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How different forms of policy learning influence each other: case studies from Austrian innovation policy-making

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ABSTRACT

This paper investigates the question whether different forms of policy learning influence each other. The focus is on relationships between different forms of policy learning, which are explored on the basis of case study research in the field of research, technology and innovation policy-making in Austria. Methods utilised are expert interviews and document analysis besides literature and media recherché. With the goal to better understand the mechanisms behind learning processes, different forms of knowledge utilisation are linked to organisation types. The analysis suggests that the introduction of radical policy innovations was possible because different forms of learning were mutually beneficial and enabled actors to reach their goals. Learning about how to obtain political goals provided opportunities to increase the leverage of learning on policy instruments and goals, whilst insights into policies from other countries were also utilised for political learning.

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Introduction

Research on learning in policy-making has often depicted learning as a problem-solving-oriented form of political activity, as an alternative to more interest-oriented understandings of policy-making. Although the importance of retaining the notion that politics is not only about learning, but also about the struggle for power has been emphasised, the relationship between the two has yet to be a focal area of interest. Similarly, various forms of learning have been differentiated, with one perspective orientated towards policy instruments and policy goals (instrumental and social learning) and another on strategies as to how to obtain a certain political goal (political learning) (e.g. Bandelow 2009). Perhaps even more pertinent than the lack of focus on the relationship between problem-solving and power-seeking is the interconnection between the different forms of learning in politics which has also received limited attention. One particular question that emerges from this void is whether different forms of policy learning influence each other, and if this is the case, how?

This paper will examine how different forms of learning are dependent on each other and the processes which lead to learning interactions. It has already been argued that policy learning is neither value-free nor apolitical (e.g. Liberatore 1999; Jacoby 2001;

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Fischer and Mandell 2012) and political aspects are present in all reviewed cases, albeit to different degrees. Particularly in the field of political learning, related to the strategies and procedures of political actors, this is present in most cases and interacts with other observed forms of learning. More importantly, political learning is sometimes a precondition if policy learning is to result in policy change, for example, when a radical policy innovation is rejected by a political system as it lacks the backing of a new form of argumentation or a coalition of actors.

It is this very aspect which makes Austria such an interesting case study. The Austrian political system is very stable and indeed rather resistant to changes. The main reason for this is the neo-corporatist set-up of the country with the pervasive nature of employers' and employees' organisations, exclusive negotiations legitimised by the state and the resulting interdependencies of political actors and their arrangements (Secher 1960; Pelinka 2009). These arrangements take place in a closely coupled institutional set-up and are responsible for the extraordinary stability of neo-corporatist systems, which are also difficult to change (e.g. Karlhofer and Tálos 2005). This, and the strong civil service, which in many respects is more independent than that of many other countries,[1] has led to a tendency to wait things out and introduce changes only haltingly and in a piecemeal manner in Austria (e.g. Biegelbauer and Griessler 2009; Blum 2010, 2014). These characteristics make the country an interesting test ground, where one can study how and under which conditions learning can overcome such high barriers.

The case studies come from a single policy field in one political system, which have been analysed over a prolonged period of time in order to obtain a rich knowledge base on the different cases. This 'thick' knowledge is a useful tool of analysis for something that is actually hidden from the eye of the observer, that is, cognitive processes (Bennett and Howlett 1992). These concrete cases are drawn from research, technology and innovation (RTI) policy in Austria from the 1980s until the 2000s and they have been selected for their relevance in the policy field's development.

The research leading up to this article was conducted between 2003 and 2013 by the author and colleagues, resulting in a number of publications on Austrian innovation, health and higher education policy-making of the last 25 years (e.g. Biegelbauer 2007; Mayer 2007; Biegelbauer and Griessler 2009; Griessler 2010; Biegelbauer 2013). Most publications rest on original research in the form of case study analysis in the previously under-researched policy field in Austria. The data for the concrete case studies on Austrian RTI policy-making that are used to answer the research questions are the product of 48 expert interviews by the author, which were typically between one and two hours length and were transcribed and analysed qualitatively.[2] In addition, the basis of this work is formed from more than one hundred background talks, government policy papers, papers and materials produced by civil servants from several ministries, published and unpublished evaluations and other forms of studies written by national and international policy experts. Radio and TV broadcasts were also analysed alongside 'grey' publications, journals and books on the subject.

The remainder of the paper is structured as follows. First, I will differentiate between several distinct forms of learning. This will be followed by an empirical analysis of examples of different forms of learning and conclusions on the association between specific forms of learning.

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Differentiating between forms of learning in politics

Ignoring the finer details, policy (oriented) learning has been defined as focused on cognitive processes elicited by experiences and/or new information resulting in relatively enduring alterations of thought, skills and behavioural intentions, a definition that runs through the core of this work (Hall 1993; Sabatier and Jenkins-Smith 1999). A number of classifications of learning in politics have been advanced during the last decades.[3] Many of these share basic definitions as proposed by May (1992), who distinguishes between two forms of policy learning. *Instrumental policy learning* which is about the viability of policy instruments and implementation designs, whereas *social policy learning* is about the social construction of policy problems, including the scope of policy and policy goals. Conversely, *political learning* is about tactics and strategies relating to political goals and processes and a better understanding of these (May 1992, 332). These basic distinctions over time have proven to be robust and shall form the basis for a typology reflected in Table 1.

