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Measuring Transformation: A mixed-method-approach to the internationalization of education politics

ABSTRACT

Despite of their methodological and practical significance mixed-methods-designs have so far largely been neglected by political science. In this working paper, we elaborate a mixed-methods-design combining qualitative methods, such as expert interviews and document analysis, and quantitative methods, such as network and regression analysis. This mixed-methods-approach is illustrated making use of an ongoing research project. After a detailed discussion of the respective strengths and weaknesses of the single methodical strategies applied we reconsider how their distinct logics can most fruitfully be intertwined to counterbalance their shortcomings and to pool their strengths. Here, we place special emphasis on the implementation timing and point to the particular advantages of concurrent implementation of methods over so called sequential designs.

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Measuring Transformation: A mixed-method-approach to the internationalization of education politics

INTRODUCTION

> *“But there comes a moment when the atmosphere changes. The significance of the unreflectively utilized viewpoints becomes uncertain and the road is lost in the twilight. The light of the great cultural problems moves on. Then science too prepares to change its standpoint and its thinking apparatus and to view the streams of events from the heights of thought.”*
>
> (Weber, 1949 (1904): 55)

Max Weber in his famous essay “The Methodology of the Social Sciences” indicated that new social and cultural phenomena bring along new academic problems. These new academic problems, however, call for an adjustment of the paradigmatic and methodological apparatus. In this paper, we point to the methodological challenges arising from new and complex social phenomena and how they can be addressed by a systematic combination and pooling of different methods with their particular strengths and limitations. Basically, new analytical problems can be undertaken by means of three different ways: The first and least desirable way is to downsize the phenomenon in question to make it accessible within a given methodical framework. The second way is to refine a given methodical framework to make it cover more aspects of the phenomenon in question, thus to increase the validity of the respective type of data. The third way is to deepen the overall validity of analysis by a systematic re-arrangement of the methodical framework. Such an arrangement should combine both qualitative and quantitative methodical strategies with explorative, descriptive and explanative logics of research. A carefully arranged mixed-methods-approach cannot only account more deeply for more facets of the phenomena in question; it can also connect the methods involved in a way apt to counterbalance their limits and to pool their strengths.

Since King, Keohane and Verba’s publication on methodology (1994), political science has witnessed a vivid debate on methodology. Given the aim of generalizable conclusions in most research in political science, the quantitative focus and its way of testing and proving is, at first sight, in a favoured position. While King, Keohane and Verba intended to transfer the quantitative logic to qualitative research, others have raised arguments for the specific quality approach of qualitative research and pointed towards weaknesses of large-N quantitative studies (George/Bennett 2005, Brady and Collier 2004, in particular Brady et al. 2004). Although the debate revealed cleavages between the different methodological traditions, it is however, not unusual or unorthodox to

combine both strands of methods; in fact they can fruitfully interact with each other (Read and Marsh 2002).

Yet, a mixed-methods-approach is not an end in itself and neither will the mere combination of methodical strategies improve the validity or scope of empirical analysis. The term “mixed-method-designs” has been defined “as including at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words)” (Caracelli/Greene, 1993: 195). In their earlier work, Greene et al. had distinguished five ideal types of mixed-method-designs, namely *triangulation*, *complementarity*, *development*, *initiation* and *expansion* (Greene et al., 1989: 258f.). While triangulation “seeks convergence … of results from the different methods”, expansion “seeks to extend the breadth and range of inquiry by using different methods for different inquiry components (ibid). Mixed-method-designs are thus distinguished as to their degree of functional differentiation as well as to their temporal logic. Functional differentiation refers to the extent to which methods focus exclusively on certain facets of the phenomenon in question; the temporal logic can either be *concurrent* or *sequential* (ibid: 264). A sequential mixed-methods setting implies a chronological order of the methodical strategies involved, e.g. a qualitative pre-study to elucidate key variables and explanative factors for a subsequent larger quantitative project (Barton/Lazarsfeld, 1955). In contrast, a simultaneous mixed-method setting is characterized by the concurrent implementation of different methods. Greene and McClintock hold that a simultaneous application of methodical strategies is crucial for purposes of triangulation (Greene/McClintock, 1985).[1]

In this paper, we focus on the temporal logics of mixed-method-designs. We assume that the concurrent application of different methodical strategies yields particular advantages compared with the sequential application as long as the inter-methodical links and communication is properly institutionalized. We will use a mixed-method-design from an ongoing research project as an example to illustrate how qualitative and quantitative as well as explanative and descriptive methodical strategies can be fruitfully intertwined.

In this research project we focus on exploring the “Internationalization of Education Politics”[2]: we address the question, whether, how and to which extent changes in national education politics occur due to the influence of international organizations, in

[1] In accordance, Kelle and Erzberger note the parallel application of qualitative and quantitative strategies as a characteristic for a triangulative setting (Kelle/Erzberger, 2000: 300).

[2] The project forms part of an extensive collaborative research centre on “Transformations of the State”. Within this centre changes of the so called democratic constitutional interventionist state (DCIS) are studied over the last 30 years.

particular the European Union and the Organisation for Economic Co-operation and Development (OECD). We hypothesize that IOs through different governance instruments have an impact on national policy-making and therewith cause change within the country, and convergence across countries. This process, however, can be enhanced or restricted by national institutions as veto-players and cultural ideas. Such transformation of the state can be seen as an important dimension of social and cultural change in the field of societies and how they organize themselves. We explore our research question by comparative case studies of four countries (Germany, England, Switzerland and New Zealand) applying document analysis and expert interviews as well as policy network analysis and cross-section time series regression models of all OECD countries.

