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Claire A. Dunlop

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The irony of epistemic learning: epistemic communities, policy learning and the case of Europe’s hormones saga

Claire A. Dunlop

Department of Politics, University of Exeter, Exeter, Devon, UK

ABSTRACT
Epistemic communities are at their most powerful in novel and technically complex policy issues when decision-makers’ and stakeholders’ understandings are rudimentary. A successful epistemic community reduces uncertainty through policy learning. These lessons enable policy actors to recognize their preferences thus making such issues more tractable. However, policy learning is dynamic and has various modes. Where an epistemic community’s advice points in unfavourable policy directions, rival lessons may be crafted by policy actors thus threatening an epistemic community’s place as principal teacher on an issue. What happens to the influence of epistemic communities that do not attend to these alternative interpretations? Can epistemic communities teach in the ‘wrong’ mode? Using the empirical case of the long-running hormone growth promoters saga in the European Union (EU) we show how, even in complex technical issues, learning in the epistemic mode may not dominate for long. Specifically, we identify a key barrier to epistemic communities’ influence neglected in the literature: the ‘irony of epistemic learning’. In setting the foundational knowledge on novel issues, epistemic communities provide non-specialist governance actors with the resources to oppose the very knowledge these experts have created thereby curtailing their influence. We conclude with a discussion about whether epistemic communities can and should overcome this irony.

1. Introduction
Policy innovation and change is often underpinned by learning – defined here as the processes by which policy actors’ beliefs are updated as a result of analysis, social interaction, rules and lived experiences (Dunlop & Radaelli, 2013). In issues characterized by novelty and technical complexity, groups of experts – epistemic communities – can be particularly influential teachers to decision-makers (Haas, 1989; 1990, 1992). Specifically, epistemic communities are especially powerful actors during the agenda-setting phase of the policy process (Dunlop, 2016; Richardson, 1996) – where knowledge deficits are widest – and where experts have been institutionalized in advisory positions within the bureaucracy.
For a time, epistemic communities find themselves cast in the role of ‘principal teacher’ to uncertain decision-makers – insulated from the political whirl (see Cross, 2013 and Dunlop, 2013 for a review of the literature). Yet policy learning, like the policy process, is dynamic and has various modes characterized by different knowledge uses (Bennett and Howlett, 1992, May, 1992). As decision-makers and stakeholders learn about an issue, these lessons are contextualized against the wider socio-economic backdrop which allows their policy preferences to crystallize. As this veil of ignorance lifts, what was once novel and complex becomes known and simpler (though rarely simple). With the foundational knowledge laid by epistemic communities, the pre-eminent learning mode may shift becoming more a matter of political bargaining between stakeholders than epistemic teaching from expert to decision-maker. Where an epistemic community’s advice points in an unfavourable or controversial policy direction, rival lessons may be crafted or alternative knowledge commissioned by governance actors threatening an epistemic community’s influence. How do epistemic communities in official advisory positions negotiate this unstable terrain? What happens to the influence of epistemic communities that do not attend to these alternative interpretations? Specifically, can we think of epistemic communities teaching in the ‘wrong’ mode?

We use insights from policy learning theories to explore how an epistemic community of agricultural scientists advising the European Commission reacted to the politicization of learning surrounding the use of hormones in meat production. The ‘hormones saga’ which ran from the late 1970s was one of the first supranational food safety controversies, and a critical case which informed the Commission’s early approach to risk governance and specifically its eventual deployment of the controversial precautionary principle. The episode is one of the most high profile rejections of an epistemic community in the European Union (EU). Despite their advisers’ assurances that hormones in meat were safe, marginal areas of the science about the impact of hormone consumption on vulnerable populations and uncertainties concerning long-term consumption were amplified by the European Parliament (EP) and consumer lobby aiming to extend their policy influence. Set against the backdrop of a spike in beef surpluses, the result was a ban on the use of hormones in meat production, and block on the import of meat products created using these compounds which triggered a major trade dispute lasting over a decade.

Drawing on primary interviews 1 with the scientists, policy-makers and stakeholders who were the main players in this controversy, as well as archival documents and scientific reports, this article explores the limits of epistemic communities. Specifically, the hormones case highlights a dimension of epistemic communities’ influence so far neglected in the literature. We call this the ‘irony of epistemic learning’. The authoritative character of experts, coupled with the dynamic nature of learning, means the very lessons created by epistemic communities to reduce uncertainty may also increase the ability and confidence of decision-makers and stakeholders to create alternative and rival knowledge. In this way, experts may ultimately be side-lined, and issues become dominated by learning which results from interest-driven bargaining.

Yet, this is not a fatalistic argument about any built-in obsolescence of epistemic communities. We know from the literature that as uncertainty lifts and scientific issues become

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1In March and April 2000, the author conducted 38 semi-structured interviews with active and retired scientists, civil servants, politicians and interest group actors. In most cases, anonymity was requested.
less technical and more political, epistemic communities need not become redundant. But, if they are to remain relevant, epistemic communities must adapt their behaviour. To be effective policy actors, epistemic communities must be aware when the pre-eminent mode of learning is changing – moving from the epistemic community as teacher mode to one where other actors aim to teach or dominate – and, crucially, they must adapt to the new learning realities (Dunlop, 2014). But, meeting these challenges is easier said than done. Moving learning modes may be particularly difficult for epistemic communities brought in to bureaucratic positions to advise decision-makers. Our case study illuminates the limits the dyadic structure of advisory relationships can place on epistemic communities in dynamic learning situations. The study also underlines that these groups may lack the skills to engage in a new form of teaching to wider audiences. Following on from this, we explore whether it is possible to speak of epistemic communities becoming stuck in the ‘wrong’ mode, where an inability to adapt to the prevailing learning climate leaves them as bystanders watching the knowledge they created being dissected and used selectively.

