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January 2016

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Founded in 1963 by two prominent Austrians living in exile – the sociologist Paul F. Lazarsfeld and the economist Oskar Morgenstern – with the financial support from the Ford Foundation, the Austrian Federal Ministry of Education, and the City of Vienna, the Institute for Advanced Studies (IHS) is the first institution for postgraduate education and research in economics and the social sciences in Austria. The **Sociological Series** presents research done at the Department of Sociology and aims to share "work in progress" in a timely way before formal publication. As usual, authors bear full responsibility for the content of their contributions.

Das Institut für Höhere Studien (IHS) wurde im Jahr 1963 von zwei prominenten Exilösterreichern – dem Soziologen Paul F. Lazarsfeld und dem Ökonomen Oskar Morgenstern – mit Hilfe der Ford-Stiftung, des Österreichischen Bundesministeriums für Unterricht und der Stadt Wien gegründet und ist somit die erste nachuniversitäre Lehr- und Forschungsstätte für die Sozial- und Wirtschafts-wissenschaften in Österreich. Die **Reihe Soziologie** bietet Einblick in die Forschungsarbeit der Abteilung für Soziologie und verfolgt das Ziel, abteilungsinterne Diskussionsbeiträge einer breiteren fachinternen Öffentlichkeit zugänglich zu machen. Die inhaltliche Verantwortung für die veröffentlichten Beiträge liegt bei den Autoren und Autorinnen.

Abstract

Main issues of complexity in a centralised system are explored, taking Austria as a case. The overall argument connects three interrelated topics of governing complexity in education: (1) an analysis of the sources of complexity in a centralised system, showing that centralisation-decentralisation is rather a continuum than a dichotomy; (2) an exploration of relations between structures in a centralised polity and policy and politics in education; (3) the production and use of knowledge and the knowledge flows as a key ingredient of governing complexity.

The existing governance structures mediate between policy making and practice, and their shape depends more on the demands of power politics than on technical policy arguments of how to achieve efficacy and efficiency, at least in a centralised system. In such a system much part of its complexity is hidden behind existing formal regulations that superficially seem to 'rationalise' the practices of policy making.

Zusammenfassung

Probleme von Komplexität in einem zentralistischen System werden untersucht. Die Argumentation verknüpft drei Aspekte der Governance von Komplexität: (1) die Quellen von Komplexität in einem zentralisierten System, wobei sich eher ein Kontinuum als eine Dichotomie zu dezentralen Strukturen zeigt; (2) Zusammenhänge zwischen den Strukturen einer zentralisierten Polity einerseits und Policy und Politics andererseits; (3) die Produktion und Nutzung von Wissen als Teil der Governance von Komplexität.

Die Strukturen (Polity) vermitteln zwischen den politischen Prozessen und der Praxis im Bildungswesen, und diese sind in einem zentralisierten System stärker von der Machtpolitik als von der Sachpolitik bestimmt. Ein großer Teil der Komplexität wird durch die scheinbar ‚rationellen' formalen Strukturen versteckt.

Keywords

Keywords: educational governance, complexity, policy, politics, Austria

Schlagwörter

Schlagwörter: Governance im Bildungswesen, Komplexität, Sachpolitik, Machtpolitik, Österreich

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Introduction

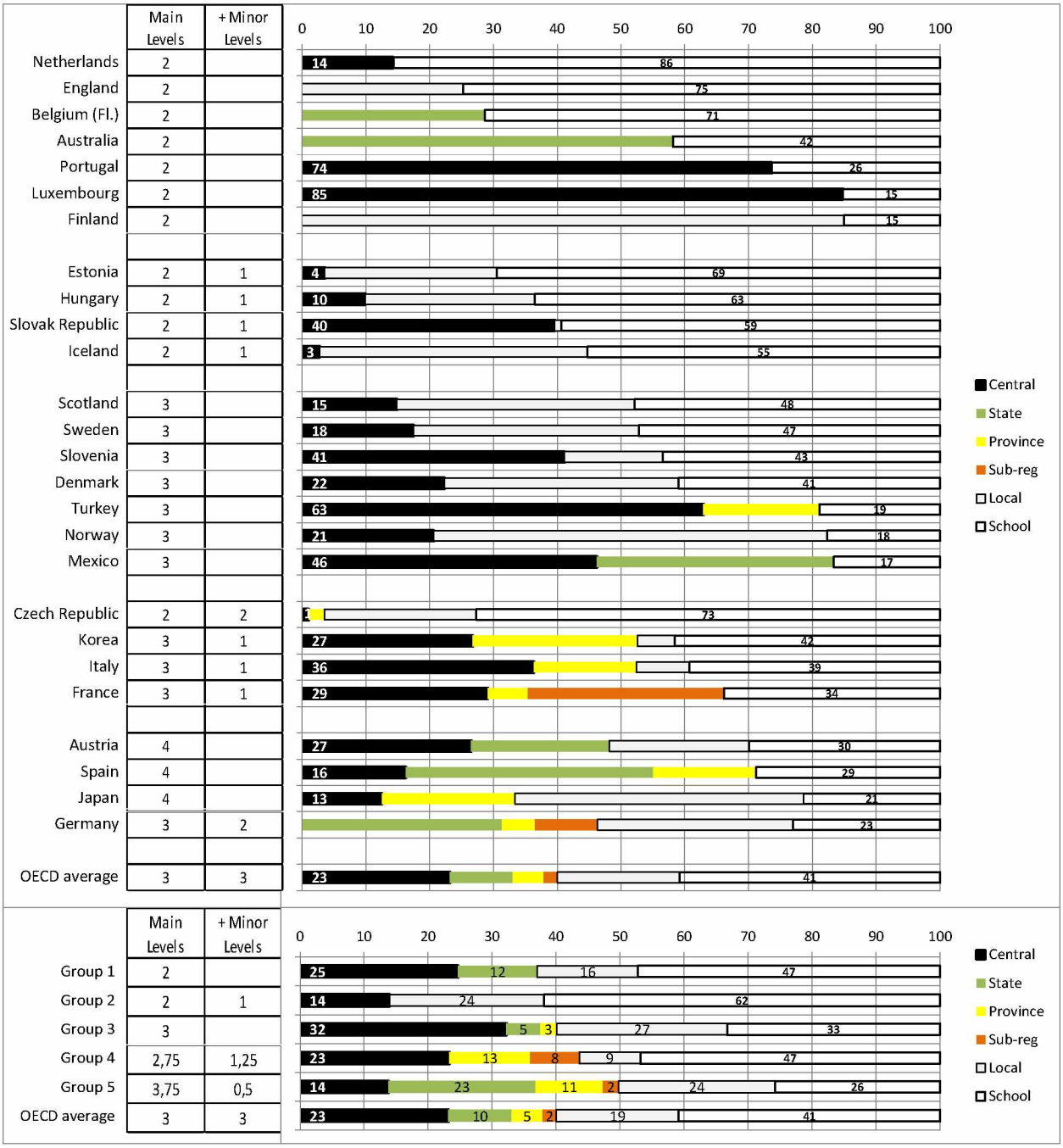
This paper explores some main issues of complexity in a centralised system, taking Austria as a case.[1] The overall argument is connecting three interrelated topics of governing complexity in education. It starts with an analysis of the sources of complexity in a centralised system, which are mostly adding up to those in decentralised systems, and shows by some indicators that centralisation-decentralisation is rather a continuum than a sharp dichotomy. The second step explores more specific interrelations between structures in the polity at the centralised pole of the continuum on the one hand, with 'technical' field policy and power politics as basic dimensions of governance and policy making on the other. A result is that education policy is much more dependent on power politics in more centralised systems than in decentralised systems. The established governance structures mediate between policy making and practice, and their shape depends more on the logic and demands of power politics than on technical policy arguments of how to achieve efficacy and efficiency. In a third step, these structures are channelling the production and use of knowledge and the knowledge flows as a key ingredient of governing complexity. An important aspect of the whole interrelations in a centralised system lies in the fact that much part of the complexity is hidden behind the existing formal regulations that superficially seem to 'rationalise' practices, however, might create a substantial gap between formal structures and informal practices.