Figure 1: Methodical Pluralism in a multi-dimensional setting

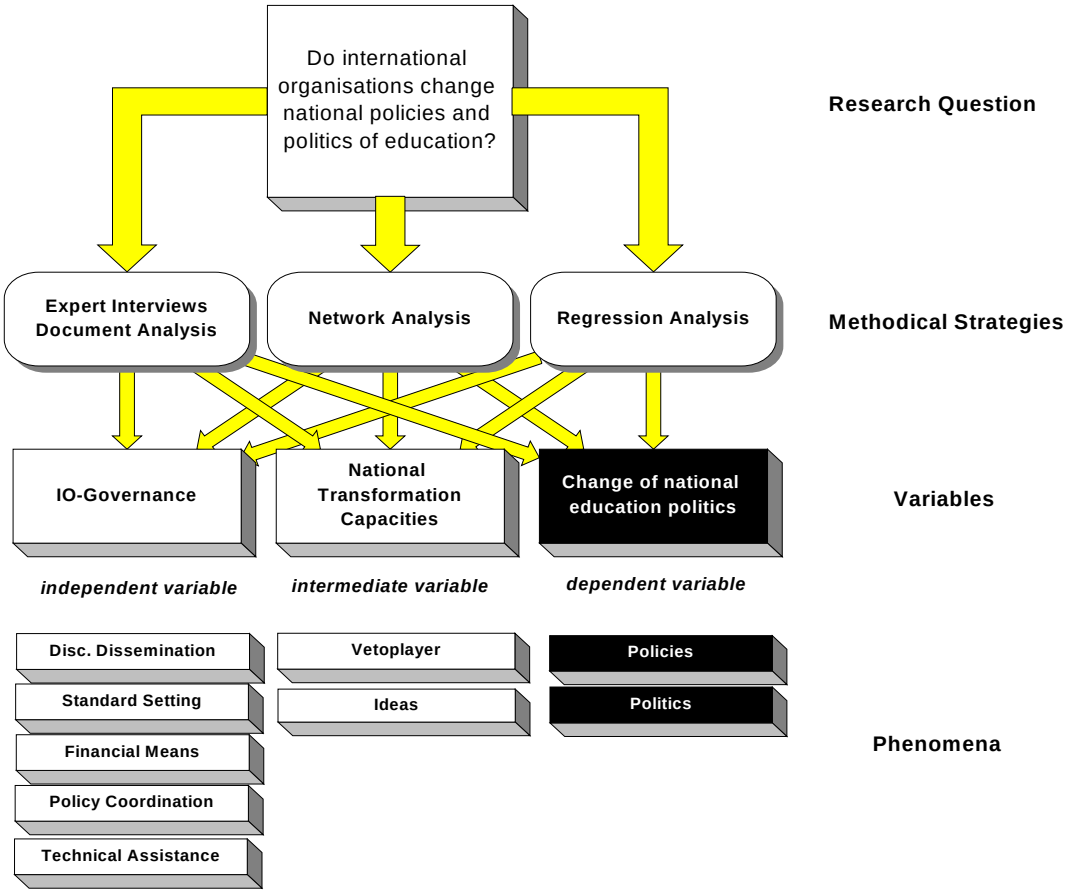

Figure 1 illustrates how the general research question is decomposed into different variables and phenomena (Leuze et al., 2008), i.e. units, which can be observed empirically. As to these phenomena, we distinguish five *instruments* which IOs have got at hand to influence national politics: discursive dissemination, standard setting, financial means, policy coordination and technical assistance. The idea of *transformation capacities* is linked to the expected degree of change, and these capacities are distinguished in institutional factors as veto-players and more ideal factors as specific ideas of education.

Countries in which political change is easier due to a lack of veto power and which are substantially in line with proposals of international organizations are more likely to change according to international aims than countries where change is difficult to establish. *National change* however may not only be caused by the two transformation capacities outlined, and, even if so, these may also interact with other national conditions. Alternative variables which may influence education policy making are for example the size and type of the economy or the qualification and age of the labour force.

It is obvious that the methodical strategies applied, expert interviews, network analysis and regression analysis, can account for different, yet overlapping phenomena. The mixed-method-design of this project can be characterized using the design-characteristics proposed by Greene at al. (1989). They distinguish mixed-method-designs as to methods, phenomena, paradigms, status, implementation interdependence, implementation timing and status (ibid, 262ff.):

The dimension of *methods* refers to the “degree to which the qualitative and quantitative methods selected for a given study are similar to or different from one another in form, assumptions, strengths, and limitations or biases” (ibid, 262). The methodical strategies applied in our project are different, both with regard to their qualitative or quantitative nature and, subsequently, their form, strengths and limitations. Furthermore, there is a difference as to the underlying assumptions and research logics: regression analysis aims at formal causal explanations; network-analysis can provide a systematic quantitative description and expert interviews can elucidate causal mechanisms and help to develop a more general understanding of the phenomena in question.

The dimension of *phenomena* “refers to the degree to which the qualitative and quantitative methods are intended to assess totally different phenomena or exactly the same phenomenon.” (ibid, 262f, emphasis added). In our project we decompose the general research questions into several empirically accessible phenomena, such as instruments of IO-Governance, veto-players, ideas of education as well as national education policies and politics. Naturally, these phenomena include both our independent variable (IO-Governance), our intermediate variable (national transformations capacities, i.e. veto-players and ideas) and our dependent variable (national education policies and – politics). In our mixed-method-design all methodical strategies cover as many of these phenomena as possible and it might thus be called a holistic approach. At the same time, each method can account for different facets of a given phenomenon.

The dimension of *status* “represents the degree to which a study’s qualitative and quantitative methods have equally important or central roles vis-a-vis the study's overall objectives.” (ibid,264). Due to their inherent differences as to form, assumptions, strengths and limitations there is no hierarchical order of the methodical strategies applied in our project. In the sense of triangulation as mentioned above, each method does

fully and directly account for the phenomena instead of being a mere pre-test or pre-study.

