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Introduction

Accountability and datafication in education: Historical, transnational and conceptual perspectives

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Accountability and datafication in education: Historical, transnational and conceptual perspectives

Introduction¹

Accountability has become a buzzword used not only in media and academic debates, but also at the political, regulatory and legislative levels (Espeland and Vannebo, 2007; Lindberg, 2013). The proliferation of the notion of accountability goes hand in hand with its polysemy, its “catch-all” character and its – often willingly – normative use. It is mobilized both to increase transparency and hence the legitimacy of democratic institutions, and to improve “good governance” and the achievement of the objectives of effectiveness, efficiency or equity of (public) organizations (Mattei, 2012; Veselý, 2013). The purpose of this book is to reconceptualize the notion of accountability as part and parcel of the increasing datafication in education, understood as the processes and effects of quantifying education, from education policymaking to pedagogy and education practice in all its physical and digital manifestations.

If the notion of accountability is often normatively referred to as a “virtue”, it can also be considered analytically as an institutional mechanism that can take various forms depending on the actors involved, and the fields or the objects it covers (Bovens, 2010). In this perspective, Bovens proposes a narrow, yet useful definition of accountability as “a relationship between an

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actor and a forum, in which the actor has an obligation to explain and to justify his or her conduct, the forum can pose questions and pass judgments, and the actor may face consequences” (Bovens, 2007: 450). The definition aims at distinguishing between different types of accountability, by answering the following questions: who is accountable?; to whom?; about what?; with reference to what evaluation criteria and on the basis of what information?; finally, with what consequences? One can thus distinguish between different types of accountability: *democratic* (from elected representatives to their electorate); *bureaucratic* (or administrative, from an executive to his or her hierarchical superior); *professional* (from a professional to his or her peers); *legal* (from a subject of law to a court of justice); and *social* (from individuals to the communities to which they belong). Moreover, the object of accountability (the decisions or behaviours of an individual or collective actor, its results or impacts, etc.), the evaluation criteria used (legality, appropriateness, effectiveness, equity, transparency, etc.), or its consequences (symbolic, material, legal, severe or mild) can vary greatly. Finally, the knowledge bases on which accountability is based also differ: formal hearings and testimony in a parliamentary committee, written and documentary traces, quantified data, or media communications, for example.²

Beyond this panorama of forms of accountability, accountability as an institutional mechanism is more broadly embedded in the imaginary and cultural referents inscribed in the modernity and long history of societies, mainly Western societies: as a result, it interacts with other institutional arrangements of democratic political regimes and contributes to constructing their very content (Olsen, 2017; Rosanvallon, 2008). Moreover, as a bureaucratic or professional requirement, accountability is based on a rationality horizon (procedural, instrumental, epistemological) associated with the increased differentiation of contemporary societies into specific fields, as highlighted by Max Weber in particular (Weber, 2019). At the social level, it can meet the moral requirements of everyday social life, which requires an actor to make his

² Number of typologies of accountability are available in the education research literature (for example, Dupriez and Mons, 2011; Kogan, 1988; Leithwood et al., 1999; Maroy, 2015; Maroy and Voisin, 2013; Ranson, 2003; West, Mattei and Roberts, 2011) or in political science (Bovens et al., 2014).

conduct understandable and justifiable by others (accountable), as has been shown by ethnomethodologists (Garfinkel, 2016).

As already suggested, whilst the meaning and forms of accountability vary historically but also according to social fields, and disciplinary and theoretical perspectives, this book focuses on contemporary forms of accountability in education, those developing at the intersection of global, national and local policy spaces at the beginning of the 21st century. In this particular field, accountability is taking on the contemporary form of *performance-based accountability (PBA)* (Carnoy et al., 2003; Figlio & Loeb, 2011), in an increasingly significant, if not unique way.

PBA is an assemblage of formal or informal procedures, various techniques and tools, and normative discourse (on the legitimate societal aims and expectations from the schools or school systems), aimed at making schools accountable and motivating their staff to achieve certain performances in terms of learning or pupil socialization. This form of accountability is sometimes based on a formal institutional mechanism (as in the Bovens definition), but also – and crucially for the purposes of this book – on datafication; that is, on quantified data that originates from standardized external tests and other performance indicators, and from diverse forms of evaluation and comparison. This accountability and these expectations for improvement and performance are exercised at several interlocking scales, such as those of a national or subnational school system, a district or individual schools.

It is thus important to note that performance-based accountability schemes participate in and rely to varying degrees on the datafication of education (Jarke & Breiter, 2019; Williamson, 2017). Datafication “refers to the transformation of different aspects of education (such as test scores, school inspection reports, or clickstream data from an outline course) into digital data. Making information about education into digital data allows it to be inserted into data bases, where it can be measured, calculations can be performed on it, and through which it can be turned into charts, tables and other forms of graphical presentations” (Williamson, 2017: 5).

More broadly, the processes of accountability and datafication are underpinned by the process of quantification that has been developing in modern societies for a long time

(Desrosières, 1998; Diaz-Bone & Didier, 2016; Mennicken & Espeland, 2019; Porter, 1995; also Mangez & Vandenbroeck in this volume).

