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When Complexity Meets Evidence in Governance…[1]

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Introduction

The production and use of knowledge (understood as making sense of information) are key issues in governing complex education systems. In current discourses, these relationships have been coined as 'evidence-based' or 'evidence-informed' practices and/or policies. Here, the author reflects on some contradictions or paradoxes that are inherent in these discourses, based on his experience of efforts to decentralise the very complex centralised and federalist education structure in Austria. In this structure, the political attempts to strengthen 'evidence' are strongly contested. A recently-created state institute collects information and produces evidence on school performance, based on a system of externally-defined and regularly-measured educational standards in literacy, numeracy and foreign language at grades 4 and 8 and a new partially standardised 'maturity' examination for entrance to higher education. This approach of knowledge production is contested by teachers' unions, regularly decried in the public media, rejected by influential intellectuals, and viewed with much scepticism by teachers. There are concerns that the practical pedagogy will be disturbed and resources diverted from real needs. In the competing camp, advocates of research-based approaches set high expectations for the production of evidence, although frequently forgetting that evidence also needs an ideological underpinning.[2]

Why do some object so strongly to attempts to strengthen research knowledge production and others overestimate its impact? The explanation may lie in the governance structure. On the one hand, there are challenges of complexity in the education system. On the other, policy makers and researchers do not address these challenges in an appropriate manner. Here, we may recall some well-established conceptions of complexity which have sometimes been forgotten in contemporary discourses (Weick, 1976, Meyer & Rowan, 1977). Two relationships are highlighted: first, between organisational governance structures and the patterns of information and knowledge production, and second, between different

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[2] Because of limited space, this interpretation cannot be explained in greater depth, but is given here as a result of analyses in Lassnigg 2016a, b.

understandings of complexity and approaches to governance and the use of evidence. The two key tensions of contemporary policy discourses, between input and output/outcome orientation, and between centralised and decentralised governance structures and transitions from one to the other are at the centre of the argument.

Information, Knowledge and Governance Structures

A basic contention is that flows of information and their transformation into knowledge are to some extent automatically embedded in the day-to-day practices of certain structural arrangements and shaped by them.[3] Governance or governing always display practices of their own that somehow try to intervene in the basic day-to-day practices and thus must take into account the ongoing flows of information and knowledge, as they create their own knowledge. In terms of governance, a simplified distinction can be made between flows of first-order information and knowledge used in daily operations and higher-order information and knowledge needed to intervene at the practice level. In multi-level governance structures, the flows of information and their transformation into knowledge also take place at different levels. Depending on the governance structures, these chains of observations are typically not symmetric but, as generalised by systems-theory, hierarchical patterns, with the higher levels observing the subordinate ones and formal research also playing a role in these chains of observation.

Conventionally, knowledge is perceived as an instrument of control in governance. The actors must know how to perform their duties and practices, and, to a certain extent, this knowledge is formalised. It is assumed that deeper knowledge leads to better performance and that the more you know the more power you have to control. But lack of knowledge leads to performance problems. This issue is more or less implicitly included in the current mantra of the shift from input- to output-oriented management or policies, which, in turn, is closely related to the shift from centralised to decentralised governance. In the traditional type of centralised bureaucratic governance, knowledge and information are tightly embedded in the organisational forms, processes are prescribed, and outputs are assumed to follow automatically from the prescriptions. If you know these, you know how the system works (or should work) and what the outputs will be (thus, if you want to change the outputs, you only must change the inputs). The structure is assumed to work like a kind of machine. If you know how it works you can use it because it has its inherent logic.

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[3] See the seminal work by Arthur Stinchcombe (1990).

Here, a key issue comes into play. Different understandings of complexity have important consequences for the use and production of evidence. Complexity is often understood as a machine which becomes more complicated. More and better information and knowledge are necessary to understand its functioning. However, the basic machine metaphor is left intact. Versions of decentralisation can be understood in this way. The various actors are granted more discretion. Hence, outputs no longer automatically follow from inputs. Clear information about outputs must be gathered and analysed. From the perspective of knowledge production, the machine metaphor is very good because it helps to relate the information about the outputs to the inputs and processes and analyse their interrelations. This depiction may seem like a caricature. However, it still occurs much more frequently than could be expected.