Our contribution to the literature is theoretical and empirical. Empirically, we show how taking a learning lens on the policy process, and examining the role of epistemic communities in particular, contributes a new dimension to a famous case. There have been various analyses of the hormone growth promoters issue but they have focussed mainly on the issue as a trade dispute (Meng, 1989; Peterson, 1988; Princen, 2004; Vogel, 1995). Far less has been written however about the advisory politics that form the backdrop to the case. Yet, understanding what happened to the learning produced by the scientific experts assembled by the European Commission to advise them on the issue is fundamental if we are to understand the policy outcomes. Theoretically, our main contribution is to identify a key barrier to experts in the policy process by treating epistemic communities’ influence as a function of the dynamic learning environment they, in part, create. Specifically, we use a recent explanatory typology to demonstrate the four main modes of policy learning that dominate policy-making and argue that epistemic communities have a possible role in each (Dunlop & Radaelli, 2013).

The article is structured as follows. Section 2 introduces the so-called ‘hormones saga’. Section 3 outlines the conceptual framework. The following two sections are given over to empirical analysis. Section 4 explores the early years of the case focussing in particular on what and how policy actors learned in the epistemic mode from an epistemic community of veterinary scientists working in the European Commission. Section 5 provides an account of the impact of these experts. In particular, it highlights how changes in the learning mode – due to exogenous forces and endogenous learning – radically altered the status of the epistemic community. The economic crisis in the Common Agricultural Policy (CAP) coupled with the increased understanding of hormones created by the epistemic community moved policy learning into bargaining mode – driven by interests as opposed to scientists. After summarizing the arguments, we finally reflect on what epistemic communities advising in such contexts might do differently.

2. What can theories of policy learning tell us about hormone growth promoters?

Hormones are used in cattle farming to increase the efficiency of feed conversion in treated cattle thus hastening meat production – by around 10–15% (Leathes & Terry, 1988) – and
Reducing feed and processing costs. In 1985, the EU banned the use of all hormonal compounds in livestock rearing. When this ban was extended to meat imports in 1989, so began the longest-running trade dispute between the EU and third country meat producers – notably the United States (US). In 1998, the World Trade Organisation (WTO) finally ruled the ban an illegal trade barrier which could not be scientifically justified as producing meat that was potentially deleterious to human health (WTO/AB, 1998). The ban remains however, and since 1996 the EU has been subject to an ad valorem duty on selected imported goods and trade sanctions (see Johnson, 2015 for a detailed timeline of the various penalties applied).

The ‘hormones saga’ (as it was called in Brussels) which lasted for over three decades was triggered by a small scale though alarming food scare in an Italian school. In 1977, 150 cases of breast enlargement (gynaecomastia) were discovered in pre-pubescent boys and girls at the via Folli School in Milan (Agence Europe, 1980; Fara et al., 1979; Scaglioni, Di Pietro, Bigatello, & Chiumello, 1978). Gynaecomastia results from endocrine disruption and, after some months of investigation and media attention, the root of the problem was traced to veal from cattle treated with diethylstilbestrol (DES)\(^2\) – an oestrogenic (feminizing) hormone and known carcinogen.

The use of DES in livestock production had been banned in Italy in 1961, and its possession outlawed since 1969. A stilbene class of hormone, DES has been known to be orally potent carcinogen since the 1960s (Bridges & Bridges, 2001, p. 149).\(^3\) If it is present in meat being consumed, it can be absorbed by the human body in its active form in levels high enough to be harmful. The importance of dose to body mass ratio makes babies, children, pregnant women and the elderly, especially vulnerable. Yet, despite being illegal, the administration of hormones was still widespread and serviced by a well-established black market. It was suspected that the main source of the hormones were neighbouring European countries where the use of certain substances for medicinal or growth promotion purposes was still legal (BEUC, 1981).

Following a further discovery of DES in baby food, in September 1980 an Italian judge took the unprecedented step of banning the sale of all veal throughout Italy – including veal imported from elsewhere. Directorate General (DG) Agriculture followed suit, proposing to harmonize legislation outlawing the use of DES and other similar stilbene compounds whose carcinogenic properties had been scientifically established (Commission of the European Communities, 1980). The resulting directive in July 1981 (81/602) also required that a specialist scientific group was convened to establish the safety of five other hormones\(^4\) still permitted for growth promotion purposes in six of the ten member states (see Table A1, Appendix 1) – notably use was most widespread in the large meat producing states the UK, France and Ireland.

DG Agriculture requested that scientists from its Scientific Veterinary Committee (SVC) construct a working group. With international veterinary experts on hormones already serving on the SVC, the working group had a ready-made core of six members who then invited

\(^2\)It was thought that DES was present as the result of hormonal implants which had not been removed prior to animals’ slaughter (Loizzo et al., 1984).

\(^3\)In the 1960s, a significant increase was discovered in the incidence of vaginal and cervical cancers in the daughters of women treated with DES during pregnancy (see Dunlop, 2000).

\(^4\)These were three naturally occurring or endogenous hormones – 17ß-estradiol; progesterone; testosterone and two exogenous, synthetic compounds – trenbolone acetate and zeranol.
additional eminent specialists in the field. The Scientific Group on Anabolic Agents in Animal Production contained 22 scientists from across the 10 member states and was chaired by the UK SVC representative Professor Eric Lamming. It was a ‘who's who’ of veterinary and toxicology experts on growth promoters in agriculture (interview with working group member).

We can consider the Lamming group an epistemic community (Haas, 1989, 1992) – formed of internationally renowned scientists from a variety of specialisms but all with expertise on hormones who had previously worked together. Epistemic communities’ claims to highly specified policy-relevant knowledge about a complex issue revolve not only around the expertise of the individual members. They must also collectively embody a belief system around an issue. This contains four knowledge components:

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. (Haas, 1992, p. 3)

This is an anthropomorphic conceptualization of knowledge (Radaelli, 1997, p. 169) where those who carry the ideas are central to analysis; ‘ideas would be sterile without carriers’ (Haas, 1992, p. 27). When we identify an epistemic community, we are identifying a set of policy actors with the professional qualifications (elements 2 and 3) and political motivation (elements 1 and 4) to make authoritative claims on politically pertinent and socially relevant technically complex policy issues.