As the chapters of this book will eloquently explicate, PBA lies currently at the crossroads of two socio-technical, historical currents that have gained more and more momentum: on the one hand, PBA relates to the ever-increasing demand for results-based accountability on the part of schools; on the other hand, it has become the vehicle of an expanding and all-encompassing process of educational datafication. In this introduction, we will first develop a historical background and the genealogy of various forms of accountability in education, in relation with various other key societal, economic, political and technological changes that have influenced either the global/local nexus or the process of datafication. Although accountability has a much longer history than can be accommodated and meaningfully discussed in this introduction, our focus will be on accountability forms and effects that began in the 1980s. As we shall see, the 1980s was the decade during which, for the first time, the measurement of education performance, locally, nationally or internationally, became a key component of educational accountability, or what we call in this book performance-based accountability (PBA). Secondly, we will summarize in conceptual terms the notion of PBA and elaborate how and why it could be considered as a policy instrument, that is related to data and quantification, from a political sociology perspective. Finally, we will present the main inquiry lines in the configuration of a comprehensive research agenda on accountability, datafication and education, and how the book's contents relate to it.

The long-lasting development of accountability and quantification in education

1980s–1990s: New Public Management and the emergence of high stakes testing

During the 1980s, accountability in public services adopted a performance-oriented rationale. This shift was brought about by the consolidation of New Public Management (NPM) as a paradigm of public sector reform. With NPM, business management ideas and techniques, such as outcomes-based management, decentralization and greater competition and choice, gained currency in the public administration reform agenda (Vigoda, 2003).

NPM first took ground in the 1980s, in a context characterized by a fiscal global crisis and the critique that ensued against the inefficiency and uniformity of public services (Soguel and Jaccard, 2008). The early adopters of NPM included the neoliberal governments of several Anglo-Saxon countries, including the UK and the USA, but also Chile. In the 1990s, NPM expanded to many Southern regions via the loan conditionality of international financial institutions, and to Continental Europe through the active promotion of NPM doctrines by the Organization for Economic Cooperation and Development (OECD) and the European Union (EU) (Pal, 2012). In the 1990s, NPM saw further expansion and rooting in public administration, as it was also embraced by social democratic parties under the tenets of the Third Way. However, in contrast to emphasizing the economizing function of NPM, social democratic forces put more emphasis on the NPM promises of modernizing public services by making them more diverse and responsive to citizens' demands (Gunter et al., 2016).

It was precisely NPM's efficiency and equity arguments that rendered it conducive to the promotion of PBA in education. As the discursive change was coupled with the development of sophisticated data-intensive instruments, PBA soon rose to a key policy instrument in the governance of education. First, by placing greater emphasis on public services being managed through smaller managerial units, educational authorities were seen as needing to equip themselves with new control technologies to steer educational providers at a distance. Second, by replacing inputs- and process-based management with an outcomes-based management style, governments had to publicize performance data, as the means via which both improved management would occur. Third, one of the central tenets of NPM, in order to promote diversification and choice in education, governments had to share school performance data in the form of 'naming and shaming' league tables, school rankings or school browsers (Maroy, 2009).

Nonetheless, few of these developments were completely novel. What we can observe is that overall, in those countries where NPM became crystallized as a governing mode, national assessments and performance data were not newly introduced (Kamens and McNeely, 2010). What NPM brought about was the recalibration of standardized testing, learning standards and related tools as managerial devices made to steer schools' behaviour at a distance, increase

peer pressure, and actively construct a more competitive *ethos* among a broad range of school actors – including teachers, principals, school owners and families (Lingard et al., 2016).

Under the aegis of NPM, and under the increasing presence of performance data in all sorts of policy fields, accountability loses – to an extent – its previous democratic and professional manifestations and emerges as a concept primarily defined by its role and function in bureaucratic and managerial systems. Accountability becomes measurable, statistical and evidence-based, a tool to surveil, penetrate and organize public services (Le Galès, 2016). The concept of accountability is stripped of its democratic and political roots and connected to forms of critique and proliferating programmes of organizational improvement.

2000s–now: International comparative assessments and the rise of datafication

In the 2000s, methodological and technological advances in psychometrics and in the digitization of testing have contributed to intensify and scale up learning assessments and learning analytics (Gorur, 2013). The Programme for International Students Assessment (PISA) of the OECD, as well as other international large-scale assessments (ILSAs), have become instrumental in transferring data-gathering techniques and frameworks of indicators to national large-scale assessment systems (Meyer and Benavot, 2013) and enhance capacities for assessment and datafication at the national level (Lingard et al., 2016).

Nonetheless, beyond technology transfer, the most significant way ILSAs promote PBA as a key governance instrument consists in the promotion of a global competition between countries for better learning outcomes (Grek, 2009). To become competitive in the “global education race” (cf. Sellar et al., 2017), the enactment of national PBA systems becomes a key, strategic tool towards achieving improved education performance: that is, PBA is seen as a necessary condition for national governments to control the level of learning achievement of subnational territories and schools, and to activate school improvement dynamics at different scales of governance (see Skedsmo et al. in this volume). Through international competition and country comparisons, ILSAs also disseminate an implicit message about what constitutes ‘good governance’ in education. Specifically, they construct powerful discourses about comparative and datafied approaches to educational performance as being both effective and appropriate

governance mechanisms to improve educational systems. In the ILSA era, there is no control without comparison (Lawn, 2008), but at the same time comparison itself becomes a *de facto* form of control and coercion in the educational domain.