Here the distinction between these three main forms of learning as drawn up by May have been superseded by further additions of categories. As a term related to instrumental learning, which is directed towards policy instruments, managerial learning has been introduced which is concerned with policy delivery and the implementation of policy instruments (cf. Schofield 2004). The difference between instrumental learning and managerial learning is that instrumental learning applies to questions of instrument selection and development, whilst managerial learning is about the way in which policy instruments are constantly interpreted, adapted and filled with new meaning in the practices of staff working on the implementation of policies (Freeman 2006).

Social (policy) learning can be oriented towards the goals of policies, their acceptability and practicality but also on mechanisms, theoretical underpinnings and interpretations of the way in which policies are understood to have an effect on their environment (cf. Hall 1993). Amongst all forms of learning, social learning arguably has drawn the largest interest. Oliver and Pemberton (2004) have shown that social learning is more evolutionary and involves more and lengthier struggles for the supremacy of policy ideas than originally envisaged by Hall (1993; also Blum 2010). Béland (2006) similarly discusses social learning, which he understands to be a political process occurring as part of evaluative activities. Béland and Cox (2013) notice that policy entrepreneurs manipulate ideas, which form the

Table 1. Typology of forms of learning and learning objects.

Form of learning	Object of learning	Indicators for learning
Instrumental learning	Policy instruments	Changes and concurrent better understanding of instruments
Managerial learning	Policy delivery: implementation of policy instruments	Incremental adaptation of instruments on the basis of previous operational experiences
Social learning	Policy goals, policy theory and mechanisms	New definitions of policy, goals, scope and theories and concurrent better understanding of these
Reflexive learning	Rules and mechanisms of learning	Creation or change of utilised policy instruments supporting learning and concurrent better understanding of these
Political learning	Goal attainment, political process: strategies, procedures	Change or explicit affirmation of tactics and strategies relating to political goals and processes and concurrent better understanding of these

Source: May (1992), own.

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basis for paradigm changes in processes of social learning. Yet social learning has not been analysed for its interaction with other forms of learning.

Reflexive learning is orientated towards the ways in which learning takes place, its rules and mechanisms (Bandelow 2009). Policy actors can become uneasy with the ways in which experiences lead to changes in policy-making and introduce new instruments or coordinate reflection processes differently, thereby changing the way in which learning takes place.

Political learning can be directed towards the way in which goals are attained. Political actors define policy targets in order to reach certain goals, to become re-elected or obtain a certain political function, which they try to obtain, amongst other things, by devising policies. Political learning can also be about strategies and procedures, that is, ways to influence political processes so that a policy can be deployed. Yet this form of learning again is about efforts to gain political posts and functions and not about the reflection processes themselves, as with reflexive learning.

There is minimal literature which explicitly deals with the ways in which different forms of policy learning influence each other (for an exception see Braun and Benninghoff 2003), although the topic is touched upon when researchers find that several forms of learning are present in analysed case studies (e.g. Bandelow 2005). A better grasp of the way in which different learning forms interact would be helpful for an increased understanding of how policy learning plays out in policy-making, what its relationship to power structures is and how it can contribute to our understanding of policy change.

Since the problem has barely been approached directly, research into related issues might be helpful. Especially the literature on the role of knowledge in policy-making might contribute to a better understanding of the interactions of different learning forms. Knowledge is essential for learning and the question of how knowledge is utilised in policy processes, therefore, is of interest for a better understanding of policy learning. Research has shown that different functions of knowledge can be discerned and that they correspond with specific framework conditions (Weiss 1988; Radaelli 1995; Schrefler 2010).

Boswell (2008) shows that different forms of knowledge utilisation depend on specific features of policy-making organisations and policy area. Before the background of an instability of the organisational environment serving as a driver for an organisation's willingness to utilise knowledge, two forms of organisations are differentiated: 'action organisations' deriving legitimacy from their impact and 'political organisations' deriving legitimacy by producing 'talk' and 'decisions' (Boswell 2008). Whilst the first form of organisation is more likely to use knowledge instrumentally in order to increase the output of the organisation, the second one rather uses knowledge to signal its legitimacy in order to look credible to the policy community. In these cases of instrumental and legitimising knowledge utilisation, the policy area is not heavily contested. This is different from a third form of knowledge usage, where organisations are facing opposition to their policy choices and in which organisations are drawing on their knowledge resources in order to substantiate their arguments. This substantiating function of knowledge usually is found when contestants prefer a technocratic over a more deliberative-democratic mode of settlement (Boswell 2008). These functions of knowledge will be used here in order to illuminate the micro-foundations of knowledge utilisation and the interaction of different forms of learning.