The Lamming group’s belief system was driven by scientific empiricism. Analysis of the group’s work and interviews with their members, show a group of scientists driven to build a scientific paradigm which they believed should form the basis of policy. All experts on the use of hormones in farming, the Lamming scientists’ central challenge was to produce the definitive statement on their impact on those consuming treated meat (interviews with three members). In normative terms, the group was driven by an entrenched belief that the role of the professional scientist was to follow the scientific method and report the research in its purest form. Substantively, in this case, the group considered their research as a puzzle of pure science where the ‘harmful effects to health induced by growth promoters’ and resultant policy should be judged by accepted international standards of risk assessment of quantitative laboratory extrapolations (interview with working group member).

While they are called upon by governments for advice which often leads to their insinuation into bureaucracies, in Haas’s ideal type, an epistemic community’s membership is not determined by decision-makers. Rather, they operate by peer invitation and through professional networks that self-regulate (see Dunlop, 2010 for a wider discussion of epistemic communities types). This was the case for the Lamming group. The specialists on the SVC were given the freedom by DG Agriculture to select the working group’s chair and select further specialists. These scientists – both those from EC member states who were full members and the external advisers from beyond the EC – were all academic scientists who were part of an international epistemic community of hormones and animal feedstuffs experts – networked through common research groups, projects and membership of international advisory bodies (notably, the Office International des Epizooties [OIE] and the Food and Agriculture Organisation/World Health Organisation’s Joint Expert Committee
on Food Additive [JECFA]). With such a rich hinterland and deep levels of expertise, DG Agriculture officials allowed the Lamming group to take the lead on the group’s research agenda and question simply asking them to explore whether they presented ‘any harmful effects to humans’ (interview with DG Agriculture official; CEC, 1981).

Beyond achieving conceptual clarity, being clear about the origins of an epistemic community matters because it illuminates the nature of the learning relationships in which they are engaged. Epistemic communities that have determined their own membership, and their own terms of enquiry, enjoy considerable operational autonomy. For Haas (1989, 1992), in such circumstances, decision-makers are not in a position to impose their preferences or version of the ‘truth’ because experts’ first loyalty is to their professional norms and collective identity. Where such groups have an institutional position inside a bureaucracy, for example – as the Lamming group did – it makes sense to think of such autonomy as de facto as opposed to formal (see Maggetti, 2007 for a discussion of de facto versus formal autonomy). But, the key point remains that such epistemic communities consider themselves teachers to a limited group of decision-makers and to their colleagues in the wider scientific community. While their judgements will affect the political debate and be of interest to a range of stakeholders, in advisory settings their relationships are dyadic and ‘removed from the political whirl’ (Haas, 1992, p. 5). Indeed, the value of these groups to decision-makers is that they offer authoritative knowledge that has been developed without political interference. In short, they promise a credible basis for policy action. They are able to engage decision-makers in a policy learning process which, for a time, is closed off from the wider debate.

This suggestion of temporal contingency implies a particular way of understanding policy learning. The analysis here treats policy learning – even in highly technical or scientific issues – as a dynamic and political process where it is unlikely that a single group of experts will dominate for an extended period of time. As was the case with the Lamming group, after an initial spell in the limelight, as a policy debate develops and understandings mature as a result of the knowledge imparted by the epistemic community, experts may have to share the policy stage with a wider range of policy actors or risk being relegated to a non-speaking role.

3. Conceptualizing policy learning

Following a recent typology of policy learning, the view advanced is that epistemic learning is context-bound and time-limited. The policy learning literature reveals a variety of learning modes underpinned by different actors and types of knowledge use. Dunlop and Radaelli (2013) develop a fourfold learning typology, based on a review of this literature. The type of policy learning that characterizes an issue is a product of two conditions of decision-making – problem tractability and certification of actors. Before we discuss how they combine, a brief note about their status is in order. Though typologies can tend to appear rather abstract and static, we have emphasized policy learning as dynamic. Changes in the two contextual conditions trigger moves between learning types. How are such changes effected? The conditions are not simply set objective realities that exist ‘out there’. Rather, they are constructed by decision-makers in government who steer governance on the basis of exogenous conditions – economic performance, legal protocols, political power shifts – or
endogenous developments – most notably learning and unlearning by policy actors. Such changes are especially likely where an issue starts in epistemic mode – where epistemic learning clarifies the preferences of decision-makers and interest-based actors, and may trigger ironic consequences where the experts become irrelevant.

Regarding the level of problem tractability associated with the issue – where technical uncertainty is considered to be high – for example an issue is novel – decision-makers need authoritative advice from epistemic communities or alternatively may throw the issue out to society for a wide range of views. Conversely where uncertainty is thought to be low or has been reduced through learning, issues become open to contestation by governance interests or standard setting bodies. The changing nature of epistemic uncertainty is particularly pertinent for the hormone growth promoters issue where decision-makers went from a position of novelty and technical uncertainty – what are these substances and what is their threat – to having a full understanding of their preferences in the space of four years. The pace of this learning journey was influenced by the pressure for decision-makers to learn – driven by the ongoing crisis in the CAP (specifically beef surpluses) and the demands of the consumer lobby to a voice.

The second dynamic contextual dimension concerns the certification of actors: that is the extent to which a group of experts – in this case the Lamming epistemic community or institutional actors such as courts – exists to advise on the issue at hand. Crucially, these experts will not simply hold knowledge, their ‘performances and claims’ to expertise will have been socially validated by the state (McAdam, Tarrow, & Tilly, 2001, p. 121). Learning is not limited to such highly structured formal environments however. Where no single group has been certified, epistemic authority can be, and expertise may be, diffuse or claimed by interested stakeholders.

Taken together, levels of issue tractability and actor certification provide the basic conditions for four types of policy learning that dominate the social sciences literature (see Figure 1): epistemic learning; reflexive learning; learning through bargaining; and hierarchical learning. These four are differentiated by the knowledge use they imply; causal mechanisms that underpin that use; actors’ modes of interaction; the benefits and pathologies of each mode; the types of decision-maker attention that mediate experts’ influence; and, finally, the ways in which epistemic communities might facilitate policy learning in each (see Table 1 for a summary).

