ABSTRACT

Almost two decades ago, Peter M. Haas formulated the epistemic communities framework as a means of exploring the influence of knowledge-based experts in international policy-making. Specifically, the approach was designed to address decision-making instances characterized by technical complexity and uncertainty. Control over the production of knowledge and information enables epistemic communities to articulate cause and effect relationships and so frame issues for collective debate. Remarkably however, we still know very little about the *variety of ways* in which decision-makers actually learn from epistemic communities. This article suggests that variety is best captured by differentiating between the control enjoyed by decision-makers and epistemic communities over the production of substantive knowledge – or means – that informs policy on the one hand and the policy objectives – or ends – to which that knowledge is directed on the other. The implications of this distinction for the types of epistemic community–decision-maker learning exchanges that prevail are elaborated using a typology of adult learning from the education literature which delineates the four possible learning situations. Section one of the article examines how the epistemic communities' framework currently organizes and captures variation in decision-maker learning, outlines a possible learning typology and addresses the likely criticisms of this enterprise. The potential usefulness of this typology requires empirical investigation; section two of the article uses the comparative study of US and EU decision-makers' interaction with the epistemic community that formed around the regulation of the biotech milk yield enhancer bovine somatotrophin (rbST) to explore how the learning types identified in the model play out in practice. The third and concluding section examines how well the learning types measure up against three of the main desiderata for assessing such schema.

INTRODUCTION

Though the epistemic communities concept enjoys good currency across political science[1], nearly two decades after it was first unveiled (Haas, 1990, 1992a), the epistemic communities' framework continues to buck the academic trend of conceptual revision through empirical investigation observed in similar approaches (notably, the study of policy communities and the advocacy coalition framework). Despite the presence of a healthy empirical literature using the idea of an epistemic community in different ways and in conjunction with different approaches, only in a handful of studies have related any findings back to framework itself (Dunlop, 2000a; Radaelli, 1995; Zito, 2001). Significantly, none of these interventions address the central mechanism that underpins epistemic communities' influence – the ability to assume control over knowledge production and in doing so guide decision-maker learning.

It is clear that epistemic communities can stimulate policy transfer inducing changes in state interests (for example Haas, 1992b) and resulting in global forms of public policy (Stone, 2000, 2008). Decision-makers are not always situated behind an all encompassing veil of ignorance however (indeed arguably a more common problem is information overload) and policy issues with transboundary implications are often addressed through divergent approaches and rival policy standards (Drezner, 2007; Vogel, 1995). We should not assume that experts have no role in these instances of non-transfer of course. We know from the knowledge utilization literature for example than even when technical uncertainty associated with an issue is high, decision-makers may know their own policy preferences calling upon experts to offer advice on discrete aspects of an issue (Weiss, 1979). Epistemic actors are also brought together by decision-makers to advise them in situations where their technical

rationality is relatively unbounded. Experts' role here is to legitimize and endorse learning that has already taken place rather than directly feed into decision-makers' thinking (Lipsky, 1977).

By conflating decision-maker uncertainty with comprehensively bounded rationality, the epistemic communities approach overstates the level of influence ascribed to epistemic communities and in particular their ability to shape decision-makers' intentions. The variety of roles and levels of influence epistemic communities have over decision-maker learning are not captured by the framework as it stands and as a result we have no systematic way of ordering analysis and comparing learning within and across cases. How can the variety of ways in which epistemic communities influence decision-makers' belief systems be captured by the framework? How can we conceptualise learning exchanges where epistemic communities advise decision-makers who possess their own knowledge and have other epistemic resources at their disposal? Specifically, how can we model the different levels of control over learning enjoyed by epistemic communities and decision-makers? This article suggests that variety is best captured by differentiating between the control enjoyed by decision-makers and epistemic communities over the production of substantive knowledge – or means – that informs policy on the one hand and the policy objectives – or ends – to which that knowledge is directed on the other. The implications for the types of epistemic community–decision-maker learning exchanges that prevail are elaborated using a typology of adult learning from the education literature which delineates the four possible learning types that flow from this distinction. Section one of the article examines how the epistemic communities' framework currently organizes and captures variation in decision-maker learning, outlines a possible learning typology and addresses the likely criticisms of this enterprise. The potential usefulness of this typology requires empirical investigation; section

two of the article uses the comparative study of United States (US) and European Union (EU) decision-makers' interaction with the epistemic community that formed around the regulation of the milk yield enhancer bovine somatotrophin (rbST) to explore how the learning types identified in the model play out in practice. The third and concluding section examines how well the learning types measure up against three of the main desiderata for assessing such schema: mutual exclusivity, joint exhaustiveness and theoretical coherence and fruitfulness (Hood, 1996: 208).

We should be clear; the central aim of this article is to contribute to the 'reflective research programme' that Haas and his colleagues originally hoped to precipitate (Adler and Haas, 1992; Haas and Haas, 2002). Rather than re-invent any wheels, the interest is to make 'smart' revisions that expand the framework in a manner that is both compatible with the theoretical logic that underpins it and consistent with the findings of empirical studies of epistemic communities in action.

SECTION 1   VARIATION IN EPISTEMIC COMMMUNITY–DECISION-MAKER INTERACTIONS AND THE NEED FOR ANALYTICAL ORDER

Epistemic communities are amalgams of professionals working across both the social and natural sciences that produce issue-relevant knowledge. They possess a specific blend of beliefs covering four elements:

> [1] a shared set of normative and principled beliefs, which provide a value-based rationale for the social action of community members; [2] shared causal beliefs, which are derived from their analysis of practices leading or contributing to a central set of problems in their domain

and which then serve as the basis for elucidating the multiple linkages between possible policy actions and desired outcomes; [3] shared notions of validity – that is, intersubjective, internally defined criteria for weighing and validating knowledge in the domain of their expertise; and [4] a common policy enterprise – that is, a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence (Haas, 1992a: 3).