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What are the most important expectations regarding the question if different forms of policy learning influence each other? First, we can expect to find such an influence and, moreover, different forms of learning to be interwoven. Second, sometimes the different forms of learning will strengthen and at other times weaken the actors engulfed in learning. Especially political learning has the potential to enable actors to make use of the conclusions they have drawn from, for example, social or instrumental learning. Third, the largely overlooked managerial learning is of prime importance for the actual implementation of policies. Fourth, regarding knowledge utilisation, substantiation will be of less importance in a not heavily contested policy field. Instrumental utilisation, however, can be expected to occur frequently as the organisations populating the policy field primarily feature an action orientation.

The above considerations will be confronted with the results of an analysis of RTI policy-making in Austria from the 1980s to the 2000s. In order to better understand the presented cases of policy learning, the next section summarises the development of Austrian RTI policy-making.

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Analysis of forms of learning

Austrian RTI policy-making

The RTI policy field is characterised by its rising importance in most Organisation for Economic Development and Cooperation (OECD) countries, including Austria (BMWFW and BMVIT 2014). The general recognition of the importance of RTI leads to a low level of ideological conflict, which does not mean that there is no conflict. Struggles frequently arise over policy goals before the background of limited budgetary resources and institutional structures, as well as policy tools as means to reach ends.[4]

In Austria, research policy can be discerned since the mid-1960s, when two research funding agencies were founded on the federal level, one for basic and one for applied sciences (Austrian Science Fund, Austrian Applied Science Fund), after several attempts to do so over 20 years had failed (Pichler, Stampfer, and Hofer 2007). After a number of efforts to create such programmes, such an attempt to systematically fund technological development finally became successful in 1985, with the establishment of the first two RTI programmes, on micro-electronics and information processing and on biotechnology. These programmes were administered cooperatively between the ministries for science and transport, which led to numerous problems related to bureaucratic politics and turf wars (Biegelbauer 2013).

As a reaction, the Innovation and Technology Fund (ITF) was founded in 1987, the first Austrian technology-oriented RTI fund. Over the years it transpired that the ITF could not overcome inter-organisational politics and bickering, but rather became the very institutionalisation of these practices (Pichler, Stampfer, and Hofer 2007). One reaction of the ministries concerned with RTI policy was to develop their own programmes which were operated outside the ITF. In the late 1990s, competence centre programmes were established in parallel by two ministries (transport and economics), concentrating on enhancing the cooperation between firms and research institutions. The first of these was the Kplus programme (Biegelbauer 2007).

Another reaction on the continuing turf wars in the policy field was the attempt to overcome its scattered institutional set-up, centralise funding and coordinate planning functions. After a series of failed efforts during the 1990s to establish institutions filling such a coordination function, the Council for Research and Technological Development (RFTE) was established in 2000 to advise the federal government. Moreover, in 2004, the Austrian Research Promotion Agency (FFG) was established as the outcome of a fusion of four previously independent research funding organisations. Despite the new institutions for policy coordination in RTI, there were only rudimentary changes and therefore coordination efforts have been ongoing and more recently led to the federal government's RTI strategy in 2011 (BKA et al. 2011).

In the period covered, all forms of learning listed in Table 1 occurred, although with marked differences in frequency, involved actors and settings. Therefore, the next part of this work will address the different forms of learning, utilising concrete cases from RTI policy-making.

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Instrumental learning

Instrumental learning occurred quite frequently in the chosen cases. The establishment of the first RTI policy institution in Austria, the ITF in 1987, is a case of instrumental policy learning. There is ample evidence that both politicians and civil servants had undergone cognitive processes changing their perspectives. Parliamentary protocols show that the politicians debating the ITF law were convinced that the policy field would need more funding and a new structure in order to raise Austrian economic competitiveness in the ensuing globalisation.[5] Interviews and an internal paper show that civil servants understood that the way in which different ministries had been co-operating in the implementation of the first Austrian technology-oriented programmes (BMWF 1986) was not efficient and hoped that the new ITF would remedy this problem (interviews 1-1, 1-2).

At the same time the aforementioned parliamentary protocols show that shortly before the final vote was taken on the ITF bill, issues still remained unsettled, with bargaining between the coalition partners on the exact goals of the new fund still in progress. Also, after the ITF law was passed civil servants and politicians had several meetings in which the ITF structures were established and in which negotiations on the new institution's structures were ongoing (Pichler, Stampfer, and Hofer 2007; Biegelbauer 2013).

From the side of the politicians, the reasons for these long-lasting negotiation processes running in parallel to the governmental routines which established the ITF were differing ideas on policy goals, as the Social Democrats, for example, wanted to fund research institutions and firms, whilst the Conservatives, traditionally understood as the voice of business interests, wanted to fund only firms.[6] From the side of the civil servants, bargaining was structured by ministerial rivalries and concomitant efforts from both science and transport ministries to dominate the new fund. A former civil servant reports of 'ideological conflicts' in the councils debating RTI policy and programme funding decisions, describing how

> there was always this whinging, how poor small and medium-sized enterprises are. And since the social partners were included in these councils … the whole (debate) had a clear bias towards small and medium-sized enterprises. … There was an ideological conflict in the

councils, which came from the Austrian Economic Chamber and also the economics ministry.