For the temporal logics of mixed-method-designs, the distinction of implementation interdependence and implementation timing are of particular importance. While interdependence refers to “the degree to which the qualitative and quantitative methods are conceptualized, designed and implemented interactively or independently” (ibid, 264), timing means that “a given pair of methods is typically implemented concurrently or sequentially, not in between” (ibid). In our project, expert interviews, network-analysis and regression analysis have been conceptualized and designed interactively in a collective endeavour of specification of concepts and operationalization. The implementation itself was then independent due to the different nature of data and operations involved. Thus, all methodical strategies were implemented concurrently, yet not independently, but moderated by mutual awareness.

In the following section we will discuss the particular strengths and limitations of each methodical strategy employed in our project, thus to illustrate their particular division of labour in our mixed-method-design. In the concluding section, we will focus on linkages and interfaces within our set of methods and meditate both on special (i.e. project-specific) and general opportunities of cross-fertilization in a simultaneous, high-variation mixed-method design.

METHODICAL STRATEGIES APPLIED

In this section we will address the different methodical strategies and logics employed in our project, i.e. expert interviews and document analysis, policy network analysis and cross-section time series regression models. Instead of a self-referential and isolated description of the respective empirical approach we aim at a comparative and relational perspective. For this purpose, all methods that are part of our mixed-method-design will be outlined according to the same scheme: first, the characteristic perspectives and strengths will be presented. Further on we address questions of operationalization, thus to show how different methodical strategies account for different facets of the phenomena in question. Finally, the collection and handling of data as well as procedures and models of data analysis will be discussed as different methods bring along different logics of research (e.g. explorative, explanative or descriptive). In a concluding remark we deal with particular limitations of each methodical strategy and reflect on how they can be counterbalanced in the context of our mixed-method-design.

Expert Interviews and Document Analysis

A qualitative approach allows to examine a particular issue of interest in depth and to trace causal processes. In our project, we concentrate on document analysis and expert interviews as qualitative methods. Document analysis serves for capturing the basic fundaments for change in a policy field (Esser et al. 1999, 375). Expert interviews[3] are known to be a particularly suitable method in the social sciences for gaining qualitative information (Froschauer/Lueger 2003; Mayer 2004; Martens/Brüggemann, 2006). Expert interviews enable to discover new or important aspects of the issue at stake according to structures or actors in the policy-field. Along with document analysis, expert interviews offer in our project an analytical tool to assess the influence of international organizations (IOs) on national education policy-making in the four examined countries (Germany, New Zealand, Switzerland, and United Kingdom). For both methods, we will explain our operationalization of independent, intervening and dependent variables, and then describe the data base and proceeding.

Operationalization

In order to assess the respective variables of our theoretical framework, we chose the method of *document analysis* and therewith consulted diverse types of publications. Whereas official IO publications or activities reflect governance instruments per se, veto factors and national ideas were identified by exploring the national reactions to IO activities. But obviously, document analysis alone is not suitable to explore all dimensions of internationalization of education policy because it is rather limited in capturing concepts like *ideas* about education. Furthermore, it is impossible to measure all relevant variables by analyzing documents because not all relevant variables emerge in the context of official publications. The analysis of documents is a approach to scrutinize governance instruments and their impact on nation-states' policy making but it needs further supplement by other data collection instruments, like expert interviews, to assess the whole range of IO influence.

For the *expert interviews*, we formulate questions on each variable of our theoretic concepts to gain inaccessible, comprehensive expert knowledge about the influence of IOs on national education policy-making (see appendix A). In the following, we exemplarily illustrate this proceeding.

IO Governance Instruments

For the purpose to assess the *independent variable* 'IO governance instruments', the interviewees are e.g. asked what activities of the EU have had an impact on education

[3] Also often referred to as "elite interviews" or "special interviews" (Dexter 1970: 5).

reform process in the respective country. However, expert interviews are necessary but not sufficient in detecting the whole spectrum of IO governance instruments. As concerns the instrument financial means specific figures are better identified by studying documents which reflect e.g. the accurate amount of transferred money. Expert interviews are rather suitable for capturing the impact of financial support.

National Transformation Capacities

In our conceptualization, national political-institutional factors as ideas and veto-power are decisive *intervening variables* of how the internationalization of policies is framed and implemented on the nation-state level. Explicit questions concerning specific educational traditions and legacies in each of the four examined countries identify national ideas. For example, with the question “How well do the ideas of EU/OECD fit to the national philosophy of your country?” we assess if national ideas about education either block or support IO reform efforts.

National Change and Policy Convergence

Potential change of the *dependent variable* “national education policy-making” due to IO influence is supposed to happen in the dimension of politics and policy. Through multiple questions, we seek to gather qualitative data to cover both dimensions. E.g. to capture the policy dimension we ask about the main changes in the field of education reforms. Changes with regard to politics are reflected in asking about change in the process of education policy-making itself. By doing so, a differentiated assessment is possible of how national policy making in education has changed and which dimensions this change encompasses.

Data

The selection of documents requires the researcher to possess a comprehensive preconception of the research object at stake. In our project, documents are selected regarding their importance for the political process and policy-making. We choose documents authored or edited by those institutions that are influential in and responsible for the issue of education policy making.

The selection process of interview partners aims at covering all national stakeholders relevant for decision-making in the context of internationalization of education policy who can shape national policies. Following Bogner and Menz (2002: 66), the expert is to be understood as “a person who, due to special competence, has a certain status or operates in a certain capacity that allows him/her to determine the orientation of actions or definition of situations.” The status of an expert is therefore not necessarily status *per se*, but is conferred upon the person through the research at hand. In our study, experts

are political and administrative actors and scientists in the policy field of education. The selection reflects a three-step process. First, not all institutions that principally deal with education policy are suitable to be interviewed because their real influence on national policy-making can rather be neglected, like pure interest groups without any formal or high informal opportunity of exertion of influence. Thus, a cutback within the scope of national expert organizations was unavoidable. Secondly, after narrowing the scope of the research objects, representatives in charge of internationalization issues within the relevant national institution are determined. Thirdly, the chosen experts are contacted via a standard email letter. By request, they are sent the questionnaire in advance to provide more detailed information.[4] Limitations of the method consist in a self-selection bias of interview partners that may have country-specific reasons, for example different non-responsiveness rates of professionals of different countries. The selection bias is avoided by counterbalancing missing information by enforcing the use of document analysis regarding the specific institution or actor. Thereby, the problem of lacking validity in cross-country analysis is reduced.