Sources of complexity in a 'hybridly' centralised system

The concept of complexity denotes that certain structures might produce unpredictable results, and shifts the focus of analysis from uncovering a mechanistic technological machine logic (e.g., a formal bureaucracy, or a 'pure' market model) to the understanding of broader and more diverse interrelationships between the involved elements (some of these interrelationships might be notoriously neglected in a mechanistic perspective). A basic assumption of this chapter is that different types of sources of increasing complexity in educational governance and policy making can be reasonably distinguished. (i) Complexity might arise from the various forms of decentralisation, that bring about an increased number and variety of involved actors, and is empirically related also to a strengthening of the stakes of those actors (parents and citizens are more educated and have more self-confidence; diversity in society brings about more diverse interest orientation and less orientation to a common good, and is combined with more diverse interests, etc.). This type of complexity resulting from current changes has been mainly focused in the GCES project so far; it can be called *procedural complexity*. (ii) Another source of complexity might be found in centralised systems, which are formally and legally more or less clearly structured, however, might in practice involve 'hybrid' interrelations of different elements of governance, which produce *structural complexities*. This second type is elaborated in this paper.

[1] The material and the empirical observations in this paper draw very much on a bigger project about the governance of Austrian education (Lassnigg et al. 2007, see also Lassnigg 2009)

Fig. 1: Governance Typology, number of decision levels per country (based on Tab.1 ANNEX)



Source: Tab.1 Annex based on OECD 2012 EAG

Legend: the cutting point between main and minor levels has been set at 15% of decision making responsibility; there might be some conceptual overlaps or unclear distinctions between local and sub-regional levels as well as between state and province levels.

Throughout the GCES project the dichotomy of centralised-decentralised systems, and the possibilities of measuring it, has often been questioned. One established version of measuring decentralisation has been to look at proportions of decision making at different levels of governance, with the proportion at the school level in decision making in four domains (instruction, personnel, planning/structures, and resources) being taken as an indicator for decentralisation (Sutherland 2007a, b). Based on a dichotomous concept of centralisation-decentralisation, an implicit assumption seems often to prevail that decision making at the central level is the main or only complement to the school level. However, the structures are not that simple. Tab.1/Fig.1 gives an overview of governance types based on different distribution of decision making across levels in 26 countries in 2011 (based on Education at a Glance-EAG 2012). From counting and weighting the levels involved, five types can be constructed with different compositions of centralisation-decentralisation, which show that there is no one-dimensional axis. The number of administrative levels involved in decision making varies from two to four levels, the number of levels is multiplying the interrelations between institutions and thus potentially increasing the structural complexity of the governance system.

In Austria decision making is distributed among four levels (which is rather typical for much bigger countries, as Spain, Japan, Germany) and the proportion of decisions at the school level are below average. The responsibilities allocated to the school level are comparatively concentrated on instruction, with weak responsibilities for planning, resources, and personnel at this level. Planning is concentrated at the central level, and resources and personnel are distributed among the central and the local administrative levels.[2] The indicators point to a quite even distribution of responsibilities among four levels (central, regional, local, and school), however, the distribution is different for different sectors of schooling:

- Elementary education (Kindergarten) is mainly governed at the local level, and also the investment and maintenance of primary schools;

- the lower secondary common track (called Hauptschule, and currently being changed towards Neue Mittelschule) is more strongly governed at the Länder level,

- and the academic school (that spans compulsory lower and post-compulsory upper secondary education as well as post-compulsory fulltime vocational schools (which are strong in Austria beneath apprenticeship)[3] are centrally governed, with administrative responsibilities at the Länder level also.

This structure creates gaps at all the main transition points in education, as the authorities also change at these points, making coordination more difficult. A main issue of the distribution of responsibilities between different levels are two different categories of teachers, those in compulsory schooling governed

[2] More elaborate figures about the distribution of responsibiliites in a comparative view are available in a separate ANNEX at http://www.equi.at/dateien/Fig.pdf.

[33] The governance of apprenticeship is mostly separate from school governance, run by another Ministry (Economic Affairs) and the Social Partners. Only the compulsory part-time school that apprentices must attend is under the responsibility of the school governance system, also distributed among the federal and the Länder level.

by the Länder (Landeslehrer), and those in post-compulsory schooling governed by the central level (Bundeslehrer), comprising different structures of industrial relations, wages, employment conditions, etc. Within compulsory schooling the primary schools are very widely dispersed across the communes, with many very small communes being responsible for many very small schools.[4] From overall about 6.000 school at all levels, half (about 3.000) are primary schools, at lower secondary level the number of common schools concentrates to about 1,200 (20% of schools) and the number of academic federal lower secondary school is less than 300.[5] From cycle to cycle the schools concentrate increasingly to a low number of communes in cities or smaller towns. 50% of communes have a primary school only, further 25% have a primary and lower secondary common school, and the post-compulsory schools are concentrated to only 15% of communes. This is reflected also in the average school sizes which increase from about 110 pupils per primary school to 170 at lower secondary common schools to 260 at post-compulsory schools and 400 at academic lower secondary schools. Among primary school the dispersed structure leads to a proportion of 8-10% of primary school pupils that are educated in very small schools that comprise less than four classes, this proportion varies between Länder in a range of 6% and 26%, the class size is on average about 10% lower in small schools than on average (total class size in primary schools 18,4; in small schools 16,4; in Länder except Vienna, 17,7; in Vienna 21,8; in capitals/biggest cities of Länder 19,3 varying between 18,2 and 20,8). About one third of all communes resp. two thirds of small communes in the countryside comprise small schools, to a high degree struggling with demographic decline and holding up their school against pressures of rationalisation.

Two further dimensions of structural complexity must be added from a qualitative perspective. The first is the mode of how the responsibilities are formally allocated to the different governance levels; the second concerns the overall hybridity of the governance system.[6] In Austria the responsibilities are interlocking, so there is no clear 'division of labour' between the different levels. The central as well as the regional state ('Länder') level both have some legislative and regulatory responsibilities, and at the regional level

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[4] About 60% of all communes are very small and comprise a population below 2000, and of those three quarters are situated in the countryside (where consequently 70% are below 2000). About 13% of the population lives in those about 1.000 small communes in the countryside (46% of all communes).

[5] The number of schools at lower secondary level is at the moment difficult to estimate, as the structure is under change, and consequently more than one 'organisational' schools are concentrated at one location; the number is an estimate that tries to cope with this and identifies 'real' locations.