We should be clear, no normative superiority is assumed for any of these policy learning types. Rather, as the discussion of their benefits and pathologies suggests, each learning mode can be more or less functional depending on the extent to which their scope conditions are satisfied (for a wider discussion see Dunlop & Radaelli, 2016, pp. 111–112).

Learning can occur in the following modes across an issue’s lifespan:

(1) **Epistemically** – where the belief systems of socially certified epistemic communities, like the Lamming group, show up in policy outputs instrumentally. In its ideal typical form, decision-maker-epistemic community interactions are cooperative but necessarily asymmetrical, with decision-makers effectively being taught by the experts. Where they are successful, a policy that ‘works’ – in policy, normative and technical terms – is produced. However, pathologies of epistemic learning are found in cases of groupthink where expert groups fail to produce evidence that can be deemed socially acceptable and technically accurate.
Reflexively – where knowledge use is open-ended – the result of deliberation by a multiplicity of social actors and citizens. In this mode, issues are treated as uncertain and expertise plural. The result is learning through wide horizontal social networks where knowledge is used to deepen discussion, challenge and recreate received wisdom. In these settings, epistemic communities are simply one actor among many and do not enjoy privileged status. This is learning in the Habermasian mode where decision-makers’ attention is diffuse and policy learning occurs through communication and collective puzzling. In its purest form, deliberation is force-free where a multiplicity of voices can be heard and
preferences open to persuasion. The hierarchy of epistemic learning is replaced by a range of knowledge types – substantive; value-based; experiential – associated with complexity (Sanderson, 2002). To be effective in reflexive environments, epistemic communities must communicate their message in ways that speak to people’s lived experiences.

(3) *As the result of bargaining* – where knowledge use is political or perfunctory. The polar opposite of the epistemic mode, here various issue stakeholders treat the policy issue as straightforward and are powering rather than puzzling (Heclo, 1974). The field is open to politicians, bureaucrats and organized interests to commission and select evidence from a plurality of ‘knowers’ most suited to develop and justify their policy preferences. In such polyarchic, competitive environments it makes sense to think in terms of policy-based evidence making (Hughes, 2007) as opposed to evidence-based policy-making. This is possibly the most challenging mode for epistemic communities to engage in as it requires they become policy advocates and bargain for their understanding of the issue.

(4) *Hierarchically* – when knowledge is imposed from the top. Most commonly, such shadows are cast by institutions, such as courts or standard setting organizations. Epistemic communities frequently show up in these settings as expert witnesses or technical information gatherers. The key for success is to ensure an in-depth knowledge of the institutional rules and how they can confer an advantage to experts.

The next two sections are devoted to empirical analysis, where we map the move from epistemic learning to learning as bargaining in the hormones case, how the epistemic community contributed and responded to this and the implications of becoming stuck in the ‘wrong’ mode of teaching.

4. Hormone growth promoters and epistemic learning

For the first phase of the Lamming group’s work on hormones, the learning environment meets the expectations of the epistemic category. Policy-makers’ uncertainty was both technical and political; the science was unclear and the political ramifications of hormones were opaque, at best. While the consumer lobby called for a ban, pending the Lamming recommendations, the farming groups in individual member states had yet to voice their positions. Furthermore, harmonization of agricultural legislation required unanimity at the Council of Ministers.5 In 1981, following the ban on stilbenes, member states’ positions on the other five hormones reflected their existing national regulations – with six member states being against a ban. Given this, and the fact that 80% of the Community’s beef was produced using hormones, any ban would have to be based on overwhelming scientific evidence of harm (Brand & Ellerton, 1989). The European Parliament (EP) concurred – with only a single Member of the European Parliament (MEP) voting against the recommendation of its agriculture committee that there should be no prohibition (European Parliament, 1981). And so, in these early days of the saga, the scientific advisors were set to play a crucial teaching role in adjudicating what looked set to be an argument of the EU against the European consumer movement.

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5 Treaty of Rome Articles 43 – on agriculture – and 100A – on the common market.
The Lamming group's work was comprehensive; it commissioned new research; analyzed hitherto unseen confidential data from hormones manufacturers and interviewed other specialists. In September 1982, the group published its 'interim report' concluding that the three naturally occurring hormones were safe when administered to animals according to prescribed husbandry practices. While noting that 'vulnerable populations' (babies, pregnant women, the elderly) might be at increased risk from additional doses, the scientists viewed these as exceptional risks that did not warrant any ban (Lamming, 1983; interview with two working group members). Indeed, it was argued that a ban may increase the black market in liquid hormone preparations and so increase the risk (as had occurred in the 1960s and 1970s with DES in Italy).

While they had found no data to suggest any hormonal or tumour-promoting effects, the Lamming scientists wanted additional lifetime carcinogenicity data on the two synthetic compounds (particularly zeranol) before they were willing to offer an opinion. Despite frustrations about this delay, relations with DG Agriculture remained strong (interviews with working group member and DG Agriculture official) and the conclusions of the interim report and requirement for further studies were agreed by the three relevant permanent EC veterinary committees. These conclusions matched the international consensus which had been constructed in the preceding years and months (Commission of the European Communities, 1981; FAO/WHO, 1976; Jasiorowski, 1981; JECFA, 1981, 1982; McLachlan, 1980). A few months later, this endorsement was echoed by the regulatory scientists of the JECFA (1983) and OIE (Roe, 1985) – the international standard setters on hormones.

With the deadline of 1 July 1984 having been set by the 1981 directive, in the June of that year DG Agriculture issued recommendations based on Lamming's interim findings. The use of the three naturally occurring hormones should be allowed and a hold placed on the two synthetics (which would be reviewed once the final evidence arrived). While this is suggestive of the instrumental knowledge use associated with epistemic learning – where policy follows knowledge – one part of the text hints at the disquiet which had emerged and taken hold in the Community in the later months of the Lamming investigation:

The need for the Community to follow the most modern scientific developments and investigations in this field is clear … there must be recognised the possibility of misuse of authorised substances and illegal use of banned substances … The Commission believes that the availability of safe authorised substances will discourage the temptation of the illegal use of banned substances (Commission of the European Communities, 1984).