These were confronted by the finance ministry and the transport ministry, which were more geared towards the needs of large firms which were at this time mostly publicly owned (interview 2-8).

In summary, this case of instrumental learning is not just the outcome of the disinterested rational cognitive processes of problem-solving, but the ability to wield power played an important part too. The varying interests of political parties and the goal structures of ministries were negotiated alongside the experiences of the first two RTI programmes, which were to become part of the new ITF. Instrumental learning therefore was part of the political process which took place in both parliamentary and ministerial settings and was deeply intertwined with interest-based activities, both of which formed an important part of policy-making.

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Managerial learning

Managerial learning happens regularly in Austrian RTI policy-making. In the case of the implementation of the longest-running Austrian RTI policy programme, Seed-Financing, which has been active for almost 25 years, managerial learning comes to the fore.

During the initial phase of the ITF, in early 1988 discussions took place between transport and science ministries on a new funding initiative about aiding start-up firms in high-technology sectors in the context of a lack of venture capital in Austria. Pre-existing programmes counselling entrepreneurs and funding new firms in competitive high-tech sectors in Germany and the USA were understood to be successful and were analysed by civil servants (Biegelbauer 2013). It took one and a half years of discussions and bargaining processes between the transport, science and economics ministries, mainly on questions of the coordination and control of the programme, to get the Seed-Financing Programme off the ground. Two years after the start of the funding instrument, the first programme evaluation criticised issues such as the unclear funding criteria and the lack of transparency around which the actual funding decisions were met (Triconsult 1991). A former civil servant mentioned that 'the interface between different forms of funding was very blurry', leading to constant debates between the actors involved (interview 1-5).

The initial years of the programme were difficult. One interview partner actually used the word 'fiasco' when describing the meetings of the board responsible for guiding the programme (interview 2-11). An important factor in the difficulties of the funding initiative was the limited know-how about how to run such a programme in the Innovation Agency, which was responsible for carrying out this task. A high-ranking civil servant spoke of the importance of establishing routines in order to deal with the daily business of running a programme (interview 2-10).

In the following years, the Innovation Agency personnel acquired an increasingly strong role in the programme implementation as well as in its governance, which is indicated by the fact that the programme was revamped in 1994 upon the initiative of the agency's director. Also, the next evaluation, carried out in 1996, discovered that there was an increasing dominance of the agency towards the programme board (Zeiner

et al. 1996). One interview partner pointing to the same problem spoke of 'the programme staff creating a new role for themselves and becoming the advocates of applicants' (interview 2-11). Following principal–agent theory, these observations can be understood as a form of agency capture with the concomitant gradual marginalisation of the ministerial principals (Braun and Guston 2003).

The Seed-Financing Programme is an example of an instrument where the programme operatives solved problems in their daily work. They had to interpret policies and programme guidelines they found unhelpful in practice and decided to adapt these piecemeal to fit them into their work routines. Yet right from the beginning the programme operatives had to negotiate their ways between several ministries interested in the policy initiative, with the programme changing ownership several times. From the perspective of the ministerial principals, the programme was captured by the operatives already in its early years and therefore would not be interpreted as having functioned in the way as devised by the ministries. From an outside perspective, it has been repeatedly characterised as successful (Zeiner et al. 1996; Malik 2004) and can be interpreted as a case of managerial learning. Learning was not taking place in a social void free from power structures, but rather took this specific form because of the need to adapt the programme, through managerial learning, so that it could create an arms-length distance to the rivalling ministries.

Social learning

Social learning may appear less frequent compared to managerial and instrumental learning. The term is not interpreted in the sense of Hall's rarely occurring paradigmatic policy changes, as with the switch from Keynesian to monetary policy paradigms in the early 1980s (Hall 1993), but rather stands for less dramatic policy changes based on the cognitive processes of political actors (May 1992). An example of social learning in this wider sense is the creation of the Kplus programme.

By the mid-1990s the shortcomings of the ITF became evident. Difficult policy coordination, small programmes with often unclear goals and unclear positioning towards rivalling RTI funds (interview 3-5; Pichler, Stampfer, and Hofer 2007) characterised this time. Consequently, a rethinking of the goals of RTI policy instruments began. Previous studies had shown that the Austrian innovation system suffered from a number of deficiencies such as the weak links between research organisations and firms, the insufficient orientation of universities towards industrial research and the low level of RTI expenditures of firms (BMWV 1996).

The competence centre programme Kplus was devised as a remedy to all of these problems bringing together firms and research institutions which were to engage in common research projects, in the framework of newly founded centres with a lifetime limited to seven years. It was a radical policy innovation, amongst other things, with respect to the goals of the programme which were based on theorising about the mechanisms with which the policy would work, stemming from international innovation research findings (Lundvall and Borrás 1999; OECD 2004).

The programme is the product of the surge of internationalisation of Austrian RTI policy due to the EU accession of the country. Knowledge on new policy instruments, which were more complex in goals and structures, was being transported into the country via Brussels (Stampfer 2003). However, knowledge about the new RTI policy

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initiatives was also available due to the trips of civil servants and policy experts to countries already engaged in similar cooperative RTI policy measures such as Australia, Canada and Sweden (Biegelbauer 2007).