Procedure

Both document analysis and expert interviews are suitable for gaining descriptive information and for causal analysis. A striking feature of expert interviews is the discovery of causal mechanisms by gaining more insights (Esser et al. 1999, 380). Moreover, in a personal interview it is likely that interviewees reveal implicit knowledge and provide an insider’s perspective. In line with this argumentation, in our project we use document analysis mostly for description of statehood change in the policy field of education and expert interviews for explaining decisions in policy-making and causes of change. Thus, our qualitative analysis proceeds in two steps. First, a stocktaking of change is carried out (*description* of change) and secondly, the relationship between IO-governance, national transformation capacities and the change of education policy-making is explored (*explication* of change).

Documents like statutes and position papers are examined with respect to the above mentioned dependent, independent, and intervening variables and thus shed light on change processes of policies und politics. Regulative documents as laws or decrees refer especially to altered polities. Hence, drawing on this type of document is useful for the phase of orientation and selection of experts, for the control and complement of experts’ information. Analyzing documents also encompasses the danger of certain interpretation

[4] On the one hand, it is benefiting if experts know the questions in advance to prepare their statements in a detailed and more sophisticated way. On the other hand, the disadvantage consists in a loss of spontaneous answering of the expert and on answering according to social desirability (Esser et al. 1999).

mistakes. For example, the same word may have different meanings in different national contexts or in different countries.

Personal interviews with national experts of the four examined countries were conducted and lasted approximately 50 minutes using a half-standardized questionnaire that leaves room for multi-faceted answers. The recorded interviews were transcripted completely. A qualitative data analysis program (MaxQDA) was used for coding and analyzing the interview transcripts with a pre-defined coding scheme (see appendix B).

To put it in a nutshell, *qualitative methods* are especially appropriate to analyze recent educational reforms in OECD- and EU-countries and to identify causal factors for internationalization processes. They help to confirm or to question research results of different approaches and to include different perspectives of the research object. In general, *document analysis* is an instrument that provides diverse facts that enable further data collection and specific questions in the expert interviews. *Expert interviews* enable the formulation of more sophisticated causal hypotheses insofar as causes of change of national education policy-making are identified in the interviews with the expert.

These methods are not suitable to test the whole array of alternative explanations because social interaction bears limited options. In general, conducting interviews is a time and also cost intensive method and therefore the possibility of adding additional variables and gathering information retrospectively is rather restricted. This increases the importance of an accurate design of the research project. Our research design enables the control of third variables e.g. by choosing two EU and two OECD countries to trace a process back to one IO.

For our project, *document analysis* provides background information whereas *expert interviews* are important because some data on our variables are either not yet available as latest appraisals of developments by experts, or hardly quantifiable like ideas. Without these methods we could not detect hidden effects. Privileged access to information via experts gives deeper insights on the influence of international actors, like EU and OECD, and national political-administrative institutions, like veto power as well as normative expectations and cultural-cognitive interpretation schemes for country-specific ideas of education, on national policy-making. Regarding the opportunities of qualitative methods it is especially beneficial to combine this approach with advantages of quantitative methods in order to assess the policy field of education policy from a triangulate perspective.

Network Analysis

Policy network analysis (PNA) can account for the complexity and informality of change of national education politics induced by internationalisation and privatisation and thus provides a specific view on the various phenomena and facets of our research

question. The main characteristic is the type of data it uses: Unlike other methodical strategies, e.g. expert interviews or regression analysis, PNA is based on relational data, i.e. the relations or interactions between (corporative) actors rather than particular attributes, such as age, size or mission statement (Jansen, 2003: 53-59). Formally, a policy network consists of actors (nodes) and their relations (edges). The added value of PNA as a structural analysis in our mixed-method-design is the systematic description of political actors, their patterns of cooperation and exchange. Thus it can be used to combine micro- and macro-perspectives by analysing intermediate structures (ibid: 15-21). In the following section the opportunities and constraints of PNA as well as its function in our research design are shown by describing operationalization, data collection and process.

Operationalization

To cover the complexity and diversity of the political process the operationalization of the phenomena in question (IO-Governance, national transformation capacities and political change) rests on a classification of relevant actors and relations. Based on former studies and own explorative work (Knoke et al., 1996; Nagel, 2006; Nagel, 2008) on policy networks, categories of actors[5] and relations[6] have been composed. The operationalization of independent, intervening and dependent variables depends on our category systems as well as the research logic of PNA.

IO Governance Instruments

As independent variable of our research design several IO Governance instruments are investigated; from a network analytical perspective these instruments are conceptualized and measured as relations between IOs and national corporate actors. *Governance by discursive dissemination,* for instance, can be operationalized as relations of lobbying and legitimation. Relations of lobbying encompass the purposeful and instrumental in-

[5] We distinguished between 16 actor categories related to their organizational function and territorial classification.

[6] Types of Relations differ in their content: *Information relations* are characterised by knowledge transfers in the policy network. This knowledge may either be related to process in the network itself (procedural) or to specific policy issues (substantial). *Transaction relations* are similar to the first type, but indicate exchange or transfer of material goods or services in a more or less monetary form. As third type *legitimation relations* are characterised by the spontaneous or institutionalised transfer of institutional and symbolic capital. *Cooperation relations* represent a general collaboration between corporative actors and thus appear as symmetric relations whereas *Lobby relations* encompass the purposeful and instrumental interventions of corporate actors on the other actors within the respective policy network. Finally *power relations* apply to the exertion of formal authority. It is similar to lobby relations, as an actor in the policy network is prompted to act in a certain way (Nagel 2008: 18).

terventions of corporate actors on other actors within the policy network. The scope of intervention may vary between mere suggestions, demand and pressure. Relations of legitimation are characterised by the transfer of institutional and symbolic capital. These relations are expressed in symbolic interactions of actors, e.g. by granting membership or declaring programmatic congruence. In analogy, network-analytical operationalizations of governance by financial means are relations of transaction, which encompass both direct monetary transfers and the organisation and realisation of seminars and conferences by IOs as far as they require personal and financial expenses.