Yet, against mounting pressure from consumer groups, in member states and at the EU level, and in the EP, the proposals met with heavy criticism in the Council. Having received the additional data, by the summer of 1985, the Lamming Committee was working with DG Agriculture officials to finalize its report – which concluded the two synthetic hormones were also safe for use. But, a week before the scientists were due to sign off their report, officials intervened to suspend the committee's meeting and activities. In November 1985,

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6A thriving black market did emerge. Most famously, hidden caches of steroids were discovered in France and Belgium (The Times, 1987) – on one occasion in a volume which, it was estimated, could treat up to 500,000 of the French herd (Agence Europe, 1986, p. 9).

7These were the: Scientific Committee on Animal Nutrition (SCAN); Scientific Committee for Food (SCF); and the Scientific Veterinary Committee (SVC).

8Only the UK and ECOSOC welcomed them, though the latter suggested that the proposal wait until Lamming had reported on synthetics.
a new proposal emerged to ban both the use of all hormones used as growth promoters and the importation of meat treated in that way (Commission of the European Communities, 1985a).

Despite appeals made by the group and by its Chair, DG Agriculture refused either to reconvene the group or publish the draft of the final report (interviews with two working group members and two DG Agriculture officials). Indeed, it was made clear to Lamming that the committee should not meet and could not publish its final report. The committee remains in prorogation. While the scientists had been working, the issue context had transformed radically. Correspondingly, the relevant learning mode had transformed from epistemic to one of learning selectively through bargaining and interests. In December 1985, the Council voted to ban all five hormones as growth promoters in a majority vote.9

5. How the irony of epistemic learning fuels learning mode moves

The position outlined earlier is that policy learning is governed by dynamic processes. Knowledge use and the causal mechanisms that underpin it, policy actors’ modes of interaction and decision-makers’ attention are all temporally contingent. Recall, two dimensions are fundamental – the certification of actors and problem tractability. In the hormones case, both of these changed decisively between the summer of 1984 and autumn of 1985. The interaction of two particular factors are critical to explaining the apparent volte face of DG Agriculture and the move away from epistemic learning towards interest-based learning as the result of bargaining.

The first concerns the impact of an exogenous crisis in the CAP which crystallized the policy benefits of banning hormones. Hormones reduce feed costs as they work to convert feed more efficiency making animals reach slaughter weight more quickly (around 60 days before those not using growth promoters [Leathes & Terry, 1988, p. 87]) and cheaply; thus increasing supply.10 Beef surpluses were an accepted fact since the 1970s (Tracy, 1989) but between 1983 and 1985 they doubled (Brand & Ellerton, 1989) as the introduction of milk quotas in 1984 increased the number of milk cattle slaughtered. With subsidies growing, DG Agriculture realized a hormones ban could help reduce the supply of beef (Cantley, 1995; Peterson, 1988; interview with DG Agriculture official). Thus, an unintended consequence of the new milk quotas regime created a new crisis of the CAP. While this illuminated a possible benefit of a ban to DG Agriculture, this structural problem was not decisive in moving the learning mode away from the epistemic mode. The economic benefits of a hormones ban on subsidy reduction and price stabilization alone were not considered the only, or indeed most important, factor in the decision to ban and rejection of the scientific advice (Agriculture Commissioner Andriessen in Leathes & Terry, 1988, pp. 67–68; see also Commission of the European Communities, 1985b). Rather, these provided the opportunity for a switch of learning mode.

9The UK was the single detractor. This opposition had been consistent and anticipated by the Commission which based the directive on Article 43 alone which requires only a qualified majority (Meng, 1989; interview with DG Agriculture official).
10In 1987, The Fédération Nationale Bovine (FNBo) – the leading association of beef producers in France – estimated that the extra cost of producing a veal calf in the absence of hormones was round FF400 (€45) (Leathes & Terry, 1988, pp. 84–85). The cost of hormone treatment per calf was FF40 (€4.5) with an estimated 90% of veal calves and 60% of steers in France treated.
11In December 1985, Directive 85/649 was passed and the hormone ban within EC was to take effect by 31 December 1987. The directive was annulled by the European Court of Justice (ECJ) on technical grounds. It was re-instated in 1988 with Directive 88/146 which included an import ban effective from 1 January 1989 (extended from 1 January 1988).
The move from epistemic learning to stakeholder-dominated learning through bargaining was affected by endogenous learning by consumer groups and the EP. This second factor is captured in our idea of the ‘irony of epistemic learning’ where analysis of the epistemic community was used selectively by consumer groups to redefine what groups should define risk in food safety issues and create political support in the EP for a ban on all hormones. While the Lamming group was completing its research, the increasingly powerful consumer lobby mounted a targeted campaign in Brussels and in member states. Central to this was the selective use of lessons created by the scientists. The Consumers’ Consultative Committee and, consumer umbrella group, Bureau Européen des Unions de Consommateurs (BEUC) rejected the conclusions of Lamming’s interim report pointing to the fact that the safety consensus was based on the belief that hormones would be administered according to good animal husbandry practices. For BEUC and its national affiliates, too little was known about the effects of hormones as they were used in the ‘real world’. Moreover, the effects on humans of hormone produced meat over the long-term or to vulnerable groups could not be calculated with any certainty (Agence Europe, 1984, 1985a, 1985b).

These arguments – that all drew on evidence created by the epistemic community – were also advanced in a key venue. The EP’s politically savvy Environment Committee’s (see Judge, 1992) first report on the issue echoed the points about misuse and long-term safety, and added that there was little known demand from European consumers for such production methods and that the challenge for hormone producers and farmers was to demonstrate the desirable effects of using them (European Parliament, 1985: paragraphs 11 and 12). At the subsequent debate, MEPs backed the environment committee and called for a ban on all hormones in meat production.