Emphasizing learning as a potentially central mechanism effecting policy development, change and transfer, the epistemic communities framework complements existing theories of international behaviour that focus upon calculations of costs and benefits (neorealism), control over economic resources (dependency theories) and the use of words and discourse (poststructuralism) (Haas, 1992a: 6). This blend of beliefs and highly specialised expertise distinguish epistemic communities from interest groups and policy networks (Haas, 1992a: 22) enabling them to make legitimate claims to being *the* main producers of knowledge in an issue area giving them the potential to occupy the elevated position of what might be called 'principal teachers' to decision-makers. While epistemic communities' central role in information production gives them the authoritative status to occupy this principal position, we cannot assume that they will be able to exert control over every aspect of what is known about an issue or that the control they do enjoy will be uniform across time and space. To understand the different roles epistemic communities occupy in the policy process we must have a clear, coherent and systematic way of describing variation in this explanandum. Thus, when we speak about ordering the analysis of epistemic community–decision-maker interactions, the aim is to categorize the range and diversity of influence enjoyed by these expert enclaves by settling on a small number of relevant types of learning. Before constructing such a learning typology, we must first establish why this gap exists in epistemic

community analysis. Specifically, how does the epistemic communities framework as it stands deal with decision-maker learning and in what ways is it incomplete?

1.1 THE DEFICIT MODEL OF LEARNING IN THE EPISTEMIC COMMUNITY FRAMEWORK

In his exposition of the epistemic communities' framework, Haas provides a clear definition of learning. Learning is a process of informing decision-makers' beliefs about the four key components of complex technical issues embodied by epistemic communities with particular attention drawn to epistemic communities' influence on the 'substantive nature of … policy arrangements' and their more overtly political role as the 'nonsystemic origins of state interests' (1992a: 4). Experts' potential to stimulate learning within and across states is assured by the control they enjoy over the production of knowledge relating to an issue (Haas, 1992a: 2) and the influence they exert a function of decision-makers' uncertainty.

Despite this clarity and specificity, the framework fails to produce an internally coherent account of the possible forms of learning that arise between epistemic communities and decision-makers. Though Haas sees analysis as underpinned by a logic of 'limited constructivism' (1992a: 23; see Haas, 2007 for a fuller account) where the learning that epistemic communities stimulate is mediated by structural realities and decision-makers' own intentions and political support (Stone, 2000: 66; 2005: 94), the framework emphasizes a single form of learning that depicts control over knowledge as something which epistemic communities have and decision-makers, whose bounded rationality initiates their call for advice, do not have (1992a: 14-16). The manner in which uncertainty is defined is the root of

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the problem here. Epistemic communities' entry into the policy arena is a function of decision-makers' technical uncertainty, however by conflating this uncertainty with comprehensively bounded rationality we are left with a single learning category where decision-makers experience extreme epistemic deficiencies which need to be filled. And so, despite disaggregating belief systems into individual components in the definition of what an epistemic community actually is and highlighting the difference between inputs that are substantive and political, the epistemic resources experts control and pass on to decision-makers are portrayed as a unified good.

This deficit model of learning, where epistemic communities are required to fill decision-makers knowledge gaps, reflects the case which informed the original development of the epistemic communities approach. Haas's major study *Saving the Mediterranean* (1990) from which the framework was developed illustrates the extreme level of influence that epistemic communities can have and policy transfer they can effect. In this case, the epistemic community had the power to make decision-makers cooperate and develop policies in ways they would not otherwise have. Such ideal typical cases yield important examples of what is possible, however they highlight extreme phenomena. If it is to explain the role of epistemic communities in 'who learns what, when, to whose benefit and why' (Adler and Haas, 1992: 370) the analytical framework must be able to account for the variety of these actors' learning interactions. To do so we follow through on the 'limited constructivist' logic that Haas argues should underpin analysis and focus upon the ways in which decision-makers' intentions mediate the learning processes in which they engage. This is something that Haas himself acknowledges at points. Using a less restrictive definition of uncertainty for example, Haas describes a scenario where decision-makers rely on epistemic communities for only *certain aspects* of policy knowledge with an epistemic community providing substantive policy

inputs associated with normative convictions [component 1], cause and effect beliefs [component 2] and shared notions of validity [component 3] that justify policy alternatives [component 4] that are the product of decision-makers' political preferences and do not necessarily reflect the epistemic community's preferred policy agenda (1992a: 15). Where intentions are unclear or controversial uncertainty is generated and gaps appear in which epistemic communities can insinuate themselves. Learning may also be differentiated across time and space as well as knowledge components; epistemic communities can be 'called in' to provide one type of input and find that the scope and intensity of their influence may increase, decrease or change in emphasis (1992a: 16). As yet however, we have no systematic way of describing this variation within or between cases which compromises the internal coherence of the framework itself.

The external consistency of the framework also suffers as a result of the undifferentiated conceptualisation of learning. In addition to ideal typical cases, where epistemic communities' influence *both* substantive policy detail and decision-makers' policy objectives, empirical studies themselves illustrate that more varied types of learning exchanges exist between these actors. One of the best examples can be found in the 1992 *International Organization* special edition edited by Haas. In Ikenberry's study of Anglo-American postwar economic settlement (1992), an epistemic community was assembled by decision-makers to provide technical and normative guidance to facilitate a move away from policies based on unregulated free trade. A similar instance of decision-makers delimiting the policy ends is provided by Verdun in her study of the Delors' Committee that was called upon to provide epistemic resources to decision-makers seeking to deliver and diffuse Economic and Monetary Union (EMU) (1999).

Rather than dismiss these as 'limiting' cases (Haas, 1992a: 5), the line taken here is that these studies illustrate the importance of extending the framework to accommodate the variation in influence enjoyed by epistemic communities over decision-maker learning across time and space. Significantly, they resonate with the distinction between two types of knowledge inputs implied by Haas: where what decision-makers learn about the substantive detail of an issue is distinct from the policy objectives or ends to which this information is directed (1992a: 4). It is suggested here that these represent the two 'outstanding' (Weber, 1904 in Watkins, 1953: 724) dimensions along which interactions between epistemic communities and decision-makers vary and upon which a more nuanced categorization of learning types should be constructed. Identification of these dimensions is central to the construction of a typology of epistemic community–decision-maker learning exchanges which is necessarily a selective and abstractive enterprise that highlights the most relevant dimensions of a framework and isolates extraneous 'disturbing factors' (Watkins, 1953: 724-725). Here uniformities are identified by isolating certain elements of data that are the most relevant to the problem at hand rather than through the consideration of the 'totality of knowledge' (McKinney, 1966: 2-3).