National Transformation Capacities

National configurations determine the effect IO governance shows on national education policy and are thus conceptualized as intervening variable. These national transformation capacities are distinguished in specific ideas about education and institutional factors as veto players. While ideas cannot be operationalized in an actor-by-actor network model, the study of veto players is in line with PNA logic.[7] The typology of actors we generated includes a broad scope of organisations participating in the education policy network. Following Tsebilis' veto player approach only actors endowed with constitutional veto-power are considered. In PNA, these veto-players in the strict sense of the word are covered by the following categories of actors: national state actors, federal state actors and parties as well as legislative actors.[8]

National Change and Policy Convergence

Policy change on the national level occurs in the dimension of policies and politics. Education policy refers to changes in national legislation caused by IO governance whereas education politics is understood as changes in actor-settings and decision-making processes.

Concerning the operationalization of education politics, PNA allows rendering structural relations between corporate actors on the one hand, and analysing structural change on the other hand. Since not only formal veto players are relevant in our study, we additionally investigate informal corporate actors in the policy field of education. Societal actors, e.g. public interest groups and professional associations, as well as higher education institutions may be as important as formal veto player. They act as stakeholders in the policy field of education and represent particular interests. There-

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[7] There are options to include ideas and preferences in a network-analytical research design, e.g. by using a 2-mode-network (Wasserman/Faust 1994: 39f). As our method of data collection was actor-centred rather than topic- or issue-orientated however, we decided to work with an actor-by-actor network only.

[8] Certainly the number of Veto Players varies in the different countries, e.g. there are no federal actors in New Zeeland.

fore, the entire typology of actors is applied to scrutinize the dimension of politics. In a second step, network-matrices with all relevant actors are analysed with respect to different time periods. PNA is thus able to discover trends in structural both within and across countries.

Data

A systematic structural description of political change requires dynamic network-data. Both the generation and handling of longitudinal network-data have been crucial topics in the methodological debate on network analysis (Suitor, Wellmann et al. 1997). A major complaint in this debate is that elaborate panel designs are very demanding in terms of time and money: “Although the limitations of such a single snapshot approach have been recognized, financial and organisatorical constraints have limited efforts to study the inevitable changes that occur in networks over time” (Morgan, Neal et al. 1997: 1). To minimize costs and effort we therefore employ another strategy of data collection which has so far mainly been used in historical network analysis: a content-analytical approach to gather dynamic network-data (Seibel and Raab 2003). Here, we systematically scan a body of policy documents for relational data making use of a semiotic method of structural connotation (Nagel 2008). As a result, we obtain weighed and directed network-data for several relational contents (s.a.). In contrast to surveys or interviews, there are no biases of reactivity and retrospectivity as political change can be extrapolated from the publication dates. Thus, in our project data collection in PNA resembles a (sequential) mixed-method approach within a bigger (concurrent) mixed-method-design.

Procedure

In the previous section we emphasized on the network-analytical measurement and operationalization of variables. The specific strength of PNA, however, is its capacity to analyse relational data by means of matrix-algebraic procedures.[9] First of all, networks can be visualized which provides some prima-facie-evidence that may guide further analysis. Moreover, several coefficients can be calculated with regard to general patterns of interaction as well as subgroups and influential actors. E.g. the *density* of a network describes “the general level of linkage among the points in the graph” (Scott 2003: 69). It shows the distribution of lines and at the same time the openness or closeness of a network. Measures of *centrality and prestige* help to locate network-actors in central and marginal positions. We assume that a central position in the network allows access to particular resources – depending on the relational content – and thereby a higher de-

[9] For visualization and calculation of the network data we used the Software UCINET.

gree of control or power. E.g. a high centrality index of International Organisations within the transaction network indicates the prevalence of financial means as a governance instrument.[10] Aside from single actors, substructures can be analysed as groups or positions. Here, *Clique analysis* aims to identify cohesive subgroups in the network (Jansen 2003: 193). Thus, patterns of collaboration – and exclusion – as well as their development can be identified and compared. By using clique analysis, e.g. in the cooperation-network, we can assess the relations between international and national actors concerning joint action in educational politics. Second, *block model analysis* will be used to elucidate positions of structural equivalence. Here, similar actors are clustered according to common positions with regard to similar external relations.

In brief, analysing the phenomena of the internationalization of education politics, particular with regard to IO Governance instruments and the role of transformation capacities, requires different logics of explanation. With the specific view of PNA on intermediate structures of social action, patterns of cooperation or exchange between corporate actors, e.g. OECD, EU- and national actors can be analysed. The underlying methodological challenge of explaining new and complex social phenomena can thus be fruitfully complemented with PNA.

However, there are certain limitations about PNA. Given the fact that we operate with relational data which is focussed on the interaction between actors, national ideas or rather education policies cannot be operationalized in an actor-by-actor network model. Moreover, the research logic of PNA is descriptive rather than explanative. Yet, in a mixed-methods-design the network-analytical results can be complemented with causal hypotheses extracted by expert interviews or regression analysis. In doing so, we cover multiple levels of analysis by combining different methodological approaches and provide a dynamic, complementary view on the phenomena of internationalized education politics at the same time.

Cross-Section Time Series Regression Models

While expert interviews is apt for process tracing *within* countries, cross section time series regressions analyze the conditions for change *across* a large number of countries quantitatively. By this statistical method, we not only find out which factor impacts most on political change, but also in which relation this factor stands to other potential determinants. The process of operationalization and the composition of the data set are crucial, since these steps strictly determine what can be modelled at a later stage.