Here, we have learning in bargaining mode. The consumer lobby and EP scanned the available and unavailable (known unknowns) evidence on hormones and focussed on areas of uncertainty and worst-case scenarios to press their political case to the Commission and member states. Most hormone-using states responded accordingly. With memories still fresh of the consumer backlash over veal France, where prices had fallen heavily, was considering domestic legislation to outlaw hormones. In Germany, the rise of the Greens and consumer movement saw the formation of a new coalition with Deutscher Bauernverband (DBV, the German Farmer’s Union). By 1984, Germany had changed its position and was lobbying for an outright ban on all five substances. Two other hormone states – Ireland and Belgium – reluctantly followed suit. Only the UK maintained its opposition.

Where learning is interest-based, actors’ interactions are competitive. In reality, in this case, the argument to ban was easier to win than had been anticipated (interviews with two BEUC representatives and EP environment committee member). Given the different approaches to hormones in member states and concern about a market panic, neither the farming nor the meat processing industries were able to speak with united or loud voices. Indeed, ultimately the Committee of Professional Agricultural Associations (COPA) mirrored member states’ vacillation: opposing a ban before 1984 and moving to support a ban after 1985.

Moreover, hormones manufacturers were slow to understand the scale of threat posed by the arguments about effects of misuse, vulnerable populations and long-term risks. Rather,

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12To be clear, unlike the controversies over genetic modification and biotechnology, there was no widespread and sustained public debate about hormones involving citizens en masse. Rather, interest groups and NGOs dominated the debate and, as such, this is a case of learning through bargaining rather than reflexive learning.
they were distracted by competing with each other; companies that manufactured naturally occurring hormones were unwilling to join an organized lobby with their counterparts that manufactured synthetics (the latter enjoyed a much larger market share, Leathes & Terry, 1988, 75–77). Indeed, hormone manufacturers’ first direct contact with BEUC was not until 1987 and was facilitated through the newly (and belatedly) created European Federation of Animal Health (FEDESA) (Cantley, 1995; Leathes & Terry, 1988, p. 80; interviews with BEUC representative).

What of the Lamming group? (How) did this epistemic community negotiate this move in learning mode? While aware of the debate raging around hormones in 1984/85, the scientific group did not engage with any of the key stakeholders in public or private (interviews with Lamming; BEUC official, EP Environment Committee Chair). The reasons for this are two-fold. The first concerns the conditions attached to their institutional position. Despite their high degree of autonomy over the research, the scientists were reminded that any dialogue with stakeholders on the issue would be handled by DG Agriculture, this was a standard ‘condition of the role’ (interview with Lamming group member). Moreover, as it became clear to decision-makers that a hormone ban also offered something for DG Agriculture, the scientists’ secretariat began to cut communication with the group (interviews with Lamming group members and two DG Agriculture officials). Indeed, they considered stopping the work early (interview with Lamming and two DG Agriculture officials). This isolation allowed consumer groups and the EP’s environment committee to go unchallenged when they argued that both the science and scientists as out of touch with reality.

Their isolation in the epistemic mode, was not only a product of their institutional position. The scientists’ ability to engage was limited by their own understanding of what was an effective way of arguing in that mode. In bargaining mode, an epistemic community can only influence the debate and advance their own policy position if they are able to interrogate rival interpretations of the science. That means entering the political arena and speaking in political language. But, in this case, the scientists’ idea of ‘going public’ was that their findings be published in full. To withhold data was viewed as an academic crime to the scientists which would have left the research process incomplete and made the group appear ‘suspect’ (interview with working group member).

The Lamming group’s emphasis on getting the findings out in their scientific format echo what we know about the contingency of communication skills in epistemic communities (Davis Cross, 2013; Dunlop, 2010, 2014). But, it also raises more fundamental questions about with whom epistemic communities are willing to have a conversation in the first place. The Lamming group were highly motivated actors in the scientific arena – soliciting support from their colleagues on a linked group advising European Commission on the quality of meat treated with hormones13 and in the wider international scientific community. Indeed, aware of the international campaign that was building to get the findings published, in May 1985 Commissioner Andriessen wrote to Lamming reminding him of his group’s obligations (interview with Lamming; Leathes & Terry, 1988, p. 69). Undeterred, the group presented their findings to fellow scientists at the World Veterinary Congress and British Veterinary Association conferences in 1987, just a few months before the ban took effect.

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13Similarly to Lamming, the findings of the Mouthon committee were never published by the Commission but it chair confirmed that they concluded hormones did not have any negative effects on meat quality (Mouthon cited in Leathes & Terry, 1988, p. 27).
Their findings were then published (New Scientist, 1987; Phelps, 1987), a move which involved each signatory breaking a legally binding confidentiality agreement.14

Although publishing their final report was an inherently political act, the Lamming group was motivated to engage in this ‘boundary-work’ (Gieryn, 1983) by a desire to communicate with the scientific community not with consumer groups or politicians in the Parliament. This brings issues of an epistemic community’s identity to the fore. In a recent analysis of committee governance in the EU, we are reminded that expert committees ‘tend to speak their own language and are frequently already part of other … networks’ (Christiansen & Larsson, 2007, p. 8). This echoes the classic idea of the political and scientific as inhabiting two separate communities (Caplan, 1979).

Where their political influence is under threat, the natural reaction for an epistemic community may be to retreat to the narrowest type of epistemic learning – a conversation with oneself. Moving mode for these groups into the polar learning type of bargaining may be especially challenging of course – it involves eschewing the role of principal teacher and becoming a learner about the art and strategy of political debate.

What does being stuck in the ‘wrong’ mode mean for an epistemic community’s influence? Adler and Haas’s memorable take on these communities’ power is that ‘they create reality, but not as they wish’ (1992, p. 381). The argument pursued here is that the irony of epistemic learning makes them especially vulnerable to such limited control on their impact. Lamming created the clear foundational knowledge from which others could learn to politicize the issue. Though its direct policy influence in the EU has been limited, the legacy of their science has been considerable. Lamming’s findings have been ratified by the international scientific community (JECFA, 1987, 1988), and were central to the EU’s failure at the WTO dispute proceedings.