Economic interests are also behind the current shift towards datafication and PBA in education. The industry focusing on educational testing, learning analytics and/or school performance improvement is not only expanding its economic activity under the auspices of PBA, but is also a core constituency behind the international spread of PBA (see Williamson in this volume). Companies like Pearson, Educational Testing Services or the Australian Council for Educational Research are strongly embedded within policy networks and “have a vested economic interest to have education systems and schools change what they define as academic knowledge or even useful knowledge to fit the particular test they sell” (Carnoy, 2016: 36). The OECD (2013: 51) itself admits that the fact that “standardized student assessment becomes a more profitable industry” means that “companies have strong incentives to lobby for the expansion of student standardised assessment as an education policy therefore influencing the activities within the evaluation and assessment framework”. Overall, the increasing involvement of private interests within education testing regimes contributes to testing practices expanding towards new areas of education activity, educational levels and scales of governance (Verger, Parcerisa and Fontdevila, 2019).

The changes described so far are broadly driven by factors of a political and economic nature, but they have evolved in parallel to changing notions of quality in education, evidence-based policy and the role of learning achievement therein. Today, policymakers do not conceive taking policy decisions or evaluating the success of educational programmes without resorting to learning achievement data. Learning achievement data has become a key, and to a great extent hegemonic, indicator to track school improvement and measure school effectiveness. In fact, in policy and research circles, many have conflated “educational quality” and “quality assurance” with students’ improved learning outcomes (Kauko, Rinne and Takala, 2018; Smith, 2016). Education research has played its part, too. For example, school effectiveness research or related work on pedagogical effectiveness (Hargreaves, 1996) has given growing credibility to the use of ‘learning technology’ and ‘evidence-based practices’. As a result, efficient data production, handling and analysis are

supposed to then trigger the improvement of the learning processes by schools and teachers, as it is argued by accountability apologists (see Fullan, 2007).

Beyond its growing centrality in the field of education, learning achievement has also become a key proxy to assess countries' economic success, potential economic growth, (un)employment behaviour, and foreign investment attractiveness (De Mello and Padoan, 2010; Hanushek and Woessmann, 2008). In a globalized economy, thus, both the important direct and indirect effects attributed to learning achievement increase the pressure on education authorities and institutions to improve their performance. Among others, this shows that the power acquired by PBA as a policy instrument cannot be disentangled from the power of the measurement tools PBA depends upon.

A policy instrument approach to accountability and datafication

One originality of this book is the interrogation of contemporary PBA as a core governance mechanism in education in the 21st century in increasingly datafied education policy spaces. PBA is a policy instrument, interweaving accountability mechanisms with tools as external testing, data, numbers and comparisons, promoted by various policy actors at various scales. As shown above, these instruments and tools, in its current configuration, emerged with NPM reforms and consolidated with the increasing relevance of internal comparative assessments and other sources of performance data. However, this is only part of the PBA story. What we are witnessing is a broader shift towards new forms of regulatory governance in which the state is endowed with the necessary instruments to find new ways to orientate, penetrate, discipline and change social behaviour (Le Galès, 2016). The reconfiguration of the state through a new generation of data-intensive and incentivizing policy instruments, among which PBA stands out, is usually justified by noble goals such as efficacy, equity and transparency. However, the analysis of the emergence of PBA, its multiple trajectories and translations, from a policy instruments perspective contributes to the depiction of a much more nuanced and multilayered reality.

In this section, we analyse PBA as a policy instrument or a policy technology (Ozga, 2013), adopting a conceptual perspective derived from the political sociology of policy instruments (Halpern et al. 2012; Lascombes and Le Galès, 2004; Le Galès, 2016). We also

reflect on the increasing embeddedness between datafication and accountability instruments in the reconfiguration of educational governance.

PBA as a policy instrument

A political sociology perspective to policy instruments, in contrast to a functionalist perspective, does not see policy instruments as neutral and technical devices that politicians can “pragmatically” choose from a toolbox to solve policy problems according to effectiveness criteria (Lascoumes and Simard, 2011). On the contrary, it conceives policy instruments as conveying values, as instituting or condensing a certain type of power and relations between those who govern and those who are governed, a perspective freely derived from Foucault’s approach to the technologies of power and governmentality (Lascoumes, 2004; Le Galès, 2016). For Lascoumes and Le Galès (2004: 13), a policy instrument is defined as “an apparatus that is both technical and social, that organizes specific social relations between the state and those it is addressed to, according to the representations and meanings it carries. It is a particular type of institution, a technical device with the generic purpose of carrying a concrete concept of the politics/society relationship and sustained by a concept of regulation”.³ This definition invites us to grasp the political, normative and cognitive, and not just the technical dimension of the instrumentation of a policy.

A key issue in the analysis of public action is indeed its instrumentation, defined as “the set of problems posed by the choice and use of techniques, means of operation, and devices that make it possible to materialize and operationalize government action” (Lascoumes and Le Galès, 2004: 12). It is a question of looking at the processes of construction of the tools, the interests of the actors involved in their choices, and the way in which they were chosen (historical perspective), but also looking at the functions they fulfil (or are expected to fulfil), the effects they produce (in terms of opportunities, but also of redefining identities or power relations) and their evolution over time (Mennicken and Espeland, 2019).

³ Our translation; see also, Le Galès (2016).

