PISA for schools: topological rationality and new spaces of the OECD's global educational governance

Lewis, Steven, Sellar, Sam and Lingard, Bob 2016, PISA for schools: topological rationality and new spaces of the OECD's global educational governance, *Comparative education review*, vol. 60, no. 1, pp. 27-57.

PISA for Schools: Topological Rationality and New Spaces of the OECD's Global Educational Governance

STEVEN LEWIS, SAM SELLAR, AND BOB LINGARD

This article examines the OECD's new PISA-based Test for Schools ("PISA for Schools") program. PISA for Schools is part of the expanding education work of the OECD, building upon main PISA to enable school-to-schooling system comparisons. We examine the development of PISA for Schools, the nature of the instrument, and some initial effects of its introduction. Our theoretical framework focuses on new spatialities associated with globalization and the emergence of topological rationalities and heterarchical modes of governance. We analyze 33 interviews with personnel at the OECD and relevant edubusinesses, not-for-profit organizations, and philanthropic foundations. Pertinent documents and web-based media are also analyzed. We suggest that PISA for Schools provides an exemplary demonstration of heterarchical governance, in which vertical policy mechanisms open up horizontal spaces for new policy actors. It also creates commensurate spaces of comparison and governance, enabling the OECD to "reach into" school-level spaces and directly influence local educational practices.

Introduction

The Organization for Economic Cooperation and Development (OECD) launched the PISA-based Test for Schools (hereafter "PISA for Schools") program in 2013, and its development constitutes an important evolution in the OECD's education work. This program follows the prototype of the OECD's Programme for International Student Achievement (PISA), which was first administered in 2000 and has since become, arguably, the most prominent international large-scale assessment and comparison of school-system performance. In contrast to main PISA, in which the nation-state is the usual unit of analysis, PISA for Schools assesses an individual school's performance against the subnational and national systems that participate in main PISA, as well as, eventually, other schools. This distinctive function enables PISA for Schools to open up additional "local" education policy spaces to the influence of the OECD, and its introduction can be seen as

This work was supported by the Australian Research Council under Discovery Project (DP1094850), "Schooling the Nation in an Age of Globalization: National Curriculum, Accountabilities and Their Effects."

Received December 17, 2014; revised May 18, 2015; accepted June 2, 2015; electronically published December 7, 2015

Comparative Education Review, vol. 60, no. 1.

0010-4086/2016/6001-0004$10.00

part of the current expansion of the "scope" (what is measured), "scale" (where it is measured), and "explanatory power" (how these measurements are used) of the OECD's education assessment work (Sellar and Lingard 2014).

PISA for Schools—known in the United States as the OECD Test for Schools—is similar in format and design to main PISA, comprising a 2-hour written test that assesses students' ability to apply their knowledge in reading, mathematics, and science to "real-world" situations, in addition to generating contextual information via school and student questionnaires. The development of the program began in 2010, with schools and districts invited by the OECD in late 2011 to participate in a pilot designed to equate the new school-based test with main PISA, thus facilitating valid comparisons and a common metric between PISA for Schools and PISA. This pilot was conducted from May to October 2012 and included 126 secondary schools in the United States, United Kingdom, and the Canadian province of Manitoba. A Spanish pilot involving 225 schools was conducted during 2013. Following the successful trial, PISA for Schools was officially launched in the United States in April 2013 and made available to all schools and districts throughout the country. To date, approximately 300 US secondary schools have participated in the assessment, with the OECD accrediting CTB/McGraw-Hill, the American publisher and testing provider, to be the exclusive US administrator until 2015. The assessment has since also become available in the United Kingdom during the 2014–15 school year, with the National Foundation for Educational Research (NFER) recently announced as the accredited provider in England, Wales, Northern Ireland, and the British Channel Islands. Preparations are currently underway for full implementation in Spain (OECD 2015).