6. Discussion and conclusions

The epistemic communities approach’s considerable value is in foregrounding the role of experts and evidence in policy change. Yet, the approach does not intend to be mono-causal. To understand policy outcomes we must go beyond technical, rational explanations. Epistemic communities’ unique claims to authoritative knowledge mean that, for a time, they have a unique policy resource. The dynamic nature of learning creates a potential irony for experts – their foundational knowledge opens the door to myriad actors and contending interpretations. Using a learning typology, that emphasizes its varieties of modes, we illustrate the dynamic environment in which experts advise policy-makers and how changes in key contextual conditions can radically alter the ways in which epistemic communities influence policy outcomes. In this case, the learning created by the Lamming group on hormones empowered other actors to engage in the debate and, in the space of a year, to dismantle the experts’ knowledge monopoly. Their dyadic relationship with decision-makers in DG Agriculture, and skill deficits in the epistemic community, made it difficult to shift learning mode.

Does this argument hold for other cases? This is a fair question, after all the hormones saga is one of the more extreme controversies in advisory politics where we see the outright rejection of a group of scientists. We argue that this irony can be expected to be widespread.

14 16 of the 22 members felt able to put their names to the publication, though all endorsed its conclusions.
and potentially present in any advisory relationship where the issue is complex enough for decision-makers require specialist inputs. Though advisors will not always been sidelined so dramatically, we know that epistemic communities are at their most potent at the agenda-setting stages. After that their influence tends to fall away. The speed at which this happens and the extent to which the irony of epistemic learning takes hold are products of changes in the degree of uncertainty that surround an issue and, specifically, how the substantive details of the issue become linked to its political ramifications and how salient those are. In this case, the linkage was a potent one for the EU and was skilfully exploited by interest groups with a different interpretation of the science to push.

The hormones case also suggests a more fundamental barrier to policy influence. There is a double irony at work – where the epistemic community as a teacher is unwilling to learn about or adapt to the policy environment that it helped create. Expert groups have dual characters – they are both scientific experts and policy actors. And so, when their influence in the policy domain is under threat they have somewhere else to go. In their professional worlds, they have an alternative audience where they may stand a greater chance of crafting a reality that they wish and which is potentially more rewarding.

How might epistemic communities learn to stay the course with issues? The epistemic communities and knowledge utilization literatures use various success stories of evidence-based policy-making to identify the institutional set-ups and personal skills of experts that help epistemic communities navigate politically, socially and legally complex arenas. Epistemic communities can and do resist the ‘flight’ urge and stay to ‘fight’ for the policy position they believe flows from the evidence and increase the chances of evidence-based policy focussed on ‘what works’ (Dunlop, 2014). Of course, this is normatively loaded; predicated on the assumption that evidence-based policy equates with ‘good’ policy. The assertion that epistemic communities can be policy advocates may be too naïve. Perhaps, we need to move beyond learning analysis and start from first principles and establish whether epistemic communities are willing to fight for their policy position and what this implies for legitimacy.

In short, should epistemic communities change learning mode at all? The findings in this case will do much to assuage those concerned with the democratic deficits implied by technocracy in the EU (Radaelli, 1999). The Lamming group’s approach and findings failed both policy realism and social legitimacy tests. Future research may usefully address the extent to which these understandings influence an epistemic community’s actions and the ‘representative claims’ (Saward, 2010) they believe they can assert.

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Notes on contributor

Claire A Dunlop is a professor of Politics in the Department of Politics at the University of Exeter, United Kingdom. A public policy and administration scholar, Claire's main fields of interests include the politics of expertise and knowledge utilization; epistemic communities and advisory politics; risk governance; policy learning and analysis; impact assessment; and policy narratives. She explores these conceptual interests at the UK and EU levels principally, and most frequently in relation to agricultural, environmental and LGBT issues. Claire has published more than 40 peer-reviewed journal articles and book chapters – most recently in Policy and Politics, Policy Sciences, International Public Management Journal, Regulation & Governance and Journal of European Public Policy. She is editor of Public Policy and Administration.

ORCID

Claire A. Dunlop http://orcid.org/0000-0003-2122-1075

References

Adler, E., & Haas, P. M. (1992). Conclusion: Epistemic communities, world order, and the creation of a reflective research program. International Organization, 46, 367–390.

Agence Europe. (1980, July 24). Consumers: BEUC commission for failing to act (No. 2955), p. 14.

Agence Europe. (1984, May 5). BEUC denounces the 'moldering' of the dossier on hormones in stockbreeding and sounds the alarm while severely criticising the EEC (No. 3843), p. 13.

Agence Europe. (1985a, January 25). Hormones: the BEUC warns the EC authorities about the threat of another boycott of veal (No. 4014), p. 13.

Agence Europe. (1985b, April 15/16). Hormones: The BEUC asks the European Commission for a series of emergency measures including the setting up of an EEC committee of enquiry (No. 4070), p. 10.

Agence Europe. (1986, October 31). Hormones: Black market discovery (No. 4421).

Bennett, C. J. & Howlett, M. (1992). The lessons from learning: Reconciling theories of policy learning and policy change. Policy Sciences, 25, 275–294.

BEUC (1981). Black file on hormones and antibiotics. Brussels: Bureau Européen des Unions de Consommateurs.

Brand, A., & Ellerton, A. (1989). Report on hormone treated meat. Brussels: Club de Bruxelles.

Bridges, J. W. & Bridges, O. (2001). Hormones as growth promoters. In European Environment Agency (Ed.), Late lessons from early warnings (pp. 149–156). Copenhagen: European Environment Agency.

Cantley, M. F. (1995). The regulation of modern biotechnology: A historical and European perspective. In D. Brauer (Ed.), Biotechnology: Volume 12 legal, economic and ethical dimensions. Weinheim: VCH.

Caplan, N. (1979). The two-communities theory and knowledge utilization. American Behavioural Scientist, 22, 459–470.