Various versions of organisation theory and research show that the machine metaphor does not really work in social organisation. In an alternative understanding, complexity refers to unpredictability (and, as was shown a century ago, an unpredictable system is not necessarily very complicated). This alternative understanding expresses not only a quantitative increase in complication (e.g. in terms of the number of influential variables and/or actors involved or units of activity which need to be understood and controlled by a corresponding increase in information), but also a distinction between different qualities of predictability and potential to control, which the actors tend to negate (a basic feature of these different qualities is whether the cause of uncertainty is only the lack of information about how the complicated 'machine' works, or a kind of ontological unpredictability in the structures of the ongoing interactions).[4] This negation tendency is not very surprising, as unpredictability is difficult to handle. This problem is aggravated by the fact that empirical representations of the machine version of complexity and its alternative are not easy to distinguish: it is possible to believe that some unidentified causal factors or relationships could produce an outcome and thus rule out the possibility that some (idiosyncratic or 'chaotic') random processes might be at work. The different school structures in the regional jurisdictions of the Austrian federal structure are an example of this. The actors in the various regional structures explain their differences 'rationally' (which are also represented by crude information only). Even if the existing

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[4] This categorical distinction could be illustrated by a (real) scenario: a constitutional change of the structure of (Austrian) federalist school governance has been recently proposed that would change some weights between the central and the regional authorities; however, observers cannot even predict whether this change would lead to an increase of influence of the regional or the central authorities, first because the contextual influences are not clear, and second because the interactions between the players in the new structure simply cannot be foreseen. This distinction is stronger than the widely used distinction of risk and uncertainty.

information cannot prove the 'rational-policy'hypothesis, the actors prefer to believe in it (the machine understanding) because an alternative hypothesis of erratic differences produced by more or less random non-rational situations in the complex structure (the uncertainty understanding) would question the rationality of the existing governance. Even if this alternative hypothesis is true, the question arises as to whether it might be 'proven' with finite information.

Two versions of the machine-understanding are particularly important in relation to 'evidence-based policy and practice'. One is that policy makers tend to con- trol their field, thus the epistemological simplification of the machine metaphor makes politics simple, at least at first sight. Guy Peters formulated this problem in epigrammatic form. He characterised the institutional garbage-can model of a loose coupling of problems and solutions as:

"Good Description of Reality,

Less Good Normative Model

But Recognizes boundaries of Rational Policymaking". (Peters, 2011, slide 12)

The second representation is the educational production function and its various versions by economists, first based on national data and then on data of the international large-scale assessments. They analyse the contributions of variables or patterns of variables to outputs and assert that the results are the only 'real' evidence. They seem not only to follow implicitly the machine metaphor, but also to forget that their models, which integrate several countries, create a universal super-machine which only exists at the virtual level. The evidence from this supermachine then creates the prescriptions and benchmarks for existing national structures.[5]

Both representations reinforce the search for a better understanding of the functioning of the machine. However, the basic force in this path of knowledge production runs diametrically counter to unpredictability. Even if we concede that we can only explain a small part of the whole, and that in the relationship between the known and the unknown the latter is always bigger, we still tend to overstate what is known and ignore, or at least downplay, what we do not (we can see this as a primitive version of 'positivism').

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[5] See the classical models by Bishop & Wößmann 2004 and Hanushek & Woessman 2014. It can be pointed out that the different results and interpretations of quality strategies by economic and pedagogical approaches could be explained by the artificial effects measured by these 'virtual average structures' across various countries and regions.

Consequences for the Production of Evidence

If we now turn to the consequences for the production and use of knowledge, we must look at the relationships between the traditional centralised bureaucracy and the new decentralised forms on the one hand, and the machine-version and the uncertainty version on the other. Their implications for the production of information and knowledge can be summarised as follows:

1. The story that decentralised governance is related to greater complexity, or that complexity arises from new governance forms is misleading. The interpretations of complexity above must be taken into account: (i) the various actors and stakeholders who become more formally involved in new governance already played a role in the traditional bureaucracy, although more covertly and informally; (ii) the new modes might show an increase in terms of (machine) complication, but, in terms of complexity (unpredictability), the traditional mode might be even more complex, as the informal influences of various actors impact on practices in unpredictable ways (Lassnigg, 2016a).