[6] The Austrian governance system combines a quite traditional bureaucratic structure with a kind of 'distributional federalism' that is focused on the distribution of nationally raised tax money to the regional units ('Länder'). The latter have strong democratic political structures (government, parliaments) but very little own money, as the main part of taxes is raised by the central government, and then distributed via different channels to the regional units (9 Länder, about 8 million inhabitants); the distribution is partly based on legal and statutory responsibilities, and to an increasing part the central funds are also distributed via a negotiation process among the units ('Finanzausgleich'), with the money flowing through this mechanism being mostly not earmarked for certain purposes. In addition, Austria has a very high number of communes (around 2.300), which also are organized with own elected political structures (mayor, parliament), and also get their money mainly from the upper political layers (here are the Länder an important source). In addition about 80-90 districts exist, which are basically a nationally governed administrative structure, themselves not being democratically organized.
As a key responsibility the Länder bodies still select and employ the teachers in compulsory schools, and in several aspects of education the Länder also have to create supplementary laws for implementation ('Ausführungsgesetzgebung'). Control and inspection structures are scattered on the different levels, and they do not have clear targets to enforce by their work.
The schools work mainly as dependent administrative units ('nachgeordnete Dienststellen') in this bureaucratic-federalist system, and are highly regulated. In addition the public service law, under which the teachers work, is heavily tayloristic, negotiated between the authorities and a differentiated structure of trade unions (regionally, and by school types); e.g., in the negotiations of a new law the ministry representatives sit vis-à-vis more than 20 different trade unions' representatives.

there are two kinds of authorities with interlocking responsibilities (a federal agency, 'Landeschulrat', which is linked to regional politics, and an office of the regional government responsible for schools, 'Amt der Landesregierung'). This means that the legal responsibilities are distributed in a complex way so that different governance structures arise in different regions despite their small scale, influenced by the varying political majorities.

Another source of hybridity is even more important and more difficult to grasp. It concerns the overlapping of three different types of governance structures, which are differently distributed to different parts of education. The three types are (i) a classical state bureaucracy; (ii) a kind of federalism of the nine regional 'Länder' which comprises nine regional parliaments and governments, and which mainly distribute the federal funds in the regional domains; (iii) a strong system of corporatism, based on interest organisations with to some part compulsory membership (chambers of commerce, chambers of labour, chambers of agriculture).

The 'hybridity' in educational governance lies first in the *interrelation of the bureaucracy with the federalism*, which means that the overall bureaucratic structure does not reach from the central level to the schools, but is 'broken' at the regional level, as the central decisions have to be modified and implemented at the 'Länder' level. The administrative structure of two parallel regional bodies for school administration, a federal one and one situated at the regional government creates in fact much political overlaps, so criss-crossing loyalties arise at the Länder level that make it difficult that central decisions can reach the delivery level at schools. A main example of this 'broken' structure is the management of the teachers in compulsory school. The Länder employ the teachers and pay their salaries in advance, whereas the central level has to refund the money from the central taxes. This is a permanent issue of struggle, as the central level wants to control the costs and has given some basic rules of how to allocate the money basically based on estimates of expected student numbers. However, the Länder act on their own interests, organise the schools and employ teachers without providing detailed information about their policy. So the bill from the Länder to the federal level is always higher than expected, and the federal budget has (reluctantly) to pay.

As the Austrian federalism is highly politicized on the one hand, and does not have own financial resources but has to receive (and thus fight for) resources from the federal taxes on the other, the 'Länder' have also strong incentives to make different politics for the purpose of 'making a difference' and to 'serve the regional identities' vis-à-vis the regional electorate. This interrelationship of political interests and administrative purposes is creating strong contradictions and tensions in the overall structure. The schools are basically embedded in a tight bureaucratic structure, creating quite tight rules for their everyday practices, which are heavily documented and criticised at least since the 1990s (Posch/Altrichter 1993; Schratz/Hartmann 2009). Whereas the formal bureaucratic rules apply, they cannot even play out their (potential) strength, because the political interests of federalism interfere, and the overall result cannot be controlled by the bureaucracy. Somehow this structure can be seen as the transformation of a central bureaucracy into nine regional bureaucracies, which in this course loose the

overall coherence of policies. A recent example has been the structural reform of the lower secondary compulsory common school that should change the tracked structure of achievement levels in Hauptschule (HS) into a more integrative structure based on individualisation in Neue Mittelschule (NMS). Based on different political majorities with different ideologies towards tracking and differentiation, several different strategies of implementation have emerged at the Länder level, which led to the result that the main ideas of NMS were only implemented in a quite small minority of schools (Eder et al. 2015). So in sum in the prevailing structure the actors suffer from the negative aspects of the bureaucracy (little discretion in many things, and thight rules and long reaction periods), but the potential strengths of a rational and coherent policy cannot be realised.

As has been indicated above this kind of structure is differently applied to the different sectors of education: post-compulsory school education is rather centralised and governed by the central level, whereas compulsory education and pre-primary education are under mixed responsibilities, with a different governance structure each. As the later cycles depend on the earlier ones, the 'broken' bureaucratic structure in compulsory education basically influences also the more centralised post-compulsory system. As an example, the compulsory schools provide the 'pipeline' for the transitons inro post-compulsory education, so the prevailing different regional structures, which reflect rather political preferences than regional conditions set the frame for the next stage of education, and thus also influence the opportunities of the next generation. In terms of subsidiarity, and the idea that things should be managed as near as possible to the practice level, the Länder level seems not the most feasible one, as the four (relatively) large regions Vienna, Lower and Upper Austria, and Styria have to some extent contrasting or conflicting interests (in particular Vienna as a strongly growing region would need much more resources which are difficult to obtain in the negiotiation processes), on the other hand the three non-metropolitan regions are very diverse in themselves, comprising strongly urbanised parts as well as rural areas in the countryside. These diversities are shaded behind the overall interests of the Länder, and policy issues across the Länder are not really addressed in this structure (until recently regional information was very scarce; now Statistics Austria has improved accessible statistics at the levels of communes and also of urban regions).

The *corporatist structure* provides a second dimension of the hybridity by its high influence on the apprenticeship part of upper secondary education. Vocational education (VET) is 'dualistic' in Austria in the sense that a centralised bureaucratically governed full-time school system exists in parallel with a classical strongly decentral enterprise based apprenticeship system that also includes a compulsory part-time school for apprentices (Lassnigg 2011). Thus at the end of compulsory school two different systems of about equal size exist, which are differently and separately governed, and in times of demographic decline compete for the young people. The organisational structure of the corporatist governance is also strongly related to the federalist system with the regional chambers of commerce holding the main administrative responsibilities in the apprenticeship system. As a result of the complex working of the 'collective skills system' in apprenticeship (Busemeyer/Trampusch 2011), very different political

relationships arise in different regions, based on industry structures and cooperative orientations of the actors.

Contrasting this 'structural complexity' in a fairly centralised system with the 'procedural complexity' in a decentralised system, questions about the different degrees of complexity can be asked. In the structurally complex system comprising the different layers of governance, bureaucracy, federalism, and corporatism the question might be posed, how these different layers are coordinated.[7] In the small and traditionally centralised country, the same actors are contributing to the different overlapping governance mechanisms, which constitute complex varieties of actor constellations. The question might be posed, to which degree an overall coordinated 'governability' is possible in this system, where the same actors might develop different positions and orientations according to which type they actually act in: as a bureaucrat (or official), as a regional policy maker defending the powers of federalism, or as a player in a corporatist interest organisation. Moreover, it must be considered that the driving forces of the 'procedural complexity' are also in play in the structurally complex system, as more stakeholders try to bring their stronger stakes into this environment also. Several initiatives to mobilise the 'civil society' towards educational reform can be observed during recent decades (e.g., a referendum in November 2011, or a new initiative by the Federation of Austrian Industries).[8] Each of the three types of governance (bureaucracy, federalism, and corporatism) has been heavily contested since decades; however, because of the multiple and interlocking interests and the many existing 'veto points' change is quite impossible to achieve.