Following this perspective, we could thus consider PBA as a policy instrument, an apparatus, composed of various tools, discourses, generating new regulations among actors, at different inter-related scales.

PBA as an assemblage of old and new tools

The instrumentation of PBA consists first of all of an assemblage of techniques and tools, whose precise configuration and historical genesis may vary from country to country, but which is found more or less comprehensively in most policies and systems. Institutional and political factors matter indeed in the global/national/local making of each specific assemblage. Some of these tools exist sometimes for long in certain countries (e.g. external exams, curricular standards), however their assemblage tends to redefine their function (retooling) in relation with PBA. These tools and techniques include:

- The definition of *curricular standards and objectives* to be followed by educational institutions, which specify the key knowledge and skills to be mastered at different stages by students. (Darling-Hammond, 2006; O’Neill, 2015)
- *Contracts* or agreements between a supervisory authority and a school organization (school, district, etc.), specifying the quantified targets to be aimed at by the latter, in relation to the political objectives of the state (e.g. graduation rates, success rates, averages in external examinations, etc.); related often to *strategic or operational action plans*, specifying the means and strategies developed to achieve these targets or to improve the performances, taking into account the context. (Bezes, 2005)
- *External, standardized tests*, organized on a regular basis, for different subjects which are considered central (literacy, mathematics, science, second languages, etc.) and years of study. These tests, organized in a variety of ways, constitute a key tool for standardizing the evaluation of the quality of pupils’ learning. These tests are one key source of the data necessary for the definition of the targets set by schools and the evaluation of their progress. (Kamens and McNeely, 2010; Lingard et al., 2016)

- The development at various degrees of *data infrastructure and database*, related to various *indicators* of progress or performances to be reached by school organisations or systems. (Sellar, 2015; Williamson, 2017)
- Regular (*self*)-assessments of the achievement of targets and the realizations of the strategic action plans, with *reports* to the supervisory authorities, users or stakeholders of the organizations concerned. (Altrichter and Kemethofer, 2015; Hall and Sivesind, 2014; Ozga and Grek, 2012)
- These self-evaluation reports are followed by some '*rectifying*' measures: these are *high or low stakes*, incentivizing or coercive, symbolic or material, aimed at improving the effectiveness of the organization concerned; for example, financial incentives for staff, school on probation, publication of results and comparison of schools, managerial or pedagogical monitoring, self-evaluation and external pedagogical support. (Figlio and Loeb, 2011; Fullan et al., 2015)

PBA tools and techniques have often been promoted or formalized by various political doctrines (NPM, for example) or scientific discourses (school effectiveness research). However, the genesis of policy instruments like PBA is never the consequence of a single discourse, epistemic of policy agenda; rather, as the empirical chapters of this book will show, policy instruments are assemblages of historic and social constructions, the result of a trajectory, that leads to the selection, bricolage and translation of these tools in a singular education policy (Maroy and Pons, 2019).

PBA as (a) transformative discourse of education

Not only does PBA as a policy instrument provide the tools of its operationalization, but it also constructs a new vision of education, based on legitimizing discourses and noble goals that are articulated and deployed in novel ways. Several discursive registers could in fact be mobilized to justify PBA in various ways depending on the history of each education system, namely; the register of social and school justice, under the particular species of a discourse of school inclusion and success for all pupils; the register of local and participatory 'democracy' via 'opening' schools to parents, pupils and other users; the discursive register of the transparency of school professionals and administrators, and their accountability to the political and

supervisory authorities; and, finally, the register of effectiveness and efficiency that must be ensured by qualified professionals, specialized in a sector considered key, such as education.

PBA as (a) new form of governance and regulation

The performance-based accountability mechanisms are the bearers of a redefinition of governance and regulations existing between the state and the organizations and actors in the field of education. They redefine the relationships and roles between governors and governed, establishing new objects, new modalities and new accountability and responsibility relationships within the school sector. Further, at the global and international levels, through international comparisons and the active strategy of some global actors such as the OECD (Grek, 2009; Mundy et al., 2016; Gorur in this volume), some national jurisdictions see their symbolic status and image redefined, while the making of their education policy is influenced and the education system restructured at different degrees (Lingard et al., 2016). At other scales of schools' systems, the relationship between the state, intermediate authorities, and schools is changing, often in favour of a growing cognitive or coercive power of the state or intermediate authorities (see Skedsmo et al.; Maroy et al. in this volume). Within school systems, with various tools and mechanisms and stakes, schools and professionals are accountable to their administrative hierarchy not only on what used to traditionally be the object of school accounting (their "good" use of the budget or their conformity to the formal rules), but also for their actual performance or progress concerning the pupil's learning. This bureaucratic accountability goes hand in hand with a growing public accountability to parents and the public at large through the dissemination of school report cards and/or the publication of school/system performances and their rankings (Landri, 2018, Hartong and Breiter in this volume).

Moreover, the definition of what matters as education and learning is also evolving, and potentially narrowing, with the association of pupil's success with instruction or specific topics or curricular subjects. The definition of professionalism is evolving and the key actors in charge of their evaluation is changing; these are no longer teachers' peers, but instead school principals or a renewed professional elite – with sometimes old institutional actors as inspection or new professional groups as "pedagogic counsellors", educational scientists and others.

Finally, analysing PBA as a policy instrument means that we look at the same time at the threefold dimension of this apparatus: an assembly of tools, associated with a different register of transformative discourse, which carry new forms of governance and regulation of the domain.