1.2 CONSTRUCTING A TYPOLOGY OF EPISTEMIC COMMUNITY–DECISION-MAKER EXCHANGES: LEARNING FROM THE ADULT EDUCATION LITERATURE

With the main dimensions of variation in epistemic community–decision-maker learning exchanges identified, attention must now turn to the question of *how* such a typology is to be constructed. The lifelong learning literature provides a way to elaborate this conceptualisation

and create a common language with which to describe and explain these exchanges. In their work on adult learning, Mocker and Spear (1982) argue that to understand the interactions between teachers and learners we need to view adult learners as intentional actors who choose to learn and aim to control the learning processes in which they become engaged. It is not assumed however that learners have it all their own way all of the time. Learning is heavily conditioned. While they are 'intendedly rational' (Simon, 1947), learners' (and decision-makers') ability to control knowledge production and take ownership of their learning is mediated by variables which determine the extent to which their rationality is bounded – notably their pre-existing 'mental maps' (Denzau and North, 1994), values and knowledge (Brown, 1995; Tolman, 1948) and perception of the socio-political and institutional 'lifespaces' they inhabit (Argyris and Schön, 1978; John-Steiner, 1997; Lave and Wenger, 1991; Lewin, 1951). Empirical studies of learning confirm this tension between intention and limited cognition. Echoing the logic and findings of the epistemic communities approach, the education literature illustrates that the knowledge adult learners need is often both complex and important to them – factors that can make it difficult for them to take the lead in substantive terms or immediately identify *and* progress their objectives. Thus, to explain adult learning we must distinguish between the different levels of control enjoyed by learners over what is to be learned in terms of the form, mode of delivery and timing of a subject's substantive content – 'learning means' – and the objectives to which those means are directed – 'learning ends' (Mocker and Spear, 1982: 2).

The distinction between the control enjoyed by teachers and learners over what is learned and how this is applied results in a simple two-by-two matrix in which Mocker and Spear (1982) position four different types of learning: self-directed learning, informal learning, formal learning, and non-formal learning (figure 1 provides a schematic illustration). Comprehensive

typification is the aim here. Because their typology is constructed upon empirical reality as well as theoretical assumptions of intended rationality, the learning situations Mocker and Spear describe are well-grounded and involve a sufficiently low degree of abstraction that capture specific learning dynamics whose occurrence is 'objectively probable' as opposed to the 'objective possibility' associated with single ideal types (McKinney, 1966: chapter 2 for a comparison of ideal types and constructed typologies).

FIGURE 1 GOES HERE

The theoretical focus on learners' intentions and differentiation between means and ends this typology shares with the rationale and empirical findings of Haas's framework are suggestive of its potential to elaborate decision-maker-epistemic communities learning exchanges. To operationalise it, the four components identified by Haas can be reclassified quite simply into the foci of means and ends with shared normative beliefs [component 1] cause and effect postulates [component 2] and intersubjective understandings of validity [component 3] making up the substantive means produced around an issue and the most overtly political component of epistemic communities the common policy enterprise [component 4] equating to the end objectives. Along with its potential fit with the epistemic communities' framework, this distinction avoids the controversial assumption implicit in some of the policy transfer literature that a positive correlation exists between control over substantive knowledge and the identification of policy goals[2].

The four are outlined in further detail below where they are related to epistemic community–decision-maker learning exchanges (see figure 2 for an adapted illustration). It is worth repeating that this article's interest is in how well these exchanges can be classified within the typology and it does not engage in formal congruence testing. Therefore, the aim here is to describe what constitutes each of the four learning types not to build hypotheses. As well as describing the balance of power envisaged by each category for these actors, attention is also paid to how the phenomenon can be observed. Though tentative, suggesting evidential requirements for each learning type reduces the risk of reification and moves us closer to the wider ambition of establishing a systematic approach (see Bailey, 1992 and Elman, 2005 for a wider discussion of reification). Achieving such clarity about the property space that constitutes decision-maker learning will also ensure a nontautological operationalization of learning where decision-makers' ability to define the substantive means and policy alternatives are gauged without referencing the influence of epistemic communities we are seeking to explain. With learning defined as a knowledge acquisition process, we are interested in who takes the lead and assumes control over knowledge production over the course of policy making rather than the ultimate policy outcomes. After all, while policy change can be the result of learning, learning can be present when outcomes appear to remain stable and not alter at all.

FIGURE 2 HERE

Self-directed learning is individualized and experiential. Here, learning is unstructured and driven by the learner. With their learning unrestricted by any disciplinary silos or paradigms and pre-determined goals, learners enjoy control over all aspects of learning seeking out knowledge from a variety of sources, constructing the problem and establishing their own solutions in their own time; 'learning what they want for as long as they want and stopping when they want' (Rogers, 2004). In its most extreme form, self-directed learning can result in learners both adjudicating and creating evidence rejecting that possibility that any expertise is superior to their own (Rogers, 2002: 275). More usually knowledge creation here is not entirely autodidactic, notably learners in the self-directed mode may take advice from a range of teachers on the veracity of the information they find (Hiemstra, 1994). They do not however identify with a single actor to inform the content and direction of policy. The avoidance of single paradigms or knowledge hierarchies to structure what they learn implies that where decision-makers direct their own learning, epistemic communities may simply represent one possible information source among many or may be shut out altogether.

Demonstrating self-directed learning requires evidence that teachers – epistemic communities for our purposes – play a weak role in setting both learning content and ends to which it is directed. This is only serves as a prima facie indicator however. Epistemic communities can be treated as one teacher among many, ignored or their evidence contested by decision-makers who are not engaged in self-directed learning. Following the experiential learning literature, true self-directed learning requires evidence that decision-makers have either learned from critical reflection of experience or are learning by doing (Boud, 1985; Jarvis, 1987; Kolb, 1984) where evidence is sought out from a wide range of sources and pieced together in a way that creates something different and becomes what they know (for more on this 'epistemological bricolage' see Freeman, 2007).