Policy and politics, 'hard' and 'soft' policy making

The distinction between politics and policy has gradually emerged in political science, mostly in combination with the emergence of various approaches and techniques of empirical policy analysis, evaluation and monitoring being key elements in this realm. The focus in policy analysis has been given to the content of policy making in a certain field. Which policies are most appropriate and/or effective and/or efficient to reach certain goals? What is the meaning of certain goals in certain contexts? When these kinds of questions were increasingly asked and answered in policy analysis, certain constraints in the overall field of policy making became increasingly clear: the best 'rational' answers or solutions from policy research in a certain field conflicted with other dimensions of policy making, and at this edge the distinctions to the polity and to politics arise. The democratic polity conflicts with technocratic advise based on evidence, and moreover, the political constraints of acquiring power or to stay in power are setting the context for field specific policy solutions. Renate Mayntz (2009, 5, engl.abstract) has posed the

[7] The issues of coordination in federalist systems has been also taken up recently in political science by a set of illuminating case studies; unfortunately Austria is not included in this research so far; see Bolleyer et al 2014.
[8] See http://www.vbbi.at/; http://www.iv-net.at/b3487/beste-bildung-fuer-oesterreichs-zukunft-die-inhalte-des-iv-konzepts/ (in German).

contradictions between policy and politics by questioning the possibilities of good policy advice in facilitating "the making of evidence-based and effective policy decisions." Even the best advice and also sound "guidelines for the behavior of those seeking advice could not assure that advice is used as intended. The effectiveness of policy advice is compromised by the inseparability of Policy and Politics." This inseparability realises when a policy proposal should be implemented, then power as a source of politics comes into play, first as a source for implementation, and second as an aspect of the self-interest of politicians. At this point the policy can be reversed into the opposite, in German Mayntz puts it drastically: "*politisch brauchbar kann aber gerade das sein, was wissenschaftlich unhaltbar ist* [politically usable could exactly be what is scientifically untenable]" (Mayntz 2009, 13).

The well-established distinction between power oriented *politics* and more technically topic oriented *policy* (Treib, Bähr, Falkner 2005, May, Jochim 2013) seems particularly linked to different governance regimes at the centralisation-decentralisation continuum. This question concerns the relationship between policy and politics, because the structures of governance can only be changed by politics, and consequently, if these changes are necessary, politics must be set in motion. On the other hand complexity is involved, because politics follow different logics from policies (e.g., creating voters' acceptance or demonstrating competency on order to stay in power vs. good technical solutions to practical problems).

Different approaches in politics vs policy towards the structural complexity of education governance in Austria might serve as an example of this distinction. At the political level the issue of formal regulatory simplification is mainly addressed, with different powers (regional vs. federal authorities) trying to shift the responsibility towards their own realm without 'proofing' their stance according to efficacy or efficiency. As centralism is currently outmoded, arguments towards decentralisation are strongly emphasised without much resistance. At the policy level main assertions are problems of keeping a coherent and accountable system vis-à-vis a centrifugal federalism, and questions of how to develop a framework of accountable school autonomy in a completely federalist system driven by the interest of contrasting each other. The main technical question arises, whether the given practices in the bureaucratic-federalist system will allow for the necessary coherence of education in a small state if the responsibilities would be shifted mainly to the regions. More recently this question has radicalised, as a joint proposal of the Ministry and the Länder is under way, to shift the responsibilities for implementation to the Länder level, whereas the institutions at a more local district level have been removed.

A key point in the GCES-project concerns the strategic potential of the centre to develop and implement coherent policies towards commonly agreed goals in a decentralised governance system. Given the deemed importance of education to further broader national goals of competitiveness and social purposes, many observers apprehend if the process of decentralisation might endanger possibilities to further these purposes. Some have posed the question of whether the trend towards decentralisation might have gone too far already? Thus a main question of the project is how decentralisation should be complemented at the national level to allow for a successful national education policy. The shift from 'hard' to 'soft' policy making is to some extent seen as a solution for these tasks or problems. The

European 'Open mode of coordination (OMC)' serves as an elaborate model of 'soft' policy making. Instead of 'hard' legal instruments a mechanism of setting goals, evaluating and comparing results according to these goals based on indicators, and providing peer learning has been developed, which should work through influencing, and 'naming and shaming' through various kinds of reporting procedures.

The basic setting of the OMC is that the member states have agreed on a set of quantified goals that should be reached at a point in time, and the centre has not the authority to enforce implementation by prescription or sanctions. The situation is similar in a federalist system, where the responsibility lies at the regional level, and the central authority wants to guide the regional authorities towards certain goals. In Austria the European policies of the Social Fund (ESF) or the Employment Strategy have provided models for this kind of policymaking, and more recently this kind of policies have been taken over at the national level. In education some recent examples can be found, a major one of them being the reform of the lower secondary school towards more comprehensiveness ('Neue Mittelschule'): in this reform substantial additional resources, namely a second teacher for team-teaching or support of individual students in 'achievement subjects' were provided for schools that opted into the new structure. The common school (Hauptschule) should change its instruction methods from the prevailing setting-differentiation by three achievement levels in main subjects towards instruction in heterogeneous groups without formal institutional differentiation to individualise teaching towards the different needs. Within a few years, this change was widely implemented, however, without controlling for instructional and achievement changes; only the input-sided institutional change was observed, and a substantial increase of resources was provided without looking at the results of these changes. This reform was implemented in the field of compulsory schooling, where interlocking responsibilities between the central and the regional level prevail, and the reform also tried to bridge the different governance levels by demanding a cooperation of teachers employed by the regional authorities with teachers employed by the central authorities (the programme was only implemented in the track of the common 'mass' school 'Hauptschule', the academic 'elite' track of 'Allgemeinbildende Höhere Schule' did not participate in the programme).[9]

Concerning the relationship of 'hard' and 'soft' policy-making on the one hand, and the centralisation-decentralisation dichotomy on the other, Austria provides examples that 'soft' policy making might be used to handle problems in a structurally complex (fairly) centralised system. On this background the relationship of these dimensions can be explored.

[9] Policies in other sectors (early education, basic adult education), and an the overall 'Lifelong Learning – Strategy' also have taken up elements of this kind of 'soft policy making'

Fig. 2: Schematic representation of systems and policy making types

	Centralised system	Decentralised system
Hard policy making	***Bureaucracy*** Prescription and control of activities Standardised resources (qualifications) Mandatory provision	Setting of mandatory goals, Obligatory control of results
Soft policy making	Mobilising commitment, engagement	***Market*** Self-organisation, autonomous activities Flexible resources, acquisition Intervention through incentives, sanctions

Source: Own figure

The schematic account shows on the one hand the 'streamlined' relationship of hard policy making in centralised systems (summarized by the bureaucracy) and of soft policy making in decentralised systems (summarised by the market) on the other. More interesting seem the remaining alternatives, soft policy making in centralised systems and hard policy making in decentralised systems. On the background of the Austrian examples different kinds of alternatives can be devised from this table. In addition to a shift from a centralised system to a decentralised system an alternative can be seen in the development of soft policy making in centralised systems. Starting from decentralised systems the stylised alternatives are a shift to centralisation, or hard policies in decentralised systems. The prototypical policy in the latter regime in education is the use of 'high stakes'.

An interesting question at this stage of reasoning is how the many soft elements towards professionalization might fit into this scheme. Communication and trust, as well as information, dialogue and capacity building are mentioned as key soft factors in the improvement of governance. Accountability as a key ingredient is closely related to information and communication, and strategic thinking needs capacity building as a key ingredient. These elements are clearly needed in soft policy making, whereas hard policy making has the tendency to make itself immune or un-vulnerable from these soft elements, and thus does not have a high priority to strengthen them more than to an absolutely necessary minimum.

- Hard policy making in a decentralised environment needs good information and communication about results (accountability), and a high degree of strategic thinking for an appropriate use of incentives and/or sanctions. The overall shift towards hard policy making in soft decentralised systems might undermine trust by the increase of control, building up new instruments and mechanisms for this purpose. The governance reforms at the university level point much into this direction, by the building up of new managerial systems and personnel.