However, it is important to highlight the hybrid character of the PBA apparatus and its malleable nature. As we discussed above, PBA may both address learning gaps and thus strengthen the democratic control of education, whilst simultaneously promoting school choice and competition. This malleability contributes to PBA's widespread and politically transversal adoption, as well as to the incremental evolution of its constitutive tools and their uses. From the perspective of instrumentation, external evaluations and accountability mechanisms are appealing and convenient choices. The seductive power of PBA as an instrument relies not only on the fact that it contributes to the commensuration of complex educational realities into numerical categories, but also on the fact that it constructs the perception that deep educational problems (learning gaps, quality issues) can be addressed by setting up predefined patterns of conduct, measuring actors' performance, and distributing incentives accordingly (Barbana, Dumay and Dupriez, 2014; Falabella, 2020; Verger, Fontdevila and Parcerisa, 2019).

Moreover, as this book will show, this hybridization of managerial and pedagogical discourse on school effectiveness and equity comes at the price of ambiguities and contradictions that could be deconstructed. Indeed, in the face of the dominance of the PBA paradigm, it is necessary and possible to reaffirm the existence of other forms of accountability, whether democratic, professional, or both, that pre-exist it or could replace it. The fact that the school and its professionals are subject to a form of accountability is an old one, of course; nonetheless, PBA alters not only the modes of accounting but also the very meaning and function of accountability itself. In other words, PBA as a policy instrument, is a social and an historical construct amongst others possible. The future of the instrumentation related to accountability in education could thus further evolve. The paramount place of performativity could decline and the policy instruments really "progress" in relation with the normative ideals of "democracy" and "reason" (Biesta, 2004; Olsen, 2017; Ranson, 2003).

The accountability–datafication nexus

From a larger public policy perspective, since the turn of the century, PBA has become central to many attempts to control and develop both private and public organizations, their performance and products, as indicated by the proliferation of terms such as audit, 'quality assurance', performance measurement and so on. Datafication, or in other words the explosion of the production and use of statistical data to govern organizational action, has enabled accountability to become an overarching and integrating function in organizations, determining operations across the board; in that sense, we are experiencing a further evolution of PBA as 'datafied'. In terms of content, 21st-century PBA continues to carry multiple layers of meaning. Although an important element of assessing organizations' operation and performance, datafied PBA is no longer a singular moment; rather, it tends to become a much more all-encompassing, standardizing and integrating organizational specialization. Indeed, processes of digitalization and automatization in the provision and assessment of all types of public services have reinforced this trend.

Datafied accountability is no longer simply a property of the service offered. Data allow both the further abstraction of the concept of accountability *and* its huge expansion. The explosion of quantified and standardized accountability tools and sanctions enable them to travel from organization to organization within nations but also transnationally; as a result, the influence of accountability specialists increases (Power, 2003). Datafied accountability is applied to service management, and later to services delivered by the public sector, and includes a broader range of performance indicators than ever. School browsers in numerous educational settings offer data not only about learning achievement, but also about effective leadership, school climate, family involvement or levels of trust. Schools, universities and hospitals become datafied, measurable organizations in the abstract, and, in that capacity, they are expected to be perpetually accountable. Not only key decisions, but also the core functions of these organizations are increasingly shaped by accountability and performance analytics tools.

The integration of accountability into organizational – and especially statistical and managerial – thinking has interesting implications. In the datafication era, accountability clearly becomes something which cannot be left to chance. It cannot simply be left to the teaching profession either. It is no longer an afterthought, a question of whether organizations that

spend taxpayers' money are doing their job satisfactorily or not. Rather, PBA becomes a question of good leadership and organization. In the era of datafication, accountability must now be represented statistically at all times. It is no longer extra-ordinary, a moment in the cycle of good governance. It becomes simply what can be continuously expected by all organizations. PBA in the era of datafication relates closely to horizontal governance processes; it is closely linked to quality assurance; and it is guaranteed through the collection, analysis and communication of robust statistical evidence and a thorough conformity with standards.

Research perspectives

Under these new datafied and increasingly commercialized conditions of producing education policy, we need the application of interdisciplinary theorizations of accountability in order to make sense of the landscape.

While we accept that a global education policy field may be emerging (Ozga and Lingard, 2007), we suggest that more attention needs to be paid to the levers or mechanisms through which accountability processes and effects are produced in 'local' states (Dale, 1999), along with exploration of how global accountability agendas may be mediated by local and national history and politics. We explore accountability types and regimes as sites for the interaction of 'global', 'regional' and 'local' policy in education/learning that capture the influence of historically embedded assumptions and beliefs on the mediation of global policy trends and pressures (Ozga, 2005; Newman and Clarke, 2009). Linked to this is also our approach to the reshaping of governance as challenging nation-states' sovereignty (Sassen, 2007), and operating as a 'mobius web' top-down, bottom-up and side by side all at once (Rosenau, 2005: 145). In these new education governance forms, datafication plays a highly significant role: data make the spaces to be governed visible and comparable, and they allow for the operation of the new networked, horizontal and flexible accounting forms that are replacing conventional 'systems' with their hierarchical ordering of activity.