Informal learning treats learners as task-conscious where learning is not enlightenment for its own sake but rather revolves around assembling the means to dispatch a specific task which has been effectively set for them (Rogers, 2003: 18-21). While the learner directs the selection and production of substantive resources, the presence of externally determined objectives bound this scope for choice; the development of 'know-how' requires that learners are conscious of extrinsic evaluation where the substantive arguments they amass will be assessed in terms of goals that are determined by other actors.

In relation to decision-makers and epistemic communities, informal learning describes circumstances where experts have a moderate role in the policy process having set policy targets or standards for decision-makers to comply with in the policy that they themselves design. That decision-makers may be coerced to meet certain policy ends is well know (Dolowitz and Marsh, 1996). Demonstrating informal learning within epistemic community–decision-maker exchanges requires evidence that decision-makers recognise the goals anchoring their learning and are engaged in creating or gathering evidence of 'what works' in terms of delivering them.

Formal learning refers to externally imposed learning where the learner's control over both the substantive content of knowledge and ends to which it is applied is severely constrained (Coombs and Ahmed, 1974). Learning here takes the form of guided episodes from teacher to learner where there is acceptance on both sides that learning *needs* to occur (Rogers, 2002: 279). This captures the type of learning and locus of control between epistemic communities and decision-makers posited by the original framework where the epistemic community assumes the role of principal teacher able to influence decision-makers' thinking about both

the substantive means and policy ends of an issue. At its most extreme, epistemic communities determine the length, pace and level of the learning process.

Epistemic communities' knowledge creation is insulated from the political world occupied by decision-makers and learning exchanges limited affairs where these experts' inputs are privileged above others. To demonstrate that formal learning has taken place, we would expect to see epistemic communities' belief systems show up in policy outputs through the supplementation or change of decision-makers' understandings and policy preferences.

Non-formal learning refers to situations where information is molded to learners' own circumstances and the teacher's role is that of facilitator. Here, learners' awareness of what they want to do with what they learn ensures that their engagement with codified knowledge is mediated by pre-existing expectations for determining the use or success of that knowledge (Heimlich, 1993; Tough, 1971). In relation to epistemic communities and decision-makers, an epistemic community may control key resources that determine what learning around an issue proceeds but lack influence over the ends to which those resources are directed. In this scenario, how decision-makers interpret the problem is central to the learning experience. The epistemic community's role is to provide the information required to manage complex issues framed by decision-makers.

For non-formal learning to be identified, evidence is required of decision-makers' dependence on epistemic communities for the delivery, legitimization or justification policy preferences that have been formed independently of their relationship with these experts. Most obviously, this would take the form of scenarios where experts have been commissioned to comment on a specific initiative. It should not be assumed however that learners will always receive the substantive resources they require to achieve their goals. In

the education literature, non-formal learning exchanges are often failed cases of formal learning where the learner has not conformed to teachers' goals or goal-oriented structures have been absent or unclear (Pigozzi, 1999). The result can be a mismatch between the knowledge that teachers are willing and able to impart and the information learners need in order to achieve their personal goals. So for example, decision-makers may commission a piece of research or consolidate an epistemic community within a bureaucracy but remain unable to exert influence over the nature and timing of the epistemic resources that are delivered. Thus, the fact that decision-makers' have autonomously determined the ends to which they want to put information is no guarantee that an epistemic community will provide suitable goods or relax the hierarchy of knowledge in which they believe.

1.3   THE VALUE-ADDED OF TYPOLOGIES

The usefulness of the typology requires empirical investigation. Before doing this, a likely criticism must be addressed. Critics are liable to ask – why categorize learning exchanges at all? In his discussion of the proliferation of typologies relating to policy networks, Judge warns against the academic tendency toward 'overly desiccated … exchanges' (1993: 121). The policy transfer literature has been similarly criticised (Bennett, 1997). Accordingly, we must be certain that such an enterprise is analytically useful and not merely an opportunity to revel in the esoteric. Two functions are addressed by adapting Mocker and Spear's (1982) typology.

First, typologies serve as parsimonious 'criterion points' (Bailey, 1992: 2188) that, at their most basic level, help organise empirical material and allow for the systematic comparison of

cases (Elman, 2005: 294). That epistemic communities' role in helping decision-makers think about the ideational components of an issue goes through peaks and troughs is a discernable feature of many of the studies of policy diffusion however the absence of any basic categorization of learning types frustrates nuanced analysis, systematic comparison and identification of patterns of epistemic communities' influence both within and between cases. Delineating a relevant property space for epistemic community–decision-maker learning exchanges provides a valuable steer to scholars who otherwise face choosing from a range of different and, in some instances, competing conceptualisations of learning from across disciplinary and theoretical traditions. The merit of this approach is particularly strong in relation to epistemic communities where analysis of learning exchanges is obscured by the 'thick description' (Geertz, 1973: 3-30) that epitomises the research methodology. Single case study analyses of international policy controversies usually spanning decades are both a gift and burden. The analytical virtues of in-depth single case studies are well known; most notably they are renowned for their capacity to show us the 'moving picture' of politics in all its complicated glory as opposed to the often too simple and acontextual 'snapshot' (Pierson, 1996). Without an agreed system to organize key aspects of analysis however, ordering and comparing phenomena in a meaningful way is difficult if not impossible.

Second, epistemic communities theoretical precision can be developed using this typology as a starting point. Though the ambitions of this article are to explore the suitability of an adult learning typology for capturing variation in epistemic community–decision-maker learning exchanges this will provide a platform to further the more ambitious goal of building and testing hypotheses. More specifically, new institutional economics (NIE) variants of rational choice theory implicit in the framework that accepts 'limited constructivist' analysis with its incorporation of bounded rationality, cognitive constraints and uncertainty could be used to

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unpack variables associated with decision-makers' intentions. Such congruence testing will undoubtedly enhance the analytical purchase of the framework and advance the epistemic communities' research programme. First however we need to be sure that the typology itself is fit for purpose.