- Soft policy making as a complement to hard policy making in a centralised environment depends more strongly on the mentioned soft elements. The question here would be, to which extent an environment of

hard policy making provides the necessary and sufficient conditions for the development of the soft ingredients, as they are information, evidence, communication-dialogue, capacity building, and trust.

Based on the understanding of the political processes in the actor network embedded in the complex Austrian system some further questions about how "structures compartmentalize issues" (Tracey Burns, 2013, 7), and how the relationship between the structures on the one hand and the soft factors of dialogue, evidence, capacity building, etc. on the other hand might be understood. In more activity related policy proposals geared towards decentralisation it is often stated (also in the process of the GCES project), that structures might be important, but were less important than the other elements. The question would be, whether and to which degree structures might systematically condition the other dimensions. Put very bluntly, structures that impose a high degree of centralization, regulation and (nominal) control are geared towards politics, and are neither open for dialogue, nor for evidence nor capacity building. Dialogue is restricted by the strong politicization, evidence is not necessary because the procedures and authorities are clear, and capacity building is restricted to what is prescribed – in effect the soft factors must be somehow processed against the structures.

Change of governance structures in relation to change of governance practices might be particularly tricky, if there are tight formal structures in place (bureaucracy and federalism, which includes a high degree of politicization). In these structures a kind of 'double bind' arises, as the structures are formally tight, however, practices differ more or less from the formal structures, and change has somehow to be imposed in this gap between formal structures and informal practices (e.g. if the school structure is very tightly regulated, you can create hundreds of 'tryings (Schulversuche)', or actors can capitalize on gaps in the law, but have to follow the law superficially, etc.). So the question might be asked how much energy is absorbed at the various levels by this kind of 'double bind' between the obligation as a civil servant to follow the law/rules and the obligation as a professional to achieve substantial results which might be inhibited by the rules (we can recall that the 'double bind' as a communicational structure has been theorized as a source of serious mental disorder decades ago; see Gibney 2006) . Another aspect concerns the well-known phenomenon in education of 'too much innovation and too little scaling up', which might in fact also be caused by too tight structures; however, (too) loose structures might also indirectly inhibit innovation because it might not be visible.

Summarizing these thoughts, 'the shadow of hierarchy' (B.G.Peters, 2011, 7), and its consequences for governance would deserve more attention, in particular in relation to the problems of the 'disempowerment' of the state. Much energy of reform discourses might be bound in these tensions, and in case of a lack of formal organizational alternatives, the debate tends to be trapped in the politicised state vs. market discourses.

Dialogue, and the issue of a change of mindsets, and the necessity of creating an infrastructure for this was strongly emphasised in the course of the GCES project, and attributed to capacity building, or to governance. These issues reflect the whole topic of agenda setting in policies and politics, and of creating

political objects, to which a substantive literature exists (e.g., March/Olsen 1995). Especially for politics this process is very critical, as the 'created policy objects' are key for how success and failure is estimated in the public. So a very high interest to control the discourses by politics must exist, and this seems to be related to the structure of the governance system. Based on this reasoning we can derive the hypothesis that the more the structure is centralized and politicized the higher the inclination to control the discourses would be, and to this situation the public / the audience might react by not taking the dialogue as a serious one, and to react strategically. Therefore, a situation arises where the dialogue seen as a main instrument for creating trust is foreclosed by the structural conditions driven by distrust and endemic conflict between fundamental positions. How to escape from these self-reinforcing cycles is a real challenge for multilevel governance. To disclose this situation and the communicational traps included by more detailed discourse analysis could be helpful activities in this situation (as in case of the 'double bind' an element is that the contradictory setting must be negated by the actors that the mechanism works).

Governance structures and knowledge production and use

This section looks specifically at the relationship of governance structures to the processes of knowledge production and use. The basic message is that the knowledge flow is heavily influenced by the governance structure in place. The impact of the bureaucratic governance model is particularly considered in this section; the reasoning draws not so much on formal research, but on long term experience and observation of mechanisms in place. Bureaucratic and centralised structures tend to separate research from practice, and to establish a strong linkage between research and policy making. The policy makers are acting as gatekeepers for the production and use of research in this framework. This relationship is reflected in widely held beliefs in a hierarchy of research-politics-practice along the linear model of innovation (which might, however, in fact be rather a kind of symbolic or rhetoric hierarchy, because research is not treated seriously but rather for purposes of legitimation). Thus two issues concerning the use and position of research knowledge seem very important, which are based on the image of a triangle between research-policy making-practice: in this triangle first a distinction must be drawn between the relationship of research to policy/politics (one line of triangle) and a separate relationship of policy making to practice (second line of triangle, which indicates the governance system in a narrow specific sense), and secondly the direct relationships between research knowledge and practice (third line of the triangle) must also be addressed, which is often neglected, but would be a key element of professionalism (as developed professionalism beneath its practical knowledge is also based on a body of research knowledge).

An important issue concerns the building of infrastructures for research and research use (see Lassnigg 2014 for an extended view at those issues). The focus here is on the question of the broader conditions for the use of research in governance and culture in the triangle of research – policy/politics – and practice in the field. A main message is that the culture and positioning of policy/politics in the triangle,

and thus the governance structure in a wider sense (including the relationship of policy making to practice as well as the relationship of policy making to research), might be more important than any infrastructure (in other words, the best infrastructure cannot overrule problems in governance and culture). The argument is also questioning the concept of ‚brokerage' as a device for an infrastructure for the use of research. Two problems are posed in these relationships, which might produce vicious circles:

(i) a sufficient research infrastructure is necessary for the use of research in policy making and in practice, however, it is difficult to obtain what 'sufficient' means; namely, if the infrastructure is too weak, then the produced inputs are too weak to be useful. This poses the question of how to assess a sufficient scale of the research infrastructure? (e.g., a proportion of the expenditure for financing research?); to some extent this question was tackeled in the earlier OECD projects about education research, but clear answers were not given. A basic message so far is that the infrastructure is weak everywhere, in the U.K. the conditions are comparatively well;

(ii) but even the best inputs from research are not sufficient for being used, and there is no ‚automatic application' of research results, in particular if the role of R&D is contested. This poses the question about the sufficient conditions for use? Mainly, is this only a technical problem of the transfer of information, or is this a more complex issue? The thesis brought forward here is that this is a more complex question of culture and governance. As will be argued, it is difficult to convincingly demonstrate and see the virtues of research only in practice, without a deeper understanding of research (this is similar to the interactive consume of more complex 'cultural' or arts products, which also do not speak completely for themselves, even if artists might wish that this were so);

(iii) based on these somehow contradictory propositions saying that even a sufficient infrastructure for research would not be sufficient for its use, a kind of vicious circle might arise under certain conditions, which are in place in Austria: if the R&D infrastructure starts from a low scale, problems of use of the produced necessarily imperfect results might compromise the further development/investment, via the justified criticism concerning the insufficient products/inputs, and possibly restrictions of the investment. This poses the question of how this circle can this be broken? The answer is that a kind of 'counterfactual belief' in the potentials of research is necessary. This belief is counterfactual because it cannot be produced by experience, as an insufficient existing infrastructure must produce insufficient results, which give again negative signals, which might damp further resources and expectations, etc.[10]

This sketched vicious circle represents basically the situation in Austria. The ‚belief' is contested and widely missing, and further undermined in the political and practical discourses. The politically supported building of a research infrastructure from a weak basis has been continuously undermined by powerful adversary forces and conflicts:

[10] An example for the discussion of these problems of the development of a sufficient infrastructure can be seen in the model of the Swiss Leading Houses in vocational education, which are recently in a process of evaluation. In this case substantial resources have been provided to start a R&D infrastructure, and this case can be used to analyse the results.