[10] The number of outgoing relations of an actor in the network is called its *outdegree*. This measure determines the centrality of an actor in the network, whereas the indegree. i.e. the number of incoming relations of an actor, may resemble its reputation

Evaluation and interpretation of the results is, in contrast, much less work-intensive than in the case of expert interviews. Accordingly, we proceed in this section by first presenting how we operationalized the variable for the quantitative analyses, and then we present our data and statistical models, before, finally, turning to the method's limitations.

Operationalization

Quantitative methodology uses numeric data and generates information from calculations and estimations. Interpretation of regression models leads to statements like "the more of the independent variable x, the more of the dependent variable y". Fortunately, the regression approach is not restricted to normally distributed variables but allows the inclusion of binary predictors (e.g. 1 if characteristic does appear, zero if not). This proceeding enables researchers to compare discrete groups with respect to the dependent variable y. Moreover, also dependent variables may be "limited", meaning that they are not measured at a metric level, not normally distributed and may even be "truncated" (Long 1997). Hence, data situations in which only categorical information exists can be analysed by regression models. These models become even more powerful if they are applied in a longitudinal, dynamic framework where several different methods of panel analysis can be used.

IO Governance Instruments

From a quantitative analyses' point of view a standard approach to measure our *independent variable* IO governance is membership and its duration, assuming closer congruency with the organization's aims if a country is a member for a longer time. Our approach considers this possibility, but also strives to differentiate between different governance instruments an organization has got at hand. E.g. for the instrument of financial means we consider the flow of money from the EU to a country as being an important indicator of how influential the organization is. Calculation of such values is based on EU budgets of several years.[11] Activities consist of participation in events as the Bologna Process, the OMC Education, PISA or OECD education policy reviews. For the generation of this indicator, we code participant list of these activities.

National Transformation Capacities

The *intervening variables* of the theoretical model, national transformation capacities, are split in institutional factors as veto-players and ideational factors as specific ideas of

[11] We consider the money explicitly dedicated to education, as well as the overall sum given to the country over time (taking out subsidies to agrarian sector, since this constitutes a large part of the overall budget, but is traditionally not linked to any educational means).

education. We operationalize the institutional factors by an indicator as to whether a political system is open or less open to policy change.[12] The variable ‘veto player’ mainly refers to the number of veto players, conceiving political change as more or less difficult, dependent on the number of possible veto-options. Another way of modelling intervening variables could be their inclusion as an interaction effect. Obviously, the decision on how to model intervening variables – which are first of all *independent* variables – should depend on the theoretically expected mechanism being the causal effect on the outcome.

National Change and Policy Convergence

The *dependent variables* represent political change due to international organizations and can show two different patterns: A first possibility is that countries do more in the respective area, in our case this could mean that, for example, more resources are devoted to education. Second, as a result of common policy change across countries, states can converge in central policy aims. This means that they become more similar with respect to education systems. As dependent variables, we include indicators that relate to an expected increase and those that relate to convergence. Examples of variables linked to an increase would be the share of the GDP in secondary or higher education or the percentage of pupils in private schools. Examples of indicators linked to an assumption of convergence are the hours of teaching or the age when leaving secondary education.

As we carry out a quantitative large-N analysis, we can also test *alternative explanations*, thus variables that explain political change better than international organizations, veto-players and ideas, the factors, assumed as driving forces in our theoretical model. Such variables could, for example, be the size and type of the economy or the qualification and age of the labour force. Such tests are necessary since it is plausible to assume that, since education serves the purpose of forming a labour force, related factors may well influence education policy in a very functionalist sense (Rubinson and Brown 1994, also naming other factors). Additionally, the size of a country could determine whether IO influence can easily impact on national processes, or whether it is more difficult: Large countries may be oriented much more inward than are small ones (Katzenstein 1985). Finally, also political orientation of the government can assumed to be an influential factor in education policy making (e.g. Busemeyer 2006), therefore we control also for this factor. We operationalize these variables by indicators as the GNI per capita, the share of the service sector as part of the GDP, the number of inhabitants, or the political majority in parliament.

[12] The indicator PolCon III of the Political Constraint Index Dataset by Henisz (2002).

Data

Sample size and available sources are essential factors when carrying out quantitative analyses. As we seek to scrutinize political change across a broader set of countries, it is the aim to compile the data for as many countries as possible. Our sample includes 37 countries[13] of which 10 are members of the OECD, but not of the EU-27[14], 7 countries are members of the EU-27 but not of the OECD[15]. Analyzing change implies the comparison of specific situations for different time points. Therefore it is necessary to collect the indicators for several – at least three – years (“time series”).

For compiling our dataset, we draw on different *sources*, since there is no existing database that contains information for all the indicators of our interest. One of the main sources is obviously the comprehensive database that is provided by the OECD itself. The OECD statistics division publishes data on several topics, which it collects from their member states. We used the OECD database to generate the indicators for our dependent variables; as such they are mostly measuring outcomes of education policy.[16] With regard to our intervening variables we need data that describe the political system of a country and monitor the institutional environment that structures political change. These are not provided by the OECD. A useful source in this context is published by the Quality of Government - Institute that conducts and promotes research on the causes, consequences and nature of governance. It provides a dataset that combines several publicly available data, as for example the World Bank Database on Political Institutions or the indicators that are published by Freedom House.[17] However some of the required data is not available from existing datasets. In this case we acquire the indicators by coding of several policy documents. The Eurydice Information Network provides a wide array of information on the educational systems and policies of European countries; the European University Association publishes Trends reports on particular issues. The UNESCO International Bureau of Education provides data on education, as well as

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[13] Australia, Austria, Belgium, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Estonia, Germany, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK, USA

[14] Australia, Iceland, Japan, Canada, Republic of Korea, Mexico, New Zealand, Norway, Switzerland, Turkey

[15] Bulgaria, Estonia, Latvia, Lithuania, Malta, Romania, Slovenia

[16] Exemplary indicators are educational expenditures (differentiated by sources), the number of graduates in certain subjects or the number of foreign students, as well as the rank of one country in PISA.