In considering new governing forms, the book engages with the ways in which national processes adapt and work with datafied accountability. These developments are tracked through different levels in national and regional systems, but also at the level of large global monitoring programmes, illustrating divergent and convergent responses to accountability

demands. The book therefore reports on very rich data, at all levels across and within the education systems under study, and with reference to transnational policy actors and networks.

The book is organized around the key themes of *Accountability* and *Datafication* and their interdependency, as illustrated by rich analysis of cases developed from all the book's authors. We are preoccupied with the interrelationships between transnational demands and national 'translations' of these accountability demands, with negotiations between and across levels and contexts, with the emergence of networks that challenge ideas of vertical organizational forms in education governance, and with the simultaneous development of constant comparison of performance and the role of private and philanthropic actors. At the heart of this edited collection is a consideration of the ways these processes relate to one another, and the extent to which they form a coherent governing technology.

Next, we present in more detail the three main lines of inquiry of the book, namely, the global production of PBA; trajectories and translations; and enactment dynamics.

The global production of PBA and performance metrics

Scholarship on the role of data in governing societies has been burgeoning and has attracted multiple fields of study, including sociology, history, political science, geography, anthropology, philosophy, science and technology studies, and others. Prominent authors have written lucidly about the role of numbers in the making of modern states and the governing role of performance metrics in various areas of public policy and social life (Alonso and Starr, 1987; Desrosières, 1998; Espeland and Stevens, 2008; Hacking, 1990, 2007; Porter, 1995; Power, 1997; Rose, 1999). Similarly, anthropologies of numbers suggest that datafication has had fundamental effects not only on public policy but on our lived experience, too: 'our lives are increasingly governed by – and through – numbers, indicators, algorithms and audits and the ever-present concerns with the management of risk' (Shore and Wright, 2015: 23; see also influential work by Merry, 2011; Sauder and Espeland, 2009; Strathern, 2000; Mangez and Vandebroek in this volume).

Nonetheless, despite the increasing number of publications on global datafication, our understanding of the relationship of the politics of performance metrics and the making of performance-based accountability is less well examined. What are the properties of datafication

that would suggest such a central role in the production of performance-based accountability? By contrasting data to language, Hansen and Porter (2012) suggest that, although it took scholars a long time to recognize the constitutive nature of discourse, we are now well aware of the role of language in shaping reality. However, they suggest that datafication is characterized by additional qualities that make its influence much more pervasive than words: these elements are order; mobility; stability; combinability; and precision. By using the example of the barcode, they lucidly illustrate ‘how numerical operations at different levels powerfully contribute to the ordering of the transnational activities of states, businesses and people’ (2012: 410). They suggest the need to focus not only on the nominal qualities of the data themselves but also, according to Hacking, on ‘the people classified, the experts who classify, study and help them, the institutions within which the experts and their subjects interact, and through which authorities control’ (2007: 295) (see Fontdevila and Grek in this volume).

It is precisely on the forms and functions of datafication in PBA that this book focuses. Following the literature on the capacities of global performance metrics to both be stable yet travel fast and without borders, the book casts light on what Latour called ‘the few obligatory passage points’ (1987: 245): in their movement, data go through successive reductions of complexity until they reach a simplified enough state that can travel back ‘from the field to the laboratory, from a distant land to the map-maker’s table’ (Hansen and Porter, 2012: 412). PBA, in all its forms and effects, represents such a multifaceted and ever-changing ‘centre of calculation’. This does not suggest, however, that PBA is significant only in terms of its evaluative and knowledge production capacities. By examining specifically the role of datafication in accountability, this book elucidates PBA’s governance effects; consequently, following the extensive analysis above, if we consider datafied PBA as central in the production of organizational action, we can infer that the operation of performance metrics as knowledge gatherers, controllers and distributors must have crucial governing impact (see, for example, Williamson; Hartong and Breiter in this volume). Indeed, Shore and Wright argue that, ‘while numbers and “facts” have both knowledge effects and governance effects, it is also important to consider how these are produced, who designs them, what underlying assumptions about

society shape the choice of what to measure, how they deal with missing data, and what interests they serve' (2015: 433).

Trajectories and translations

If datafication and PBA policies are spreading to many regions and nation-states around the world, it is due to the favourable conditions that different forms of globalization create. These include economic globalization, which affects economic interdependencies and forms of competition (around human capital and technological innovations), political globalization, which affects the forms and scales of construction of “policies” (particularly educational), and, more broadly, the exercise of power and political regulation over societies (multi-governance and multi-regulation). Moreover, globalization is made possible but also accelerates major socio-technical transformations (datafication, digitalization). These multiple transformations accentuate PBA policies, whose testing, benchmarking and accountability tools further embolden the processes of quantifying and measuring the world, as Mangez and Vanden Broeck highlight in this volume. Datafication of education and PBA are therefore mutually reinforcing processes, as global interdependencies between actors or nation-states develop (Lingard et al., 2016).