The Kplus programme featured social learning since the policy document upon which it was based shows an increased understanding of policy problems and mechanisms (BMWV 1997). It is also an example of instrumental learning due to policy transfer, especially from Sweden (interviews 3-2, 3-5) as an analysis of e-mails between the respective Swedish and the Austrian research funding agencies, NUTEK and TIG, respectively, shows. What is more, whilst the two forms of learning can be analytically kept separated, in the process of creating the programme they were intertwined. The Kplus programme could not have been established without political learning happening concurrent to its inception, as will be discussed during the next part of this paper.

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Political learning

Political learning happens frequently in Austrian RTI policy-making. In a number of instances, it occurred as a result of uneasiness about policy-making procedures prevalent until the late 1990s. The exceedingly lengthy policy-finding and policy-making procedures resulting from neo-corporatist bargaining processes, in the aforementioned case of the establishment of the Seed-Financing Programme for one and a half years, were widely viewed as problematic. They were, however, seen as a by-product of the way in which politics was done in Austria, as consensual, informal and interest-accommodating. Most actors in the involved ministries share their criticism of these bargaining processes and the concomitant power structures. A former civil servant from the transport ministry found that after some years of bargaining and creating agreements with subsidiary arrangements in Austrian RTI policy, there was no longer a clear responsibility structure. He described how the ensuing conflict was an 'ugly process in which energy and commitments were wasted … which would have been highly necessary in other contexts. … The time was ripe for it [a change]. Everybody was fed up … ' (interview 3-5). A former civil servant from the science ministry charged that the Austrian government seemed 'to have dawdled and acted only seldomly goal oriented' (interview 1-2).[7]

The first clear break with this policy style came in parallel with similar developments in several other policy fields (Kittel 2000; Karlhofer and Tálos 2005; Pelinka 2009). This was instrumental in the construction of the above-described Kplus programme in 1997, which was devised by a small set of actors excluding ministerial officials other than the civil servants from the science and transport ministry (the two ministries formed one organisation from 1996 to 2000) who led the policy initiative. Larger constituencies were confronted with a mostly finished policy paper only at the very end of the process, when the ministry officials' readiness to change important parts of the initiative was limited (interview 3-5). Along with the programme financing coming at first out of the budget of the ministry, this was instrumental for the speed with which the programme could be set up, taking only a few months. All of the above factors created a setting which allowed an important RTI policy innovation to happen (Mayer 2003; Biegelbauer 2007).

In this case, political learning was oriented towards both strategies and procedures in the sense that the deficiencies of the dominant neo-corporatist policy style, which makes change so difficult, were becoming evident with the problems of the ITF

programmes. Actors wanted to establish policy innovations which would not suffer from the problems of other Austrian RTI policies, such as cumbersome and sometimes actually Kafkaesque procedures of policy creation (Seed-Financing Programme), programme goals and guidelines embattled over years (Microelectronics and Information Processing Programme) and inter-ministerial rivalries reified in institutional structures (ITF). Whilst the unhappiness with existing programmes caused social and instrumental learning, as described above with the Kplus programme, it also necessitated a new way of bringing programmes about: a change in the political process leading up to new policies.

The Kplus programme was a combination of political and social learning. Without political learning the Kplus programme would never have become the radical policy innovation that it finally became. The actors involved in the programme did not pay respect to the usual way of policy-making by consulting all the different actors in the policy field. This process often led to a watering down of policy measures, which could be prevented in this case. Therefore, the creation of the Kplus programme displays instrumental, social and political learning.

Reflexive learning

Reflexive learning is a rare event, and not only in Austrian RTI policy-making (Bandelow 2009). The combination of policy subsystem endogenous and exogenous factors allowed for some reflexive learning to take place since the Austrian EU accession in 1995. The Platform Research and Technology Policy Evaluation was established in 1996 with the goal to 'encourage more, better and more transparent evaluations for an optimal strategic planning of RTD-policy in Austria'.[8] A former civil servant spoke of a 'professionalisation … (stemming) from international discussion fora', in her early days especially for a small group of civil servants in the framework of the OECD, but later on for more civil servants mainly the EU (interview 2-8).

The institution was created by a number of mostly young civil servants and policy experts to establish a new form of more cooperative and evidence-based RTI policy-making in Austria. Indeed the exchange between the different members of the platform and the national and international policy experts invited for conferences, workshops, presentations and articles in the platform's newsletter created not only a constant inflow of knowledge, but also helped to establish new policy instruments which were to support learning in the policy field. An experienced and internationalised RTI policy consultant said, 'if we did not have it [the platform], there would be a damage to the system' (interview 2-1). When assessing policy-making in Austria one can see that the number, variety and complexity of such policy instruments are increasing over time, including foresight studies, technology assessment and evaluation exercises.

Moreover, whilst in the early 1990s evaluations still had to face prejudices that they were (political) instruments, by the early 2000s evaluations were fully accepted in the policy field (Biegelbauer 2013). By way of mainstreaming evaluations into the policy field, learning had taken place over time and several elements can be identified as making this development possible.