While PISA for Schools inherits a considerable amount from main PISA, there are also significant distinctions, with table 1 encapsulating the major points of difference. Funding for main PISA is from the contributions of participating nations (Part II OECD budget), while the development of PISA for Schools was exclusively paid for by US philanthropic trusts and brokered by a US not-for-profit organization, America Achieves. Furthermore, participating schools must pay accredited organizations—currently CTB/McGraw-Hill in the United States—to administer the test, analyze the data, and produce the 160-page school report. Although main PISA is conducted regularly every 3 years, PISA for Schools can instead be timed at the discretion of schools and systems, insofar as this does not interfere with their participation in the national program. Although the OECD organizes a globally choreographed release of performance data and associated rankings for main PISA, known as "PISA Day" in the United States, participating schools make their own decisions relating to the release or otherwise of their PISA for Schools per-

formance data, meaning that no performance "league tables" can be constructed and publicized from the assessment. Finally, in the sense that main PISA "externalizes" (Schriewer 1990) national policy development through comparisons with other systems to justify and legitimize system-level reform (see Sellar and Lingard 2013), PISA for Schools may be considered to "indigenize" (Steiner-Khamsi 2004) global developments to the local, while also externalizing comparisons of performance.

This article begins with a brief outline of the development of the OECD's education work and the rise of PISA over the past 2 decades before introducing our theoretical framework, which links together arguments concerning new topological spatialities and rationalities with the emergence of policy networks in education. The core empirical section of the article then describes PISA for Schools; considers the factors contributing to its development; and examines the initial effects of its enactment across local, national, and global education policy fields.

Turning to methodological considerations, our analysis draws upon 33 semistructured interviews with policy actors involved in the development and enactment of PISA for Schools, including the OECD (12 interviewees); the PISA Governing Board (PGB; 2 interviewees); Australian (4) and Spanish (1) government officials; US-based philanthropic foundations (2), not-for-profit organizations (5), and edu-businesses (1); and school and district authorities (6). We also analyzed relevant print documents, audiovisual materials, and websites of these organizations, including a sample school-level report received by PISA for Schools participants, other OECD-produced documents and reports related to PISA for Schools, promotional and administrative materials of the agencies associated with the US implementation of the assessment, and various school and district-based reports and stakeholder communications. These interviews, documents, and other media help to reveal the various positions and perspectives, both official and unofficial, of the organizations associated with PISA for Schools.

Reflecting the topological spatialities of contemporary policy-making processes (Ball 2012; Ball and Junemann 2012), our semistructured interviews were necessarily conducted across a diverse set of locations and used a variety of methods, including in-person and in electronically mediated (Skype or FaceTime) forums. Interviews were sought with policy actors and organizations across the PISA for Schools policy cycle, from conception through to development and enactment, in order to obtain a sufficiently detailed and representative understanding of the assessment. Many interviewees were purposefully recruited after extensive Internet searches to identify key stakeholders. Interestingly, and demonstrating the highly relational (and more often collegial) nature of the PISA for Schools network, conversations with further participants were often serendipitously arranged with the voluntary

TABLE 1
COMPARISON BETWEEN THE OECD'S MAIN PISA AND PISA FOR SCHOOLS PROGRAMS

Program and Modes of Accountability	Sample	Funding	Purposes	Analysis and Reporting	Putative Usage	Comparisons	Frequency	Release of Test Data and Reports	Tests	Contextual Questionnaires
Main PISA: Top-down	National (and subnational) representative sample	OECD Part II funding: voluntary payments from participating nations	National comparison	OECD Secretariat and contracted international consortium	Public; national policy decision making; "taking the national temperature"	Nation-to-nation and subnational	Every 3 years, as determined by the OECD	Coordinated global release determined by the OECD	Made equivalent for comparative purposes, in terms of the PISA scales and proficiency levels	Made equivalent for comparative purposes across the contextual questionnaires (student and principal surveys)
Possible punitive policy effects			National policy decision making	Led by ACER for PISA 2012	Externalization	Some subnational comparisons within nations		Public release		
PISA for Schools: Bottom-up	School-level representative sample	Scoping study and pilot: US philanthropic funding	School-level comparison	Providers accredited by the OECD	Private; school-level policy decision making and reform; "taking the school-level temperature"; establishing global standards and reputation; externalization	School-to-school within district, state, and nation; school-to-national and subnational (domestic)	As desired by users, provided there is no direct overlap or interference with the main PISA	As determined if chosen or required by the user	While main PISA focuses on a different "major" domain every 3 years, PISA for Schools has all three domains (reading, math, science) equally represented	