SECTION 2   EXPLORING THE TYPOLOGY: LEARNING IN THE US AND EU IN THE REGULATION OF BOVINE SOMATOTROPHIN

The viability and usefulness of this learning model is explored through an empirical examination of the relationship between decision-makers in the US and EU and the epistemic community promoting the milk yield enhancer – bovine somatotrophin (rbST). In both cases decision-makers learned about rbST, however only in the US case was the epistemic community able to adopt a strong role in decision-makers' learning. Analysis follows a 'process tracing' approach (George, 1997) with the account informed by actors' perceptions of the locus of control what is learned and how policy ends are conceived identified using interview data[3], scientific reports and official documentation. The aim of analysis is to make a conceptual contribution to our limited knowledge of epistemic community-decision-maker interactions in general and how the learning exchanges between these actors evolve and differ across time and space in particular.

rbST is a genetically modified milk aid. In short, bovine somatotrophin is a naturally occurring substance that, with the advent of biotechnology in the 1970s in the United States (US), was synthetically produced for the mass market of dairy farmers. rbST was developed, tested and steered through the regulatory approval process by an epistemic community of

agricultural economists, biotech scientists, veterinary experts, toxicologists and lawyers associated with pharmochemical manufacturer Monsanto and its university partners – notably Cornell University's Department of Animal Science. These actors were united by a normative belief that the product should go to market as it promised dairy farmers greater flexibility in how they managed their herds, a certainty that milk yields could be increased by rbST safely, shared values on the centrality of quantitative risk assessment methods in assessing and evaluating the product and finally a policy aim to get rbST to world market by the end of the 1980s at the latest.

This section outlines the regulatory review of rbST in the US and EU that spanned nearly two decades. The story is structured by the four mechanisms identified through which epistemic communities are expected to engage decision-makers in learning and exert influence: policy innovation; policy diffusion; policy selection; policy persistence (Adler and Haas, 1992). Approaching the narrative in this way helps to organize a large amount of information and locates any fluctuations in learning at different stages of the policy process. As this is a single case study no attempt can be made to discuss possible patterns across these stages, however following Adler and Haas's structure is consistent with the wider aim of systematizing epistemic community case studies to enable such comparative analysis in the future.

2.1   POLICY INNOVATION

Policy innovation captures the early stages of epistemic community–decision-maker exchanges where the epistemic community aims to frame the range of political controversy, define state interests and set standards for how the evidence on an issue is to be evaluated

(Adler and Haas, 1992). Such formal learning did not prevail in the case of rbST however. Rather, the product's scientific development ran concurrent to the establishment of a regulatory framework on biotechnology in the US. Convinced of the huge commercial potential of these innovations and the scientific safety of the technology, the Food and Drug Administration (FDA) took the lead role in establishing a cross-agency 'co-ordinated' regulatory framework. The policy goal here was clear, as a flagship biotech product the FDA was committed to getting rbST approved for market as quickly as possible providing that product safety and efficacy could be established by product developers (Miller, 1988).

Accordingly, the early engagement between the rbST epistemic community and the FDA's Centre for Veterinary Medicine (CVM) bore the hallmarks of non-formal learning. In 1982, the first investigational application was submitted for rbST and the epistemic community began conducting field and clinical trials of the product (Miller, 1988). The product review process followed the iterative norms of knowledge production institutionalized in the US regulatory framework – with the epistemic community engaged in ongoing discussion and providing additional data when the CVM requested (Juskevich and Guyer, 1990). Indeed, the application alone amounted to over 55,000 pages of studies and analysis leading CVM director Gerald Guest to conclude that rbST would be the most extensively studied product the agency had ever handled (in Gibbons, 1990: 852).

This is not the whole picture of learning however. While CVM decision-makers' learning about rbST was non-formal, at certain points it was tinged with self-direction. One particular episode is instructive in this regard. An increased incidence of the udder infection mastitis among dairy cows injected with rbST was detected in trial data. Mastitis is universally recognised amongst dairy farmers as one of the most financially costly diseases they face

because of the intensive antibiotic treatment it requires and the corresponding possibility of lost revenue from spoilt milk (Bramley and Dodds, 1984). Clearly, the threat of a positive correlation between the administration of an rbST product and an increased incidence of mastitis was potentially very damaging for the prospects of the product's uptake in the dairy industry. While some academic veterinarians both from within and beyond the epistemic community (Bauman, 1990; Kronfeld, 1987 respectively) agreed that multi-lactational studies were required into the link between rbST and mastitis, neither the epistemic community nor the CVM believed that the licensing process should be held up by such research (Deakin, 1990). With both sets of actors aware of the potentially infinite costs of the product review process and the target that had been established that the product would reach the market by 1990 (interview; Deakin, 1990), decision-makers at the CVM preferred to convene a subcommittee of the Research Committee of the National Mastitis Council to develop guidelines for the evaluation of mastitis levels in the trial studies to enable it to evaluate the findings before any additional studies were commissioned.

2.2   POLICY DIFFUSION

The framework suggests that epistemic communities' innovations are diffused through communication with scientific colleagues beyond the nation state through conferences and specialist literatures. The epistemic community's aim here is to engage with experts occupying similar positions to their own in ways that enable these new actors to cascade ideas down to and 'exert concurrent pressure' on decision-makers at their local level (Adler and Haas, 1992: 379). This is, of course, an ideal typical account of knowledge transfer between elites and Adler and Haas readily acknowledge that in reality we should expect the

process to be far messier and politically contingent than this stylised description suggests (1992: 379). Indeed, the rbST case confirms that epistemic communities that are successful teachers in one place may not be able to assume the same status in another.