However, globalization cannot be reduced merely to changes in economic, technological or political structures; it also manifests itself in new forms of global players whose strategies and power are undoubtedly increasingly important. We have thus stressed the importance of international or transnational public action sites and networks, the role of UNESCO (see Grek and Fontdevilla in this volume) and the OECD in the production and active circulation of indicators, testing and technical and political infrastructures conducive to the development of a process of PBA (see Lingard in this volume). In this volume, Gorur and Addey show that OECD is actively creating the political and technical conditions that favour an active use of the PISA-D by local experts and decision-makers in Cambodia, a process that they analyse as “a third translation” changing the local education policy process. The OECD is, in fact, accentuating the quantification and accountability of education through the continuous extension of its data-based regulation tools. Its testing tools extend the coverage of the quantification and comparison of educational results at the geographical level (see Gorur and Addey; Oliveira and

Carvalho in this volume), in terms of the skills measured (cognitive and non-cognitive), of the target populations (from young people to adults), but also according to the agent that one wishes to make accountable, which range from individuals to local organizations (with Pisa-schools) and national school systems.

Often with the assistance of and in network with transnational state organizations, private companies or philanthropic foundations (national or transnational) also play major roles in the production, circulation and legitimization of the instrumentation of PBA or datafication (see Williamson; Gorur and Addey; Oliveira and Carvalho in this volume).

Do these developments suggest, however, that the dissemination of PBA tools and ideas is linear, mechanical, the sole effect of a “top-down” coercive mechanism linked to certain transnational agencies? And would this suggest that the dissemination and use of such similar policy tools and assemblages (testing, datafication, PBA) ‘naturally’ leads to the diagnosis of an apparent convergence of educational policies and practices? The second part of this book shows that, contrary to the normative arguments of isomorphism and policy mimesis, these global trends are modulated, mediated and constrained by various factors that sustain forms of diversity, both in terms of goals, tools and legitimizing discourses but also in terms of the effects of these policies. Indeed, it is important to consider various types of factors and conditions that are at stake in processes of mediation and translation of transnational discourses, tools and models, at various interwoven levels (national, regional, local).

At the level of nation-states, it is necessary to consider the full historical depth and morphology of school systems, the long trajectories of education policies, and more specifically those of accountability per se or testing. Indeed, as historical institutionalism has already pointed out, institutions (understood in the broad sense of formal devices and rules, but also of shared norms, sanctioned by third parties) can indeed draw **path-dependencies** that constrain the possible paths of reform (Thelen and Conran, 2016), and lead to particular translations (and transformations) of transnational models/tools, in order to favor their local legitimization (Callon, 1986; Campbell, 2004). PBA policies thus develop in specific trajectories, marked by the configurations of the actors involved and several institutional mechanisms of change: processes of sedimentation of the tools mobilized; gradual conversion of existing institutions; and

bricolage of policies and tools to make them politically or normatively acceptable are at stake, given the strength of resistance or opposition (Maroy and Pons, 2019). These processes are oriented towards gradual or “incremental” transformations of the institutional or technical arrangements of each system; more rarely, following more significant external “shocks” and the mobilization of powerful change entrepreneurs, the transformations may be more “radical” (Campbell, 2004).

Thus, in this book, Maroy et al. highlight the long-term processes that have led to the development of more or less coherent and influential PBA policies in several French-speaking countries: in France, significant opposition from the teaching profession has led to a very weak institutionalization of testing and accountability, while in Quebec, the relay of school administrators has favoured a greater appropriation and dissemination of results-based management. In Belgium, the PBA policy considers the institutions of the prevailing regime of consociational democracy: the result is a failure to compare the performance of the various networks of school operators, which runs counter to the principles of new public management.

In the Scandinavian countries, Skedsmo et al. emphasize, with the concept of “instrument constituencies”, that the Nordic welfare state model has been variously and partially reworked or preserved, according to the actors who supported the implementation of the new PBA tools. Oliveira and Carvalho, in the case of Brazil, also underline the tensions between the various sources of a “multi-regulation” that is the bearer of PBA, whose orientations and tools are not always adjusted and compatible according to the sources (regional, federal or transnational). Moreover, depending on the regional states, different types of PBAs are set up according to the very unequal socio-economic contexts, but also according to the contrasting political and ideological orientations of the governments in power. The trajectory of PBA and the changing uses of national assessments are also subject to the veto power of key educational stakeholders such as teachers’ unions, as Chilenga-Butao, Ehren and Pakade (in this volume) make clear in their detailed study of the South African case.

Thus, the long trajectory of policies, the historical memory of states and institutions, the political cultures of reference, actors’ political games and bricolage of tools, must be considered in order to understand the national mediations of transnational trends and the specific

translations of their tools, models or discourses. Finally, cultural practices of even longer duration also have to go through these political and institutional mediations, and translate and adjust, as the study of the Chinese case by Normand and Zhou (in this volume) underlines.

Within each state entity as well, it is also necessary to consider domestic factors of internal diversification and local mediation of global trends, as the latter have already been recontextualized by the political and institutional level of each national (or federal) jurisdiction. At that intermediate (district, regional) or local level, there can be further differentiation to and appropriating national political orientations or tools by local organizations. The latter are in fact conditioned and inscribed in contingent “local orders” (Ben Ayed, 2009), by local organizational cultures, specific economic and social contexts, or different local community projects (educational or institutional). All these elements play out differently according to their varying logics of appropriation of national PBA policies, as shown in particular in the chapters by Oliveira and Carvalho, Verger et al., or Maroy et al. in this volume.