[17] Such indicators used for our analyses are classifications of political regimes and scales of paliamentarism and unitarism.

country dossiers and other policy related documents that we use to assess if a country had implemented certain means or to describe the structure of the educational system[18].

Procedure

The specific proceeding in regression analysis depends heavily on the models constructed and calculated, which are, in turn, also dependent on the data basis. As argued above, the data set contains countries as well as measurements within countries as units of observation. A longitudinal approach allows not only the analysis of change over time but also more elaborated testing of causal relationships. As a general pitfall in causal analysis, investigating the impact of veto-players on the outcome of interest is attended by the problem of not being able to control for any other relevant characteristics which possibly are associated with the outcome of interest. However, the longitudinal framework of the project offers the opportunity of estimating the impact of changes in *the independent variables* on changes of *the dependent variables* using a so-called fixed effect approach.

In our project, regression analysis will be based on 37 countries over 20 years. Variation across this sample in y (e.g. expenditures per capita) is due to differences between countries but also due to changes of independent explanatory variables within each country. Hence, there is variance to be explained within the countries as well as between them. The problem of standard regression analysis is that if researchers assume an effect of x on y, they can not assure if there are influential factors that are not measured and therefore not included in the model, but which are systematically associated with the outcome of interest. (This case is often referred to as “unobserved heterogeneity”). Maybe, some countries show specific unobserved characteristics which have an impact on y and which are correlated with the observed variable x. A significant effect of x on y could be misleading when the correlated unobserved characteristic is the crucial factor, and not x. In such case, a fixed-effect approach plays out its added-value: We can describe fixed effects as country-specific dummy variables which completely capture all time-constant country effects on y, regardless of the precise content of these effects. In a model based on 37 countries over 20 years, this approach would result in 36 dummies (one for each country excluding the one that serves as reference country). In practice, the model does not include 36 dummies but the estimation is based on values of x and y standardised in a way that measures deviation around the country-specific mean value. This is algebraically equivalent to the dummy variable approach (Greene 2000: 563). Since country-specific effects are completely captured in the fixed effects model, the

[18] As an example we generated dummy variables to indicate the implementation of a two-cycle-structure in higher education or the existence of quality assurance means.

remaining impact of a time-varying variable x is the net effect controlled for unobserved heterogeneity.

However, the main shortcoming of a fixed-effect approach is that taking out all country-specific effects leaves no room for time-constant explanatory variables. If the focus is on such characteristics, researchers could use either random effects models or generalized estimation equations (GEE, see e.g. Greene 2000: 576, Frees 2004: 360). For each analysis it must be decided which of these models is the most appropriate one. There are some diagnostic instruments, like the Hausman test, which can help to find a solution, but the decision should not be based on this test solely but also on substantial theoretical criteria (Petersen 2004: 343). [19]

In sum, regression analysis operates with clear assumptions of causal relationships and proves their effects. It can do so for a large number of countries, and can also include alternative explanations. Limitations of the method can be distinguished as general limits, or those related specifically to operationalization, data or modeling. Generally, quantitative assessments have a clear cut idea of what the assumed causes and effects are before the process starts and remodels the complex social world in simple figures. This has the advantage of proving relationships between variables, but the disadvantage that the figures itself only provide a small insight to the complexity of the ‘real world’, a critique that more qualitative-oriented research has often raised.

More specific weaknesses in operationalization concern independent, intervening and dependent variables: the independent variable of discursive dissemination, for example, can in fact only be shown by linking the fact of IO activity to an outcome on the national level (e.g. that states also mention autonomy as important issue), in our specific case, there is no process of discursive dissemination that can be expressed in numbers. Finally, some aspects of the dependent variable, namely new processes existent at the national level, can only be assessed indirectly, by observing new actors, and concluding from their existence to changed processes.

Possible problems with the data set are its ‘fit’ and the different sources: Analyzes that are not based on primary data often bear several problems with respect to the “fit” of the data with the research phenomena. In our case it is even more problematic as we

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[19] The Hausman Test is usually applied to test an important assumption of the random effects model: the subject specific error term α_{it} must be uncorrelated with the explanatory variables x_{it}. Otherwise, estimates of the random effects model are biased. Actually, the Hausman procedure does not really test this assumption. But if coefficients estimated by the random effects model do not significantly differ from estimates of the fixed effects model, then the assumption holds because fixed-effects estimations are always consistent since time-invariant effects are algebraically *removed from the equation, whereby the correlation of* α_{it} and x_{it} is not an issue anymore (Greene 2000: 576).

draw on many different sources to compile the dataset. That means that we have to rely on data that was gathered by differing means. However we observed to use the same source for one indicator, which was not possible with regard to the data, that we gathered by document analysis. Moreover, the database of the OECD delivers a broad set of different kind of information but it bears also problems, due to the fact that the OECD is only partly able to set binding standards for the elicitation of the data. This could lead to the fact that the validity of certain indicators is restricted.

In addition, our analyses are limited to OECD-countries. Due to the non-availability of the respective data for many non-OECD-countries we are not able to include a comparison group of countries that are not members of the EU or OECD. Moreover, most of the data that we can rely on is not available for the time before midst or end of 1990s. This means that we can only assess changes that occurred in a relatively short period. While longer periods of time are generally to be preferred, this short period nonetheless represents the temporal corridor in which we can assume that most changes should have occurred. The time frame investigated is thus a direct consequence of a research question that is dealing with a relatively recent phenomenon.

In sum, even given the specific difficulties of the method, an advantage of quantitative assessments is to control better for alternative reasons for a specific development. Unlike the other two methods applied in our research project – interviews and network analysis –, the method can also test how IO influence and transformation capacities relate to other factors. Moreover, taking regression analysis out of the methodical portfolio would have the consequence that the findings of the country studies (that the other methods deal with) cannot be related to any larger sample size.