The interpretative context surrounding rbST in the EU created the conditions for self-directed learning among decision-makers and effectively blocked the epistemic community from engaging decision-makers in any sustained learning exchanges. In 1987, when the first product applications were submitted in the EU, the policy debate about biotechnology was in its infancy and dominated by concerns from environmentalists that evidence of the scientific safety of rDNA technology were not robust and that, in normative terms, its applications posed unnecessary threats to the 'European way of life' (Bud, 1993: 207). Such an environment would represent a tough challenge for any epistemic community aiming to help decision-makers learn about its biotech innovation however in this case the barriers were raised higher still. By boosting milk production, rbST would hit what was arguably the weakest link in the Community's enervated agricultural policy (Gardner, 1996: 65). Indeed, in their first contact with Monsanto members of the epistemic community in 1984, European Commission officials from Directorate General (DG) Industry pointed out that the introduction of the milk quota system that year made a yield enhancer a very poor fit for the EU in policy terms (Cantley, 1995: 635; interviews).

While the US had worked through similar debates in the 1970s 'gene wars' these had been succeeded by a regulatory infrastructure underpinned by a strong biotech lobby, supportive scientific community integrated into industry and quantitative risk assessment techniques all of which were fundamentally supportive of the pedagogic efforts of science-based epistemic communities such as that which existed around rbST. In the EU however, there was no

established network of experts working on biotech able to act as idea conduits, nor was there a science-based regulatory framework. Rather, rbST was assessed on the basis of its' potential socioeconomic and environmental impacts as well its safety, quality and efficacy in scientific terms (Commission, 1989). And so, while the rbST epistemic community engaged the independent scientists on the Committee on Veterinary Medicinal Products (CVMP) in a thorough and iterative process of formal learning, this committee's conclusions that rbST products were safe and should be licensed were not binding and rejected outright by decision-makers (Commission, 1991, Commission, 1992: annexes 1 and 2).

Between 1988 and 1994, rbST was under kept review and the subject of successive moratoria prohibiting its use within the Community. Despite efforts to engage sceptical decision-makers (European Parliament, 1988; interviews), the epistemic community failed to gain an audience with decision-makers during this 'review period'. The almost annual renewal of the moratorium was justified by the need to gather further evidence on the substance. Decision-makers in DG Industry (with the support of the European Parliament's Environment Committee) engaged in self-directed learning; collecting evidence focussed upon the risks associated with rbST's socioeconomic impact and its implications for animal welfare and consumer confidence to construct an alternative paradigm. The result was a further moratorium set until 2000. While the development of this belief system by EU decision-makers has been documented in detail elsewhere (Dunlop, 2007), what happened to the epistemic means proffered by the epistemic community again illustrates that one learning type can be tinged with aspects of another. DG Industry contested the epistemic community's interpretation of rbST as safe for animals citing the community's own data on mastitis (Commission, 1992, 1993a, 1993b). This use of outlier evidence from the rbST trials conducted by the epistemic community to bolster their own policy objective to prohibit use of

the substance indefinitely suggests that while learning was self-directed it was tinged by non-formal logic and reliance on substantive knowledge created by the epistemic community – albeit not as that community intended. This deracination of epistemic community evidence also illustrates that intentional analysis highlights the little discussed phenomenon of sub-optimal knowledge transfer (Dowding, 2003).

2.3   POLICY SELECTION

Adler and Haas (1992: 381) acknowledge that the influence of an epistemic community is often a function of the political 'fit' between that group's belief system and those of decision-makers. The expectation here is that where there is resistance, epistemic communities will aim to make their ideas more politically palatable by adapting their message to particular domestic circumstances. Despite the expectation within the CVM and epistemic community that rbST would reach the US market by 1990, questions raised by individuals in the wider scientific community about trial evidence of deleterious impact of rbST for both animals and humans resulted in wider government attention and specifically two Congressionally mandated audits of the CVM's review of rbST (OTA, 1991; GAO, 1992). These challenges are notable not simply because they effectively delayed rbST reaching the market for a further four years but also because it was the CVM and not the epistemic community that sought to address them. Defending their policy decision to grant rbST a license, decision-makers at the CVM were almost transformed from learners to teachers explaining and defending the epistemic means that had been given to them by the epistemic community.

One episode exemplifies this transformation and move to an extreme form of self-directed learning. In the late 1980s, Samuel Epstein a Professor of Occupational and Environmental Medicine at the University of Illinois and longstanding critic of the standards applied by regulatory agencies to the regulation of carcinogens, began warning of what he viewed were the potentially carcinogenic implications that rbST carried for humans (Epstein, 1988). Epstein was the first scientist to suggest publicly that rbST could carry serious implications for human health. This concern centred upon the discovery of a noticeable increase in the trial milk of rbST treated cows of another hormone called 'insulin-like growth factor' (IGF-1) (Epstein, 1988). IGF-1 has long been regarded by the mainstream scientific community as one of the most powerful growth hormones occurring in nature and is found in all milk, including human breast milk. It is therefore identical across the species and in small levels is benign. Epstein argued however that as a growth promoting hormone, IGF-1 could have a mutagenic effect, inducing cell division and tumour growth if consumed at 'sustained incremental levels' (Epstein, 1988: 193). This led him to extrapolate that if IGF-1 could exert a biological influence on the humans consuming milk where its levels were increased, in particular promoting premature growth in children (Epstein, 1988) and breast cancer in women (Epstein, 1990).

Despite the entirely hypothetical nature of these claims, in 1990 the CVM took the unprecedented step of publishing some of the Monsanto dose response data in international journal *Science*. The paper, written by CVM scientists and whose publication was advertised in the *Journal of the American Medical Association (JAMA)* and *Science News*, confirmed the FDA's agreement with the epistemic community that, while rbST-stimulated milk did contain higher levels of IGF-1, no further toxicological studies were not necessary as the levels fell

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within the 'normal' range found in human breast milk and furthermore would be destroyed by pasteurization (Juskevich and Guyer, 1990: 875).

This effectively closed down the IGF-1 controversy for US decision-makers. The CVM's paper was succeeded by a chain of endorsements from the US scientific establishment (notably the American Cancer Society and US National Institutes of Health). Of even greater significance was the international approval conferred upon rbST in June 1992 of the Joint FAO/WHO Expert Committee on Food Additives (JECFA, 1993). This paved the way for the product finally being granted a license in November 1993.