Firstly, the steady contact of Austrian civil servants, policy experts and politicians with international colleagues had led to a feeling that certain international standards existed in most policy fields, which should be met in order to do a good job and to be accepted by the

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peer group (interview 2-8). Secondly, the necessary knowledge and skills could be made available to civil servants and politicians directly through the EU and OECD, but also adapted to the concrete needs of policy-makers through policy experts (interview 2-13; Biegelbauer 2007). Finally, the loose and largely informal network created through the daily work relations of the policy community was gradually becoming more formalised, through instruments such as the Platform Research and Technology Policy Evaluation.

This process of mainstreaming policy instruments novel to a policy field in order to change the way in which policy knowledge is created and insights are drawn, from experiences and new knowledge, is an example of reflexive learning. However, to change the processes of policy-making (politics), by trying to 'rationalise' policy-making, is typical of political learning and was not only dependent on a small group of policy entrepreneurs, but also on the existence of a policy window in the form of the Austrian EU accession (cf. Kingdon 1995).

Discussion

In the analysis of the cases above, it could be suggested that the different forms of learning do not stand alone, but rather that they interact. In some cases, they actually reinforce each other, leading to a strong and positive relationship between different forms of learning (cf. Table 2). In order to introduce changes in politics based on learning, it seems to be important that learning takes place in different forms, in a more or less parallel manner, thereby strengthening the involved policy actors' positions.

This can be best observed with the Kplus programme, whereby foreign models of competence centres were adapted and recent results of economic theorising on innovation drawn from and woven into new ways of organising political processes. The main actors were a civil servant performing the role of a policy entrepreneur and a few policy experts from other organisations who actively backed him. The establishment of the programme in its realised form was an effect of political learning, as it was based on the realisation that new forms of policy-making had to be found in order to allow for radical policy innovation to happen. Political learning therefore was a sine qua non precondition to overcome the established routines of policy-making and successfully install a new policy programme. However, this was dependent on the ability of the policy entrepreneur and his allies to utilise their fresh insights won by learning from literature and visits to other countries to argue with other policy actors and enlist them to their cause. The overall effect of the different forms of learning was that the policy entrepreneur was strengthened and, together with his allies, succeeded in introducing a radical policy innovation in the conservative Austrian policy environment, the Kplus programme (Mayer 2003).

Table 2. Interrelatedness of learning forms.

Cases	Kplus	RTI platform	ITF	Seed-Financing
Forms of learning	Social, instrumental, political	Reflexive, political	Social, instrumental	Instrumental, managerial
Interrelatedness	Strong and positive	Strong and positive	Positive	Neutral/negative
Effect of interrelatedness	Strengthening actors	Strengthening actors	(Limited) strengthening of actors	Weakening (some) actors

Source: own.

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Similarly in the case of the RTI platform, reflexive learning could take place because new theoretical and practical insights into the workings of innovation were available to a small group of young civil servants and policy experts from several governmental and non-governmental organisations who were deeply unsatisfied with the way in which policies were established and who wanted to create a new culture of policy-making. What followed was an effort to enlarge the small group of persons debating policy issues and break out of the previously established reified policy debates and routines which were on display especially in the second half of the existence of the ITF and which had hindered the introduction of policy innovations. The platform's main protagonists also applied political learning as they knew they would have to find a way not to appear to endanger senior policy-makers' routines when debating policy innovations and therefore chose an informal platform as a discussion forum. One of the reasons for the speedy development of the platform was that its founders had arguments appealing to others who were similarly dissatisfied with established policy routines. New reflexive policy instruments supporting instrumental and social learning were introduced in a piecemeal manner in several of the involved ministries contributing, in the long run, to a new culture in Austrian RTI policy-making (Weber 2009).

The small group of actors acting as policy entrepreneurs could introduce the new policy platform through a combination of both reflexive and political learning. Arguments for creating the platform developed out of reflexive learning in the form of insights based on the latest research results and on developments in other countries as well as observations on the fragility of previously existing learning instruments in the policy field. These were utilised, together with the results of political learning, to overcome existing stalemates in the policy field. Practical examples of the introduction and usage of reflexive policy instruments came from other EU countries through direct observations, but also through communication with officials in EU meetings and, moreover, scientific literature (Stampfer 2003). However, they had to be interpreted and adopted to fit the Austrian case.

The case of the founding of the ITF is characterised by two different forms of learning. Instrumental learning on the basis of the experiences with the first two RTI policy programmes primarily by civil servants and then from social learning, based on the experiences drawn from the not-always encouraging results of other RTI funds, by civil servants and specifically politicians. The interrelatedness of these two forms of learning is observable, yet less striking than in the two previous cases.