MIXED-METHODS-DESIGN: A SYNTHESIS

In the previous sections we have outlined the methodological debate on mixed-method-designs and made use of an ongoing research project on the internationalization of education politics to illustrate potentials of cross-fertilization between three methodical strategies as different as expert interviews and document analysis, policy network analysis and cross-section time series regression models. In the concluding section we will now take the step from the particular methods to a more general perspective on mixed-method-designs. Initially, we proposed that *implementation timing* was a crucial characteristic of mixed-method-designs pointing to the concurrent or sequential implementation of the methodical strategies involved. A sequential design implies a chronological step-by-step procedure, e.g. an explorative qualitative study guiding a quantitative large-n survey or a quantitative description followed by a qualitative in-depth case-study. In contrast, a concurrent design is characterized by ongoing and reciprocal communication between the respective methods. Instead of a fixed unidirectional setting

different methodical strategies and logics are here loosely coupled in the sense of dynamic mixed-methods-network:

Figure 2: Mixed-Methods-Network

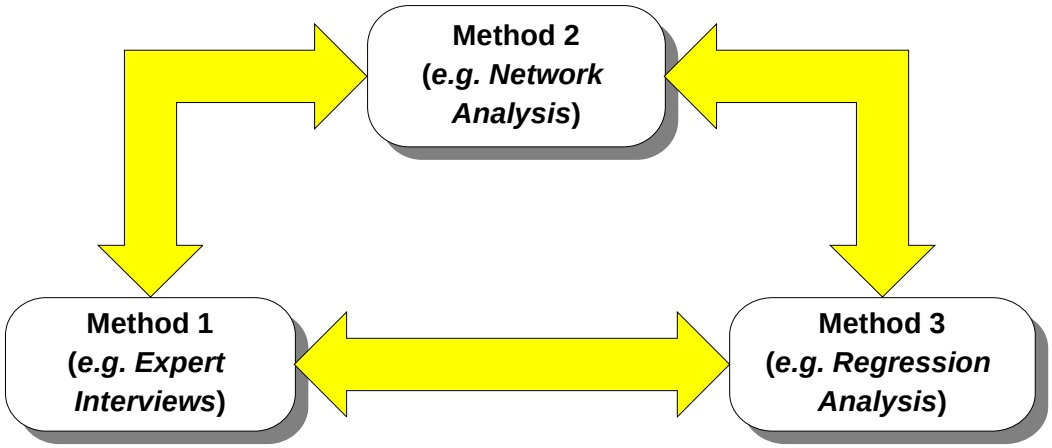

Figure 2 illustrates how different methodical strategies and logics can be interlinked in the sense of a ‘network of methods’. Interfaces between the respective approaches can now be institutionalised as follows: *Expert Interviews* may inform Network analysis to add some new actors, who have not been accounted for by the more standardized selection procedures of PNA, but who are nevertheless considered important by some interview partners. With respect to regression analysis, expert interviews may point to causal mechanisms guiding the expectations and action of political actors which may then be included into existing statistical models or be used to reshape the strategy of modelling as a whole to improve their goodness of fit.

Policy Network Analysis on its part as an approach of structural description may guide the selection of experts to be interviewed as well as contextualize the perception of interviewees of important (or meaningless) actors in the policy field. With respect to regression analysis, PNA may account for the centrality (or marginality) of ideal-typical actors (such as international organisations or veto-players) in a certain country and a given period of time. These measures can be used as an additional, more refined variable for the prominence of the respective actors or to inform the construction of models itself.

Finally, *regression analysis* may respond to the question, whether and to what extent anecdotic evidence from expert interviews and PNA can be generalized beyond the case-study where it was encountered. This refers to causal mechanisms as well as to influential actors. Moreover with respect to expert interviews regression analysis may point to alternative explanations (e.g. of political change) which can then be included in

the questionnaire to be considered in the following interviews. As far as PNA is concerned, regression analysis may point to certain causal factors (such as economic growth) that may have an expression in the actor-set (e.g. high prevalence of trade associations).

Obviously, the metaphor of a “mixed-methods-network” does not only allude to the chances of fruitful collaboration, but also to certain challenges inhering in mixed-method approaches in general and in a concurrent implementation timing in detail. Such a design requires a high level of expertise in at least two of the methodical strategies applied and makes great demands on communicative skills. Thus, the potential gains of validity and reliability of results are not for free, but bring along considerable transaction costs. Moreover, an interdependent setting of methods may not only be apt to pool their respective strengths, but also their weaknesses and pitfalls. Errors in data collection or analysis in one method may thus “infect” the empirical enterprise as a whole. Yet, these challenges do not call into question the endeavour of mixed-method-designs in general. Rather, the acceleration of social change on the one hand and the disciplinary specialisation of social sciences on the other call for cooperation, not hermitage.

Finally, methodical strategies such as expert interviews, network analysis and regression analysis do not only differ as to their operationalization of theoretical concepts, gathering and handling of data and procedures of analysis. Beyond these technical features each method resembles a distinct *logic* of research, which should be taken into account when a mixed-method-approach is designed. In our example, explorative (expert interviews), descriptive (network analysis) and explanative research logics (regression analysis) have been combined to address the phenomenon of political change. This understanding as a ‘mixed-logics-approach’ finally allows for the adjustment and adaptation in other fields of research. Expert interviews thus become a mere placeholder for methods with a qualitative, idiographic and explorative shape, such as participant observation or discourse analysis whereas network analysis might easily be replaced by other relational and descriptive approaches, such as analyses of process known from historical institutionalism. The flexible and easily adaptable arrangement of methodical strategies and logics, however, cannot be realized in a tight sequential setting. On the other hand, the mere parallelism of various methods in a simultaneous design is somewhat arbitrary and self-referential. In contrast, a ‘network of methods’ comprising some preconceptions as to the interactions of strategies and logics involved without exerting them in a hieratic way, may be a fruitful model for multi-method-arrangements in an era of rapid social and academic change.

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