Christiansen, T., & Larsson, T. (Eds.). (2007). The role of committees in the policy-process of the European Union – Legislation, implementation, deliberation. Cheltenham: Edward Elgar.

Commission of the European Communities. (1980, October 31). Proposal for a council regulation (EEC) concerning the uses of substances with a hormonal action and those having a thyrostatic action in domestic animals. COM (80) 614, Brussels.

Commission of the European Communities. (1981, March, 5–6). Anabolics agents in beef and veal production. Proceedings of a Workshop held at Brussels. Brussels: DG VI.

Commission of the European Communities (1984, June 13). Proposal for a council directive concerning the prohibition of certain substances having a hormonal action and any substances having a thyrostatic action. COM (84) 295, Brussels.
Commission of the European Communities (1985a, November 19). Amendment of the proposal for a council directive concerning the prohibition of certain substances having a hormonal action and any substances having a thyrostatic action. COM (85) 607, Brussels.

Commission of the European Communities (1985b, December 18). Memorandum on the management of the common organisation of markets in the beef sector.

Cram, L. (1997). Policy-making in the European Union. London: Routledge.

Cross, M. K. D. (2013). Rethinking epistemic communities twenty years later. Review of International Studies, 39, 137–160.

Cuduff, L. (2002). Growth hormones and beyond (Working Paper No. 8). Zurich: ETH Centre for International Studies.

Dunlop, C. A. (2000, March 2–8). Pregnancy pill that poisoned millions. The Big Issue in Scotland, 262, 8–10.

Dunlop, C. A. (2010). Epistemic communities and two goals of delegation: Hormone growth promoters in the European Union. Science and Public Policy, 37, 205–217.

Dunlop, C. A. (2013). Epistemic communities. In M. Howlett, S. Fritzen, X. Wu, & E. Araral (Eds.), Routledge Handbook of Public Policy. London: Routledge.

Dunlop, C. A. (2014). The possible experts: How epistemic communities negotiate barriers to knowledge use in ecosystems services policy. Environment and Planning C – Government and Policy, 32, 208–228.

Dunlop, C. A. (2016). Knowledge, epistemic communities and agenda-setting. In N. Zahariadis (Ed.), Handbook of Public Policy Agenda-Setting. Cheltenham: Edward Elgar.

Dunlop, C. A., & Radaelli, C. M. (2013). Systematizing policy learning: From monolith to dimensions. Political Studies, 61, 599–619.

Dunlop, C. A., & Radaelli, C. M. (2016). Policy learning in the Eurozone crisis: Modes, power and functionality. Policy Sciences, 49, 107–124.

European Parliament. (1981). Debate on regulations on hormones. OJ C 50/87, 9 March.

European Parliament. (1985, September 30). Report of the committee on environment, public health and consumer protection on the proposal for a directive amending. 81/602/EEC A2-100/85/PE 95.615/fin, Rapporteur Ken Collins, Brussels.

FAO/WHO. (1976). Symposium on the use of anabolic agents in animal production and its public health aspects, March 17–19, 1975. Rome: FAO.

Fara, G. M., Corvo, G., Bernuzzi, S., Bigatello, A., Di Pietro, C., Scaglioni, S., & Chiumello, G. (1979). Epidemic of breast enlargement at an Italian school. The Lancet, 314, 295–297.

Gieryn, T. F. (1983). Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. American Sociological Review, 48, 781–795.

Haas, P. M. (1990). Saving the Mediterranean – the politics of international environmental co-operation. New York, NY: Columbia University Press.

Haas, P. M. (1992). Introduction: Epistemic communities and international policy coordination. International Organization, 46, 1–36.

Heclo, H. (1974). Modern social politics in Britain and Sweden. New Haven, CT: Yale University Press.

Hughes, C. E. (2007). Evidence-based policy or policy-based evidence? Drug and Alcohol Review, 26, 363–368.

Jasiorowski, H. (Ed.) (1981). International symposium on steroids in animal production, 1980. Warsaw: Warsaw Agricultural University/Roussel-Uclaf.

JECFA. (1981). 25th report of the JECFA committee on food additives – evaluations of certain food additives (Technical Report Series No. 669). Geneva: WHO.

JECFA. (1982). 26th report of the JECFA committee on food additives – evaluations of certain food additives (Technical Report Series No. 683). Geneva: WHO.

JECFA. (1983). 27th report of the JECFA committee on food additives – evaluations of certain food additives (Technical Report Series No. 696). Geneva: WHO.

JECFA. (1987). 30th report of the JECFA committee on food additives and contaminants – evaluations of certain food additives (Technical Report Series No. 751). Geneva: WHO.

JECFA. (1988). 33rd report of the JECFA committee on food additives and contaminants – evaluations of certain food additives (Technical Report Series No. 783). Geneva: WHO.

Johnson, E. (2015, January 14). The US-EU beef hormone dispute. US Congressional Research Service R40449, Washington, DC.
Appendix 1. Supporting table

Table A1. Member State Regulation of the Five Hormones in 1981.

| Hormone/Member State | Naturally occurring | Synthetics |
|-----------------------|---------------------|------------|
|                       | 17β-Estradiol | Progesterone | Testosterone | Trenbolone | Zeranol |
| Belgium                | ✓ | ✓ | ✓ | ✓ | ✓ |
| Denmark                | ✗ | ✗ | ✗ | ✗ | ✗ |
| France                 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Germany                | ✓ | ✓ | ✓ | ✗ | ✗ |
| Greece                 | ✗ | ✓ | ✗ | ✓ | ✗ |
| Ireland                | ✓ | ✓ | ✓ | ✓ | ✓ |
| Italy                  | ✗ | ✓ | ✓ | ✗ | ✗ |
| Luxembourg             | ✓ | ✓ | ✓ | ✓ | ✓ |
| Netherlands            | ✗ | ✗ | ✗ | ✓ | ✓ |
| United Kingdom         | ✓ | ✓ | ✓ | ✓ | ✓ |

Source: Adapted from Commission of the European Communities, 1980 and Cuduff, 2002.