One reason for this is that the ITF was a less radical policy innovation in comparison to the aforementioned cases and therefore its protagonists were in less need of political learning in order to establish the new fund. Moreover, major accomplishments from a policy analysis perspective were not only from the politicians' production of a new bill in parliament, but also the civil servants' erstwhile persuasion of politicians to adopt the idea of a new policy fund. Finally, whilst the arguments provided by civil servants for the introduction of the new fund were ripe with instrumental learning, the debates led by politicians in parliament were, perhaps unsurprisingly, a mixture of arguments on (new) policy goals typical for social learning, but also from political rhetoric. Therefore, both the interrelatedness of learning forms and the strengthening of mainly civil service actors are visible, since the results from civil servants' discussions were actually taken up by the parliamentarians (which in Austrian RTI policy does not happen often), but it is less intense than in the first two cases.

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The case of the Seed-Financing Programme is somewhat different in so far that, although instrumental learning had happened when the programme was established, it was actually managerial learning which dominated later on. The results of managerial learning were used as an argument against some of the recommendations of the programme evaluators and ministerial civil servants and these would have implied more radical changes of the programme's operational procedures. Therefore, the relationship between the different forms of learning could be seen as neutral or even negative in the sense that there is no reinforcement of insights between the two sets of actors. The ministerial civil servants were actually weakened in their ability to introduce changes to the programme, whilst the agency staff carrying out the programme were strengthened by their operational control of the programme and by the programme clientele, the target population of the programme which could be mobilised by the agency personnel. Importantly, the agency staff were also strengthened by managerial learning (visibly, as an interview partner pointed out; interview 2-10).

On reflection, it can be inferred that policy learning occurs in different forms and that these forms are often related to each other. Political learning on how a goal can be reached is an important part of this. Indeed, without political learning the more radical innovations in the analysed cases could not have taken place. This becomes clear especially with Kplus programme and RTI platform, where the interrelatedness of different forms of learning led to a strengthening of actors' positions and arguments through different avenues, such as learning from experiences of other countries and the adoption of new economic theorising. Arguments and newly found convictions based on fresh insights were used in political argumentation and fed into political learning as to how to overcome the much trodden paths of policy-making, the product of the stable (neo-corporatist) power balances in Austrian policy-making. Without political learning all these new insights from other countries, scientific literature and other sources would not have had much leverage on political debates.

Linked to the existence of different forms of learning and the ways in which they are interwoven is the question in which ways knowledge was utilised. Further above the typology of Boswell (2008) was described and instrumental, legitimising and substantiating functions of knowledge were discerned. In the four analysed cases of policy-making, both instrumental and legitimising usages of knowledge can be found. The observation that a focus on the substantiation of previously existing actor positions is not of key importance for any of the four cases is consistent with Boswell stating that for this knowledge function to occur the policy area would have to be heavily contested, which is not the case for Austrian RTI policy.

In the case of the Seed-Financing programme, the legitimation of an already made policy choice, that is, that there should be such a programme, was of prime importance. Conversely, in the other three cases, the instrumental function, that is, learning in depth from foreign examples (Kplus programme and RTI platform) or from own experience (ITF), was in the foreground. In the latter three cases, there was also a legitimising role of knowledge on display, yet it was less important than the instrumental function. During its lifetime, the ITF's usage of knowledge became more mixed, with instrumental and legitimising functions over time becoming equally important. A sign for this change is the way in which evaluations of ITF programmes only slowly and ever more haltingly led to changes in the operations of the organisation (Pichler, Stampfer, and Hofer 2007).

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These observations again are in line with Boswell's findings that 'action organisations' will feature instrumental and 'political organisations' legitimising knowledge usage: the TIG, the organisation running the Kplus programme, and the RTI platform both were organisations of the 'action' type, whereas the ITF was a mixture of 'action' and 'political' organisation.

The fact that in all cases knowledge was utilised in several ways suggests that Boswell's types of knowledge utilisation should be understood as ideal types, which in actual policy-making may not exist in their pure form. This, however, would not limit the leverage of her findings, since specific knowledge functions are of more or less importance in the analysed cases. More importantly the correlation of certain sorts of organisations with specific forms of knowledge utilisation points to the fact that certain types of knowledge usage and related forms of learning are more likely to occur under specific framework conditions (cf. Biegelbauer 2013). Instrumental knowledge usage and instrumental, social and reflexive learning are more likely to occur if organisations have an action orientation, which makes the direct impact of the organisation of prime importance for the way it is seen by its environment and ultimately also its survival. This is not to say that such types of organisations are less likely to engage in political learning, but rather that the latter type of learning will be relatively less important than in cases of organisations with a political orientation. Political organisations are less dependent on their direct impact, which in policy-making is always highly mitigated by a large number of factors, but on proposals and policy ideas they have to offer and, importantly, these problem solutions' acceptability to other actors.

Regarding the interaction effects of different forms of learning, it is interesting to notice that in the two cases of strong and positive interrelatedness of learning forms strengthening the actors striving for change (Kplus programme and RTI platform), the involved organisations (TIG and RTI platform) feature a strong action orientation. Conversely, the two cases displaying a less strong interrelatedness of learning forms were driven by the ITF, an organisation showing both an action and a political orientation. This finding suggests that a strong action orientation has the potential to more easily foster the virtuous effects of interrelated learning forms. The reason may be that the organisation depending on its direct impact on a policy field will put a premium on an improvement of its operations, with learning being an effective way of doing so. This effect will be all the stronger in the early days of an organisation, when its survival is not secured – and indeed both the Kplus programme carrier organisation TIG and the RTI platform during the analysed time frame were still in their early years.