Epistemic communities that focus their efforts on trying to convince others that their interests would be satisfied by switching to the epistemic community's way of thinking are less likely to succeed than those which focus on compromise (Adler and Haas, 1992: 383). The pronounced mismatch between the policy goals of EU decision-makers and those of the epistemic community however made rbST a zero sum game. After a decade of review, in October 1999, the European Commission's DG for Health and Consumer Protection (DG Sanco) – which had been newly empowered following the BSE crisis – announced its intention to propose a permanent ban on rbST. This proposal represented a significant departure from the past not simply because it bolted the already closed door on rbST but by virtue of the epistemic justification upon which it rested.

When DG Sanco assumed charge over the rbST issue the long anticipated trade dispute with the US over rbST was looming. Decision-makers used their experience at the World Trade Organization (WTO) in a similar and ongoing dispute with the US on hormone growth promoters (see Dunlop and James, 2007) and post-BSE institutionalisation of the precautionary principle to guide it in the types of evidence and standards that were

scientifically justifiable in banning rbST (interviews). As a result, decision-makers replaced their self-directed learning with non-formal learning commissioning scientific reports from two DG Sanco committees on the 'adverse effects' of rbST for animals and consumers. The first report from the Scientific Committee on Animal Health and Welfare (SCAHAW) advised that the evidence on mastitis was now sufficient to sustain prohibition (Commission, 1999a). The second scientific contribution, made by the Scientific Committee on Veterinary Measures Relating to Public Health (SCVPH), concerned IGF-1 and in particular reviewed studies that appeared to add weight to Epstein's cancer postulate arguing that more research was required before rbST milk could be assumed to be safe for human consumption (Commission, 1999b).

We should be clear about the status of these committees and the non-formal learning exchanges in which they were engaged. This episode of non-formal learning was tinged with self-direction among EU decision-makers. While the experts were independent academic scientists, they had been vetted and appointed by decision-makers whose policy objectives were explicit. This made the possibility of adverse selection remote (interviews). Indeed, the post-BSE empowerment of DG Sanco and accompanying explication of a precautionary interpretation on all food related risks ensured that scientists opposed to this agenda would be unlikely to be interested in participating in any case (interviews). More specifically, the Commission's enduring interest in the scientific evidence that was available concerning rbST's risks had informed the research agendas of most of the committee members in throughout the 1990s.

2.4   POLICY PERSISTENCE

Policy persistence is underpinned by socialization processes where what has been learned is consolidated and sustained (Adler and Haas, 1992: 384-5). In both the US and EU cases, opposing belief systems that had either resulted from or been consolidated through non-formal learning have been internalized and defended by decision-makers. For Adler and Haas the longevity of these interpretations are expected to be affected by changes in the degree of consensus held by the epistemic community; where a community's authority is diminished so too is the basis for socialization. When we put decision-makers at the centre of analysis the picture is quite different however. Both cases illustrate that while a scientific consensus can be attacked, judgements about whether or not it has been undermined and the authority of an epistemic community / committee diminished are subjective. Throughout the rbST saga, contrary evidence was rejected by both sets of decision-makers and the experts from whom they have learned.

Perhaps the greater challenge for decision-makers would be how to change direction or 'unlearn' on rbST. This is not as far-fetched scenario as it may first appear. In the US for example, the increasing salience of 'pure' and organic food movements has raised the profile of scientific studies associating IGF-1 with various human health disorders[4] and resulted in a growing number of EU dairy processors and retailers going 'rbST-free' (Fox, 2008; Pollack, 2006). Meanwhile in the EU, awareness of the significant changes in global dairy consumption and concerns that the dairy market is uncompetitive may yet put rbST back onto the agenda. The non-formal nature of how both sets of decision-makers have learned about rbST, and their delegation to epistemic communities / committees for the epistemic means that underpin policy, could complicate any plans for policy succession, termination or reversal.

SECTION 3 CONCLUSIONS: THE USEFULNESS OF THE LIFELONG LEARNING TYPOLOGY FOR EPISTEMIC COMMUNITY AND POLICY TRANSFER ANALYSIS

What is the value-added of this typology to the analysis of epistemic communities' role in the policy process? Our concern with 'mutual exclusivity' centres upon the internal coherence of the four learning types. The empirical illustration of rbST provides grounds for optimism suggesting that each of the types are readily distinguishable from one another and provide a parsimonious account of learning exchanges and basis for ordering empirical findings across cases and comparison within them. Further empirical assurances are required that the typology does not contain self-contradictory ideas and in particular more needs to be known about the interaction effects between control over substantive means and ends.

Claims that the learning categories are 'jointly exhaustive' are a function of the extent to which the typology addresses what is intended. Though the study sheds light on only two of the four learning types, it does support the broad argument that no single one of the learning types can lay an overriding claim to being the 'natural' descriptor of epistemic community–decision-maker learning exchanges. The empirical exploration again offers prima facie evidence that the adapted adult learning typology is a lens which enables us to zoom-in on variation in epistemic community–decision-maker learning exchanges interactions. As we know, the epistemic communities' framework aims to address cross-spatial and cross-temporal policy transfer. The contrast between the EU and US in the rbST case illustrates that the typology increases awareness of the simultaneous presence of alternative states of learning across space. Such dynamism is also temporal. Even where the overall policy

outcome was not in doubt, the learning process and the balance of power between decision-makers in both the US and EU and the rbST epistemic community were not static. The EU example illustrates the dynamism of learning exchanges where institutional changes enabled decision-makers to alter their learning strategy switching from self-directed to the non-formal mode where two new epistemic groups were consolidated within the bureaucracy as rivals the rbST epistemic community and US decision-makers. Clearly, congruence testing of the four learning categories is required that goes beyond this case; this could easily start by examining the sizeable bank of epistemic communities empirical material that already exists.