- the Socialdemocratic vs. Conservative party: the Socialdemocrats have adopted (temporarily) 'evidence-based policy' as a strong generative concept for education policy, and consequently confront 'evidence' to 'ideology'; as clear conclusive evidence is typically lacking in contested policy issues, the competing Conservative only needs to point to the gaps in available evidence to keep the political debate going;

- policy makers vs. teacher trade unions: a main result of the Large Scale Assessments is a clear tension between high costs and weak or average competence levels of young people, posing questions of efficiency to policy makers; the trade unions have to defend the established interests of their members, and an easy way is to question the results of assessments and/or to fight and de-legitimate the assessments, which in turn leads to their defence, and thus keeps the political going;

- the researchers and practicians are ‚caught in the middle' between the supporters and adversaries: a characteristic of the political discourse around the evidence based on the assessments is its adversary and destructive nature involved in the political competition, which diverts the attention away from a search for constructive solutions towards a pro- or contra-positioning towards assessments and evidence.

Fig. 3: Infrastructures for research and development built up in Austria since the 1990s

- IMST, project for improvement in Science teaching, based on TIMSS, an ‚action research'-based project that involved interested teachers and provided networking in the school system, started in 1998[11]
- a detailed quality development framework has been proposed by a network of the key researchers in this field (2001), proposing the use of a school programme as the key instrument, the related quality improvement strategy has not been not implemented (Eder et al. 2001)
- the Leadership Academy (2004) has set up a ‚Community of practice', that emerges through the model of generations (250-300 leaders per generation are involved in a total of 6.000 schools, thereof 4.500 compulsory schools)
- Didactical Centres in several subjects were founded at universities (since 2005-06), called Austrian Educational Competence Centres (AECCs, e.g., Sciences, Math, German language)[12]
- a relaunch and foundation of a state institute for R&D (BIFIE, 2008), shifted parts of research money to this institution[13]
- a periodic Austrian Educational Report (statistical; topical) has been published already two times (2009, 2012); it includes a critical compilation of state-of-the-art reports about key topics
- a big competence standards project based on the periodic assessment at the 4th and 8th grade of the competences in German, Math, and English (the 1st round started 2011)[14]
- National Examinations at advanced level schools are actually before implementation, and
- a framework for a New Teacher Education has been developed in 2013, its implementation will start

Source: Own compilation

[11] See https://www.imst.ac.at/texte/index/bereich_id:8/seite_id:8; topical support projects and activities: reached during about 10 years: total 400 different schools, 100 projects a year, 250 teachers a year, about 5500 students affected/year; networks: 9 regional networks, 3 topical networks, 4 district networks established; total about 6000 visitors to various workshops, lectures etc. per year.
[12] AECC Austrian Educational Competence Centres: Biology, Chemistry, Physics (https://aecc.univie.ac.at/); Mathematics (http://www.uni-klu.ac.at/idm/inhalt/1.htm); German language (http://www.uni-klu.ac.at/deutschdidaktik/inhalt/1.htm).
[13] See https://www.bifie.at/
[14] See https://www.bifie.at/bildungsstandards

Quite substantial infrastructures for R&D have been built up in recent decades (Fig.3). To analyse the infrastructures for use the question must be posed which kinds of instruments/mechanisms/actors/institutions are mediating between research and practice? Three concepts/types of infrastructures can be distinguished:

- the market, which involves the use of brokers (commercial intermediaries, who are shaping/constructing the market) of research results or artefacts; the supply of and the demand for information are the structuring dimensions; various brokering actors can be observed (e.g., the OECD)

- institutions, which act as intermediaries to policy/politics (the governance structure sets their roles, and they are potentially shaped by policy/politics); in Austria these institutions interact with the centralised, bureaucratic model

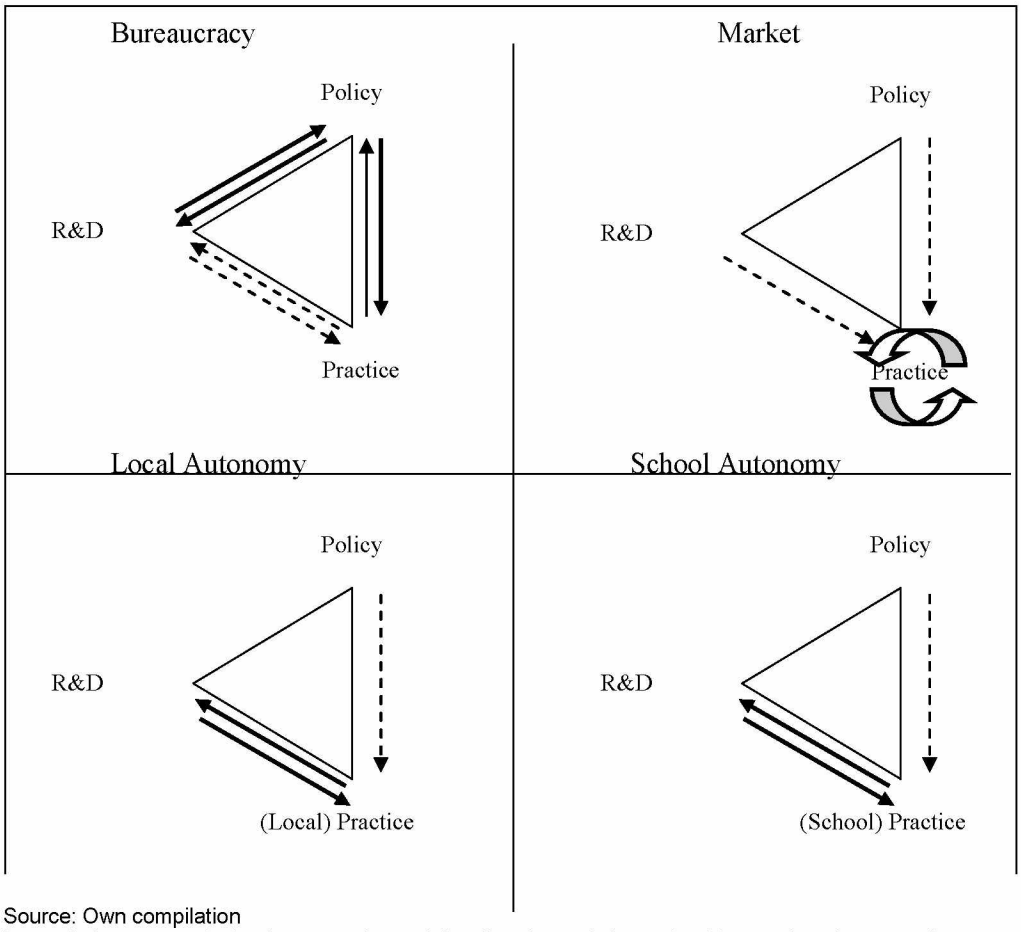
- the professional model is based on a direct ‚symbiosis' between research and practice, the influential ‚Fourth Way' (Hargreaves, Shirley 2009) is proposing this kind of strategy

The relationships between R&D, policy/politics and practice can be symbolized in a triangle. A combination of this triangle with the main types of governance mechanisms from the literature (Glatter 2002) gives different patterns of potential interactions. Fig.4 proposes a certain structuring of the potentially existing relations due to the different models of governance that shows different potential patterns of interaction in different governance models. In the bureaucratic model policy makers can be expected to have a key role in mediating information transfer; in the market model the practitioners are those who own the main bases of learning channels, and those actors can also be expected to control the incoming information from the other actors. In the governance models with local or school autonomy the direct exchange relations between the autonomous actors and R&D can be expected to be more developed.