2. The traditional bureaucracy is both an organisational and an informational structure that includes (first order) information flows and knowledge in its prescriptions (Stinchcombe, 1990). Higher order information and knowledge on daily functioning are rather unwelcome at the practice level. They are seen as knowledge for control and domination, and tend to compete with practitioners' embedded knowledge. There is a twofold problem in this structure which is reflected in the teachers' resistance to it and in policy makers' attempt to control it. In a centralised system such as in Austria, we observe that policy makers take a huge amount of formal responsibility for the performance of schools, but blame practitioners when it comes to problems.[6] Two important expectations can be stated here: first, the quality of the firstorder embedded knowledge at the practice level greatly depends on the governance structure and the status it gives to the teachers (which vary according to the degree of centralisation); second, policies resting on professional approaches will better integrate research-based knowledge with practitioners' embedded knowledge.[7]

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[6] This asymmetry not only occurs in centralised structures, but is also demonstrated for the British adult education sector in Coffield et al. (2007).
[7] See Eraut (1994) for this approach; see also the contributions from the Teaching and Learning Research Programme (TLRP) Pollard (2010) and the special issue of the British Educational Research Journal Vol 33 (2007), Issue 5; for the 'Fourth Way' Hargreaves & Shirley (2012); and for the German-speaking community Oelkers & Reusser (2008).

3. The break-up of bureaucratic lines in new modes of governance leads to break-ups in information and knowledge flows embedded in the prescriptive input-led governance structures. They need to be bridged by new forms of knowledge production, particularly assessments of student learning and their feedback into the processes. Hence, decentralised governance structures need new institutes that carry out assessments and broker information between the various players. However, if the new production of information is based on the machine metaphor of technical-functional rationalisation and the understanding of complexity in the sense of complication, its basic mission is to reduce and ideally rule out unpredictability as far as possible; thus, these arrangements will work against a potential understanding of complexity in the sense of unpredictability.

4. The approaches of 'evidence-based policy and practice' and the discourses about research epistemology and ontology are closely linked to the understandings of governance and complexity. Evidence as advocated by economists means selective and sophisticated causal knowledge that has ruled out unpredictability.[8] For policy making, this means producing a few apparently justified policy prescriptions; complexity obtains a status of obscurity in this kind of reasoning and cannot have a similar epistemological status as the hard-won positive research results. The basic policy trends sketched above reproduce themselves in research. The strong push towards the 'usefulness' of research, and an affiliation of institutions to the governance structure (e.g. a state institute such as the Austrian BIFIE (www.bifie.at)), or dependence on revenues from a single client, reinforce this tendency. A strong and pluralistic independent public research infrastructure that gives legitimacy to the critical discourses and an open public availability of the information bases could support a more balanced production of knowledge.

5. The demand for and promises of 'evidence-based policy and practice' do not therefore necessarily help to better understand and improve practice. In a traditional centralised and bureaucratic governance structure, we can expect research to be little developed, little valued and thus little supported. As research starts from a weak foundation and is not adequately supported, the research community is not able to provide the evidence that is asked for, and this will probably lead to downward spirals in a hostile environment. This assertion can be reasonably justified in the Austrian case, where the already small means for policy related research have been concentrated at the state-institute and the use of the data acquired is

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[8] Besides the example by Bishop &Wößmann (2004), this approach is also analysed in the works of Eric Hanushek or James Heckman and their collaborators.

restricted. The politicised use of the evidence produced has deepened the gap between research and practice rather than spread the use and understanding of information and knowledge (Lassnigg, 2016b). In decentralised structures, 'evidence-based policy and practice' easily lead to a bias towards high-stakes polices according to the logic of the machine model if the alternative version of complexity is not taken into account.

6. One conclusion is that a professional approach to governance that is oriented towards the integration of practice and knowledge production at the teaching level can cope better with the insecurities involved in complex structures than an 'evidence-based approach'. The latter is based on striving for sophisticated causal technical-instrumental knowledge, that is necessarily separated from the work at both the teaching and policy making levels and requires additional structures to bridge the gaps that have been created.

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