The empirical illustration here suggests that the typology also has the virtue of 'stretchability' (Hood, 1996) meaning it can be drilled into further to offer a fine grained analysis of a range of learning types that exist *within* each of the four categories. To avoid a danger common to typologies where each cell becomes a 'sponge type' that absorbs an ever increasing variety of scenarios (McKinney, 1966: 27), and to improve the level of abstraction associated with the typology, additional learning sub-types were created by applying the two-by-two matrix to each quadrant where learning types found in the corners represent ideal or 'polar types' (see Mars [1992: 38] in Hood [1996] for discussions of this in relation to Mary Douglas's grid group analysis). Thus, while in this case the CVM decision-makers were still engaged in non-formal learning over mastitis, and as such heavily reliant on epistemic agents for substantive inputs, the manner in which they set the boundaries of the empirical work to be done had much in common with self-directed learning.

It is hoped that the adult learning typology will form the basis for a more purposive theoretical research agenda on epistemic communities and the role of experts and decision-maker learning in policy transfer. The intentional approach pursued here matches Haas's own

ambition that the approach be used and developed in concert with macro-level theories and fits the 'limited constructivism' that underpins the framework as it stands. It also addresses anomalies found in empirical studies where epistemic communities' influence is more limited than the original framework's focus on international policy coordination suggests without denying the possibility that they can be 'principal teachers' to decision-makers. By putting decision-makers at the heart of analysis we have a clear analytical way forward where hypotheses can be constructed to explain epistemic communities' influence in terms that are independent of the communities themselves.

What contribution does this expanded approach to epistemic community-decision-maker exchanges make to the explanatory power of policy transfer analysis? The policy transfer literature has been criticised as strong on concepts and weak on systematic empirical analysis (Bennett, 1997: 214). The expansion of epistemic communities outlined here will no doubt have added to the conceptual noise around policy transfer however the principal aim of the enterprise is to facilitate empirical ambitions. At its most basic level, the typology provides a way of tracking decision-maker learning and ordering analysis of cross-national, cross-temporal policy transfer cases in ways that will isolate learning as a mechanism of policy choice. Narrowing our focus to explore the cognitive dimension of policy transfer, and specifically the use of intentional analysis where individuals' preferences and values mediate what is learned and from whom, underlines policy transfer processes as variously strategic, unpredictable, highly specified and difficult to steer – even for experts who initiate the process. The main consequence of such intentional analysis – something with which the literature is not traditionally associated – is to widen the empirical field of vision. Three particular areas for empirical development stand out.

First, lifting the analytical veil in this way reminds us that policy learning is not synonymous with policy adoption (Stone, 1999: 52); decision-makers can learn 'negative lessons' – where learning from the ideas that are diffused help decision-makers crystallise what policy paths they *do not* wish to follow (see Stone, 1999: 52 who suggests the UK's handling of BSE as a possible example of this). Furthermore, the rbST case illustrates that, where those attempting to export an idea have epistemic authority and political backing, this process of non-policy transfer requires significant resources and commitment. The EU could not casually reject rbST but rather resisted by assuming complete control over the policy end to be achieved and guided knowledge acquisition both directly – using the epistemic community's outlier data on mastitis to undermine the case for transfer – and indirectly – commissioning research from experts on other aspects of rbST's potential impact. In short, decision-makers worked hard to block transfer over a protracted period to learn different lessons to those being given by the epistemic community and US. Second, differentiating the ways in which individual decision-makers learn across knowledge components brings into relief cases where what has been learned has been partial or sub-optimal. The EU's appropriation of outlier evidence illustrates that what decision-makers learn from epistemic communities cannot always be controlled by the experts. Finally, focussing on individuals' engagement with epistemic communities and role in policy transfer raises questions about what happens over time as individuals' understandings mature or circumstances change and also when there are personnel changes in key decision-making positions. This latter point links to the questions raised by the rbST case concerning the extent to which decision-makers can become 'locked in' to a learning type selected by their predecessors and may erode incumbents' abilities to terminate a policy which has been transferred or to revisit those rejected. For example, while policy persistence cannot necessarily be assumed, the political ratification of an epistemic paradigm that non-

formal learning entails may construct considerable barriers to change locking decision-makers in to certain ways of thinking. In such situations it may make more sense to think in terms of the institutionalisation of learning types than policy itself. Addressing individuals' thought processes over time and what happens when new decision-makers appear demands that researchers are afforded a window into decision-makers minds through in-depth micro-level primary interviews and that the long view is taken in empirical terms – raising the spectre of historical case studies where analysis spans decades.

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NOTES

[1] In the five citation indexes in the *Web of Science*, Peter M. Haas's introductory article in the 1992 *International Organization* special edition edited by him has been cited 537 times (accessed 6/2/2009).

[2] Notably, James and Lodge criticize the policy transfer model presented by Dolowitz and Marsh (2000) for collapsing these two analytical dimensions onto a single continuum (2003: 184-5).

[3] The author conducted thirty-eight semi-structured interviews with active and retired scientists, civil servants, industry representatives, politicians and interest group actors.

[4] Two particularly high profile studies have associated IGF-1 with a higher risk of diabetes (Baur et al, 2006) and identified milk produced by rbST administered cows as one of three major contributors to increased human twinning (Steinman, 2006).

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Figure 1: Mocker and Spear's lifelong learning typology (1982: 4)

**LEARNERS' CONTROL OVER LEARNING
OBJECTIVES / ENDS**

	HIGH	**LOW**
HIGH **LEARNERS' CONTROL OVER LEARNING CONTENT / MEANS**	**Self-Directed Learning**	**Informal Learning**
LOW	**Non-Formal Learning**	**Formal Learning**

Figure 2: Visual representation of decision-makers' and epistemic communities' control over knowledge based on Mocker and Spear's lifelong learning typology (1982)

**DECISION-MAKERS' CONTROL OVER
LEARNING OBJECTIVES / ENDS**

	HIGH	**LOW**
HIGH	**Self-Directed Learning** Epistemic communities' role is weak	**Informal Learning** Epistemic communities' role is moderate
LOW	**Non-Formal Learning** Epistemic communities' role is moderate	**Formal Learning** Epistemic communities' role is strong (ideal type – Haas, 1992a)

DECISION-MAKERS' CONTROL OVER LEARNING CONTENT / MEANS

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