In a real system the relations are much more complex, as a set of different governance systems might exist in parallel, and more or less tightly related to each other, interacting with each other. This can be seen more concretely in the Austrian system. Another source of complexity arises, when a difference between national, or regional systems, and the international or transnational levels is taken into account. International or European sources have become very important signals to the national systems and actors, and they can also be differentiated due to the triangle of R&D, policy and practice.

The overall Austrian education system comprises different types of governance, which can be found in this scheme. Apprenticeship, adult education, and early childhood education are to a high degree organised as a market, with the typical mechanisms of decentralised knowledge production and use. The higher education sector is organised due to the type of school-autonomy. Accordingly many of the stronger institutions have organised their own R&D units, that commission research and use the results due to their needs.

Fig. 4: The types of actors and the typical expected channels of interaction in different types of governance systems



Source: Own compilation
Legend: the arrows depict the strengths and the directions of channels of interactions between the types of actors in the different types of governance systems.

A closer look at the bureaucratic model shows two divisions and three transfer or interaction channels. The two separate divisions concerning the use of R&D are (i) the relationship of R&D vs. its use and application in either policy/politics or practice, and (ii) the relationship between policy/politics and practice. This latter relationship is responsible for the absorption of R&D. That means that three channels of interaction exist, (a) from R&D to policy/politics; this resembles the issues involved into the 'two communities' mentioned above; (b) from R&D to practice, concerning the relationship between teachers and different forms of knowledge, and with research evidence as a specific form; and (c) from policy/politics to practice. The latter channel is guided by the governance system. Thus the use of research will depend on how open and permeable the governance is for the inputs, and also how it allows for a direct flow from R&D to practice. The latter can be seen as the degree of professionalism.

A closer look at the relationship between R&D and policy/politics in Austria gives four main observations in the complex environment.

1. Heavily politicised disputes about educational R&D; shift rather between versions of hard policy making than soft policies in a centralised system. The policy oriented educational R&D is mainly performed via commissioned projects to the main part in the Federal Institute BIFIE (Bundesinstitut Bildungsforschung, Innovation und Entwicklung des österreichischen Bildungswesens), to some part in cooperation with researchers at universities and other research units; teacher education is involved only to a small degree. Educational R&D is rather situated at the periphery of the research system, and heavily contested by the teachers' trade unions. Minor problems with data security and with the delivery of the standardized exams have brought the BIFIE institute under heavy pressure, and it is under a relaunch currently; PISA participation was almost skipped for the next round. Quality improvement measures and strategies are under fire by the trade unions as expressions of mistrust in teachers, and are disputed among policy makers and experts too, clear support is lacking, partly because of the technical nature of these policies.

The LSAs have become strongly politicised and are deeply questioned from different camps. There has been a significant change between the first participation in TIMSS, which had mixed results with a decreasing rank from the earlier to the later cycles of the school system. There was a constructive reaction to the TIMSS results, by the set-up of the IMST (Innovations Make Schools Top) improvement project,[15] analysing the results, and involving teachers for learning using methodologies of action research. This project was small scale in relation to the overall number of teachers, however, has created a professional core group engaged in the improvement of science learning. With the PISA results, which were depressing from the beginning, the assessments have become strongly politicised, and have been followed by increasingly urgent calls for reform. However, no improvement of results could be achieved through the following PISA cycles; PIRLS and PIACC have not received so much attention.

Two big national R&D projects based on testing have been started, competence standards in compulsory schools, and standardised external testing as a part of the final exam of upper level schools. The standards project is testing the whole population of pupils at grades 4 and 8 every four years in three subjects. It is planned to become an instrument for feedback to the individual teachers as part of an improvement process of teaching at the school and classroom level. The first round of assessment has been already started, with depressing results. The final examination at the upper level schools providing access to university will be partly standardised in 2015. These projects clearly increase accountability, however, in the overall setting they signal and create mistrust, as they increase control in an already strongly regulated system.

[15] The current expression of the IMST-Acronym is in German "Innovationen Machen Schulen Top [Innovations make schools top]", whereas its original meaning was "Innovations in Mathematics and Science Teaching", see the webpage https://www.imst.ac.at/texte/index/bereich_id:8/seite_id:8.

2. The relationship of R&D to the practice field is mostly organised in a hierarchical top-down fashion in an overall critical-hostile environment. The standards project is a big technical endeavour, in which feedback from the assessment should be used as a starting point for planned and organised improvement activities supported by specialised personnel (trained teacher-experts). The BIFIE should provide the test results, and the newly reformed teacher education institutions should also be involved in the project via professional development. This approach carries potential for professional development, and it remains to be seen if it will work. Currently the expectations are high among the administrators, but not among teachers. So far mainly the trade unions articulate views of the practice field, separate professional organisations do not exist. The teachers are somehow ‚hostages' of their interest organisations, and knowledge about the relationship of R&D to practice is sparse. Some surveys are available whose overall results point in the direction, that the interventions or new instruments are mainly not perceived as being helpful. The public discourse is polarised and mainly hostile against the practice field and the teachers, the hostility is partly supported by ‚popular experts' via the popular press. A climate of mistrust is aggravated in this environment. Teachers are hostile against reforms, and the public is hostile against teachers and the practice in schools, but does not believe in reform activities.

A more balanced relationship between R&D and practice is provided by the 'Leadership Academy', which is quite separate from the other activities, creating a kind of elitist ‚corporate spirit', and aims at competences for change. However, improvement is not visible from this activity.

3. Policy and politics are strongly divergent, and research and development are drifting apart. Since the late 1980s a community of researchers at universities has emerged around the development of policy proposals for an increase of autonomy and self-organisation at the school level, in particular proposing to give schools responsibilities or at least a say for the selection teachers. These proposals were turned down by the trade unions who charged additional income because of the additional development work required. To shift the responsibility for personnel to the school level would also take away the main responsibility of teacher allocation from the regional level, which is a source of political power as an administrative responsibility and as a basis for clientelism.

This step was followed by the creation of a comprehensive framework for quality development, using an internet platform and trying to create a curriculum with broader topical fields and much discretion for choice of the content by the teachers. The framework included also the instrument of developing school programmes for improvement. A white book was published, written by a journalist, to popularize the framework. However, the framework was never implemented. Instead a minimal increase of room for discretion at the school level was sold as an 'autonomy law'. Some more activities of this kind were developed subsequently.

As a next step the standards and examination projects were created by a small group of experts without a broader discussion about the strategy to be taken. In parallel the PISA assessments were performed and the reform debate became increasingly politicised. Education became a key topic in the elections after

2000, resulting in a quick and expensive political decision to reduce the pupil/class ratio, followed by the decision to create a New Middle School to abolish tracking and to individualise instruction by employing a second teacher for team teaching. A quick decision was taken to implement the new school type as tryings, after the amendment of a law was turned down in the coalition. A high level expert task force was (mis)used to legitimate the decision, as the draft of the law was issued around the first meeting of the group, before it started to work. Neither preparation for the new kinds of instruction nor evaluation was foreseen. Politics took a different path from policy, making its own decisions, downplaying R&D, and to some extent instrumentalising it.

In parallel development was separated from research, and the focus was strongly laid on development without research. The BIFIE was set up in a similar way, by taking quick decisions without a broader consideration or consultation. Research itself has traditionally been strongly politicised, with representatives of political parties for education having been university professors or staff, and the protagonists of the turn towards empirical education research in the 1960s having been political party representatives or people engaged in the US re-education projects after the fall of the Nazi-regime.