Enactment dynamics

Although the promises offered by PBA and its apologists are usually high, the evidence on the circumstances and mechanisms under which these policy initiatives generate their intended effects or, otherwise, side-effects or unintended consequences remains inconclusive. A number of studies indicate that standards and accountability have the potential to generate increased awareness and motivation, leading to the adoption of targeted development strategies and changes in instruction (Chiang, 2009) and have a positive impact on student achievement (Hanushek and Raymond, 2005). Nevertheless, there have been numerous studies which, on the contrary, show that the relationship between accountability and performance cannot be taken for granted (Dubnick, 2005) and that PBA has the potential of generating side-effects, gaming strategies and opportunistic behaviours amongst school providers (Au, 2007; Elstad and Turmo, 2011). Up until today, evidence remains inconclusive regarding the specific conditions and mechanisms likely to generate intended as well as unintended effects on the teaching profession and on school actors' practices and behaviour.

The very disparate results that the existing research on the effects of PBA policies reaches is, to a great extent, the consequence of how diverse PBA systems can be, but also of

how diverse the institutional and social contexts where PBA is implemented are. As shown above, PBA can be articulated very differently according to who gives the account, how the account-giver is evaluated and by whom, according to what sources of data and measures, and what are the consequences of the evaluation results. These specific policy options, together with contrasting programme ontologies that might prevail behind accountability and other data-intensive instruments, which also differs country by country, makes each PBA system unique (Maroy and Voisin, 2013).

Therefore, the adoption of comparative perspectives both between- and intra-countries allow us to reflect on how different accountability designs might generate different effects when enacted at district and school levels in diverse institutional and school settings. As Pallas in this volume eloquently shows, policy design features (such as the level of ambition of the learning goals, whether learning goals are related to proficiency thresholds or to growth models, or the nature of the rewards and sanctions associated to goals' achievement) condition how conducive PBA systems are to learning achievement, but also to score inflation and related educational practices such as item-teaching.

Contributions to this volume also look at the implications of different PBA configurations for educational equity and quality. Voisin examines both high-stakes and lower-stakes accountability systems, enabling a fruitful comparison between both types of accountability regimes and thus explicating the homogenizing and diversifying effects of PBA assemblages and enactments. She concludes that PBA systems that incentivize teachers for performance are related with lower levels of aggregate outcomes and higher inequality in the achievement of basic skills, whereas the association between lower-stakes systems and learning outcomes is rather spurious.

Nonetheless, the effects of PBA systems, given their nature as a policy instrument, are not only understood as contingent to design characteristics or to the technical decisions that regulators take. In real education settings, PBA systems are co-constructed by a range of intermediary and street-level agents, such as local governments, teachers, school principals and families, who are actively involved in the process of transferring, translating and re-contextualizing PBA instruments from regulatory frameworks to everyday practices. This

process of co-construction is, at the same time, markedly influenced by the changing social relations that PBA involves both between and across different forms of educational agency. From the enactment perspective, it is thus crucial to understand that PBA systems might differ in how policy actors interpret and re-signify PBA-related instruments, and to analyze how actors' educational views and collective and/or individual interests shape such varying perceptions. Furthermore, when enacted, PBA instruments interact critically with other education policies in place, other forms of accountability (bureaucratic, market, social) and different socio-economic realities. In this sense, not only do PBA systems diverge from country to country, but their final outcomes are also contingent to a broad range of more localized dimensions.

We can therefore infer that the social, educational and institutional effects of PBA instruments are the outcome of the 'sense-making' processes that these instruments trigger among education actors, their creative uses by local school managers and school leaders, and their articulation with specific instructional or pedagogical strategies and educational legacies in socially situated contexts. In this volume, Verger, Ferrer and Parcerisa, by analyzing how teachers and principals experience and make sense of accountability pressures in the highly segmented Chilean educational system, construct a typology of school responses to PBA which goes beyond more conventional alignment-decoupling classifications, and includes a more varying range of options. Amongst the diverse responses to PBA, dissenting voices are also common, as Lingard's rich analysis of parent activist groups against high-stakes testing in New York State shows in this volume.

PBA is not only affecting teachers' behaviour, work and decisions about pedagogy, instruction and evaluation. As Ball (2003) has famously argued, the intensification of PBA also alters teachers' professional subjectivities, identities and their way of being in and understanding the world. Holloway and Goel, in this volume, echo and develop this argument by showing how, currently, performativity and datafication are two complementary technologies of governance that interact in the production of a new kind of teacher subject: the datafied teacher.

Conclusion

The development of accountability as a form of governing is of major significance in understanding education policy and the development of a knowledge society/knowledge economy as a key policy objective in the ever-changing governance of education in different world regions (Lawn and Lingard, 2002; Novoa and Lawn, 2002). The new, innovative argument introduced in this book is the impact that datafication and the ‘performance–evaluation’ nexus (Clarke, 2009) has had in the design, trajectory and enactments of performance-based accountability, and on the importance of analysing these trends from a policy instruments perspective. In contrast to most literature which largely understands developments in performance measurement and management in ‘common sense’ terms (i.e. as vehicles for improved policymaking and better-informed pedagogic practice at school level), the contributions gathered in this volume question the assumption that PBA must, by its very nature, and despite the very significant costs in time and money, contribute to system and individual improvement (Dahler-Larsen, 2004; Segerholm, 2001). On the other hand, as the chapters which follow will extensively show, PBA as a policy instrument is only part (but also parcel) of the wider socio-historical and cultural changes in which it was born; as such, it needs to be disentangled and made sense in relation to the specificity of contexts, time periods and events in which it occurs and perpetuates.

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