Conclusions

Stepping back from the research results, we find that for policy analysis it makes sense to keep different forms of learning apart for analytical reasons. Yet it should be acknowledged that different forms of learning actually occur together, influence each other and impact on political actors when they are used by actors in the inherently political ways in which results of learning are inevitably used.

The observation that forms of knowledge utilisation co-occurred in the analysed cases is a further corroboration of the fact that real-life politics is often more messy than our conceptualisations of it. Yet this may only come as a small surprise to seasoned policy

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researchers. For example, Dunlop and Radaelli (2013) recently pointed out that different modes or types of learning are not mutually exclusive. For instance, actors may over time move from one mode or type of learning to another one.

It was argued that policy learning helped to produce policy change even in the stable and change-resistant neo-corporatist power arrangements in Austrian RTI policy-making. Policy learning was not the only element in the introduction of these changes as the EU accession and the influx of a new generation of a more highly internationalised group of civil servants were other factors. However, the findings show that in all cases there was an interaction between learning forms, which mostly resulted in strengthening those actors looking for policy change. The effort to look more closely at the interactions of different forms of learning, therefore, is worthwhile as it promises a better understanding of the mechanisms leading to policy changes.

As was pointed out some of the findings described here are backed by the literature on policy learning, whereas other findings point towards new, less well-trodden paths. The scope of this paper is limited as it is an analysis of a small number of cases in a single country. Further research therefore may draw from cases in other countries and also increase the number of case studies available for the study of the interaction of different forms of learning in policy-making. Specifically, it would be interesting to contrast the findings of this paper with an analysis of cases in a country with a more flexible and permeable political system in order to learn more about the impact of political systems on policy learning. A larger number of cases located in different environments moreover would be helpful in working out the micro-foundations of why a certain organisation featuring specific properties will learn in specific ways.

It would also be interesting to learn more about the conditions under which political learning becomes a major driver for other forms of learning. In the analysed cases, political learning was specifically helpful for breaking with established political practices, thus enabling actors to make use of conclusions drawn as part of instrumental and social learning. However, it is fairly easy to imagine situations in which decision-makers may learn to do popular things in order to, for example, win elections, which may harm a society's development in the medium or long term. In other words, the results of political learning may contradict the results of instrumental learning from, for instance, scientific studies.[9]

Finally, it would be interesting to see if the whole-of-government initiatives on policy coordination, which have been implemented in a number of countries during the last years, make a difference to different forms of learning. This would be specifically interesting to those forms whose occurrence rests on a greater number of preconditions, such as social and reflexive learning.

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Notes

1. Schnapp shows the power and independence of the Austrian civil service in an international comparison in the mid-2000s, when most of the cases in this paper have already taken place (2004).
2. Since interview partners were talking openly in the framework of a small policy community, they were guaranteed anonymity. Interviews therefore are codified after an internal scheme differentiating between policy cases and interviewee.

3. Overviews focusing on different aspects of learning can, for example, be found in Bennett and Howlett (1992), Freeman (2006), Bandelow (2009), Radaelli (2009), Zito and Schout (2009), Dunlop and Radaelli (2013) and Biegelbauer (2013).
4. For the UK, see Sharp (2003); for Austria, Pichler, Stampfer, and Hofer (2007); for Germany, Bauer, Lang, and Schneider (2012).
5. Austrian National Council (1987, 4111–4145, especially 4118, 4125, 4131).
6. Typical for Austrian policy-making procedures a compromise was struck, as part of which research institutions could be funded (only) when cooperating with firms, see Austrian National Council (1987, 4133).
7. Not all interview partners agreed. A former high-ranking civil servant from the science ministry finds that he 'misses this cooperative form of problem description and analysis, which has been lost' all the last years (interview 1-1).
8. http://www.fteval.at/en/platform/ (accessed 10 May 2015).
9. This important thought came from one of the reviewers.

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Interviews

Nr.	Interviewee	Date	Place	Code
1	Senior Civil Servant, BMWF/BMVIT	12-09-03	Vienna	1-1
2	Civil Servant, BMWF/BMVIT	10-11-03	Vienna	1-2
3	Civil Servant, BMWF/BMVIT	22-12-03	Vienna	1-5
4	Senior Expert, Technopolis	29-07-03	Vienna	2-1
5	Civil Servant, BMF	30-04-04	Vienna	2-8
6	Senior Civil Servant, BMVIT	01-06-04	Vienna	2-10
7	Senior Expert, ERP	01-06-04	Vienna	2-11
8	Senior Civil Servant, BMVIT	03-11-05	Vienna	2-12
9	Senior Expert, Joanneum Research	16-01-06	Vienna	2-13
10	Expert, TIG	29-09-03	Vienna	3-2
11	Expert, TIG	02-02-04	Vienna	3-5

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