4. The establishment of a quality system in the school sector of VET (qibb) is a positive example for development, and some targeted use of research. QIBB[16] was set up on basis of the early quality improvement model in 2000s; it was presented as a flagship project in the Austrian EU presidency of 2006. It works as a continuous improvement model within a relatively closed environment comprising a small number of schools, and was developed from bottom-up, allowing for an open and flexible participation (schools could choose if they wanted to participate, and also the topics for improvement). The project is carried on mainly by VET insiders, and uses selected experts for accompanying surveys. Currently a big project for redefining the curricula towards competences is under way, carried out by a wide expert network from within the system. The framework was provided by a theory-based practical handbook about how to construct and use competences (the handbook is based on the PhD-Thesis of an administrator, collaboratively developed with a colleague from the ministry). This case can be taken as an example of how development might better work, if it is not situated in the light of high level politics, and this key project can be classified as soft policy making in a centralised system.

Reflecting on these observations, the question arises, how research can be strengthened in a climate, where it is

- mainly misused by its primary ‚godparent' and gatekeeper,

- constantly challenged and downplayed by powerful stakeholders,

- and itself weakly developed?

[16] See https://www.qibb.at/de/home.html

Can the rhetoric of evidence-based policy/practice help in this climate? It has been advocated during the last years by the ministry, and has made things rather worse than better. The discourse includes accusations instead of arguments, and the necessary debate about values is avoided by juxtaposing evidence and ideology. A more general hypothesis can be inferred from these observations, proposing that in a structurally complex system attempts to politicise R&D, and to separate development from research might appear short-sightedly convenient for politics, however, bereaves R&D from its sources of trust, which lies in independent academic research. Consequently, the latter must be strengthened and developed. If policy makers criticise 'irrelevance' of research, the answer from research should rather be questions about how much of policy making is also 'irrelevant', instead of trying to comply with their criteria of 'relevance'. As far as solutions lie in the building of infrastructures that push R&D more strongly towards politics and policy, they depend on the sources of trust in politics and policy, but not in the sources of trust of research. Taking up the idea of the 'counterfactual belief', this cannot be installed by policy and politics.

What role can an infrastructure of use play in this situation? Three stylised points can be made:

- an ‚applied' state institute seems rather counterproductive than supporting

- an administrative-professional quality improvement approach as in VET lacks a critical view from outside

- the media are rather making the situation worse, by working at the level of politics, and increasing mistrust among all actors by very much scandalising every problem and conflict in the field of education.

Concluding remarks

The paper has explored sources of complexity in a centralised system, taking Austria as a case. First 'structural complexity' in a centralised system was confronted with 'procedural complexity' in decentralised systems. As a result it was argued that in centralised systems the sources of procedural complexity are in place as well, and the sources of structural complexity exist in addition to that. Structural issues concern politics, which per definition overrule policy. As long as the constitution sets very high demands on the consensus about education structures, and necessary the consensus is out of sight, policy proposals can only work within the given structures. At the same time politics is to some degree trapped in structural complexities, as the exploration of the Austrian experience shows. Contrasting approaches (May, Jochim 2013), based on analyses of governing in the US are theorising the reverse direction of channels of influence by feedback from policy to politics. This direction is not analysed in this paper, however, the propositions taken expect that these feedback processes will work differently at the centralised end of the continuum than at the decentralised one.

The second section looked at the relationship between hard and soft policy making and the centralised-decentralised dichotomy. A simple cross-tabulation of these dimensions guided the attention from the main diagonal of the table to the secondary diagonal of soft policy making in centralised systems and hard policy making in decentralised systems. It was shown that a main current trend can be seen in the development of hard policy making in decentralised systems, e.g., by control of results through 'high stakes' policies. From hard policy making in centralised systems three different policy alternatives can be seen in this framework: (i) a shift to a decentralised system, (ii) a doubling of hard policy making by adding the control of results to the control of the inputs and procedures, and (iii) by adding soft policy making to hard policy making in the centralised system. The third alternative seems particularly interesting.

Issues of knowledge creation and use were explored in the third section, showing the interrelation of R&D as a specific kind of knowledge creation to governance structures, and the various possible contradictions with politics. Arguments in favour of the 'two communities' model are brought forward by indicating that the research community might provide an additional source of trust, whereas shifting R&D towards policy and politics might diminish or destroy this additional source.

Further questions concern the more fundamental relationships between education and policy making, and between policy and politics in relation to governance. Some main approaches in systems theory, in particular the work by Niklas Luhmann, that rest strongly on the concept of autopoiesis have theorized the political system as a system besides the others, without being privileged to really control the other systems (with similarities to ideas of institutionalist approaches); rather it must try to condition them, and each system has its own logic (autopoiesis) which can communicate with other systems via contingent coupling mechanisms. This view has important consequences for the understanding of governance, as it particularly increases the gap between policy and politics, as policy sits at the intersection of two different systems, but has to follow primarily the logics of politics. Politics and education follow the logics from different worlds, and will only occasionally strongly act in one direction ('windows of opportunity'). This approach of a systemic view also brings the issue up, of how the knowledge flow from research to the practitioners and to the practice of teaching and learning might occur, and how different forms and modes of knowledge can 'talk to each other' in this respect. A more thorough analysis of how forms of knowledge interact, in particular how research knowledge flows and combines with the other forms of knowledge would be necessary, in order to understand the potential impact. Secondly, a closer look at the distinct flows of knowledge and their potentials would be helpful, analysing and comparing the type of direct flows of knowledge between research and practice (in both directions), and another type of flows also finally between research and practice, but mediated by policy and politics. To understand the consequences for governance of these two types of knowledge flows could contribute to the improvement of the use of knowledge.

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Annex

Annex-Tab. 1: Governance Typology, number of decision levels per country

	Levels (main)	Levels +	Sum Levels	School	Central	Local	Provinc e	State	Sub-region	School	Central	Local	Provinc e	State	Sub-region
Netherlands	2		2	x	x					86	14				
England	2		2	x		x				75		25			
Belgium (Fl.)	2		2	x				x		71				29	
Australia	2		2	x				x		42				58	
Portugal	2		2	x	x					26	74				
Luxembourg	2		2	x	x					15	85				
Finland	2		2	x		x				15		85			
AVERAGE Gr.1	2									47	25	16		12	
Estonia	2	1	2+1	x	(x)	x				69	4	27			
Hungary	2	1	2+1	x	(x)	x				63	10	27			
Slovak Republic	2	1	2+1	x	x	(x)				59	40	1			
Iceland	2	1	2+1	x	(x)	x				55	3	42			
AVERAGE Gr.2	2	1								62	14	24			
Scotland	3		3	x	x	x				48	15	37			
Sweden	3		3	x	x	x				47	18	35			
Slovenia	3		3	x	x	x				43	41	15			
Denmark	3		3	x	x	x				41	22	37			
Turkey	3		3	x	x		x			19	63		18		
Norway	3		3	x	x	x				18	21	62			
Mexico	3		3	x	x			x		17	46			37	
AVERAGE Gr.3	3									33	32	27	3	5	
Czech Republic	2	2	2+2	x	(x)	x	(x)			73	1	24	3		
Korea	3	1	3+1	x	x	(x)	x			42	27	6	26		
Italy	3	1	3+1	x	x	(x)	x			39	36	8	16		
France	3	1	3+1	x	x		(x)		x	34	29		6		31
AVERAGE Gr.4	2,75	1,25								47	23	9	13		8
Austria	4		4	x	x	x		x		30	27	22		22	
Spain	4		4	x	x		x	x		29	16		16	39	
Japan	4		4	x	x	x	x			21	13	45	21		
Germany	3	2	3+2	x		x	(x)	x	(x)	23		31	5	31	10
AVERAGE Gr.5	3,75	0,5								26	14	24	11	23	2
OECD average	3	3	3+3	x	x	x	(x)	(x)	(x)	41	23	19	5	10	2
Sum				26	17+4	14+3	5+4	6+1	1+2						

Source: Own calculations based on OECD 2012 EAG

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