Potential reward form of accountability	75 students will generally be the sample size for each participating school, and no fewer than 49 in the case of smaller schools	Ongoing administration: "user pays" (schools and systems) at US$11,500 or UK£3,550 per school Philanthropic funding: develop and replenish test instruments; subsidize US participation	Implementation-level/local (school/district) policy decision making	Mostly private (e.g., CTB/McGraw-Hill in United States)	Indigenization	School-to-national and subnational (global); school-to-school (global)	e.g., some philanthropic funding to subsidize user participation mandates public release of data and reports

NOTE.—OECD = Organization for Economic Cooperation and Development; PISA = Programme for International Student Achievement; ACER = Australian Council of Educational Research.

assistance of other interviewees. Transcripts of these interviews and associated notes were then, following Shank (2002), repeatedly read and analyzed to distill recurring perspectives and themes.

Background and Theoretical Framework

PISA for Schools represents a new relationship between the global and the local in education policy, enabling local schools to engage directly in a program provided by an international organization and to become located within a global space of comparison. We consider PISA for Schools as part of a broader set of initiatives that expands the influence of the OECD's educational assessments, opening up new possibilities for this work to play into local policy making and practice in ways that bypass the mediating role of national governments. PISA for Schools thus marks an important evolution in the history of PISA and, more broadly, the education work of the OECD. Indeed, and with the notable exception of some OECD produced teacher-focused publications connected to the Teaching and Learning International Survey (TALIS; OECD 2014) and the teaching of physics (OECD 1965), we might consider PISA for Schools to be one of the first examples of the OECD directly addressing school-level policy spaces.

The education work of the OECD has changed significantly since its establishment in 1961. What began as an inferred role for education in the OECD's policy analyses has grown and consolidated since the end of the Cold War, with the OECD strengthening its raison d'être around statistical expertise to become, arguably, the world's leading "center of calculation" (Latour 1987) for education policy. The OECD's Indicators of Educations Systems were first published in its *Education at a Glance* reports in 1992, and the initial development of PISA began in 1997. The first round of PISA was implemented in 2000, and a new Directorate for Education was established in 2002, with education acquiring a more independent role within the organization for the first time. In 2012, the directorate was renamed the Directorate for Education and Skills in the context of launching a new cross-committee organizational strategy: the OECD Skills Strategy (OECD 2012a). The Skills Strategy represents both a new way of working across policy areas in which education has played a central role and an attempt to ensure coherence across policy domains.

PISA has gone from strength to strength over its five triennial assessments (2000, 2003, 2006, 2009, and 2012), with the number of participants having doubled to now represent more than 80 percent of the world economy. PISA has been successful in gaining extensive global media coverage (Martens and Niemann 2013; Waldow et al. 2014), although the extent of this coverage and its effects have varied considerably from nation to nation. Nevertheless, the capacity of the program to significantly impact educational

debates and influence policy making has been central to its rapid rise (Grek 2009; Wiseman 2013; Carvalho and Costa 2014). PISA has also become a prototype for the development of a range of related programs, including PISA for Schools, PISA for Development, the Assessment of Higher Education Learning Outcomes, and the Programme for International Assessment of Adult Skills. PISA for Schools is thus part of a suite of developments in education that reflects the OECD's response to the growth of knowledge capitalism and the strengthening of human capital framings of education, in which national education systems and policies become a primary means for governments to leverage both the improved economic strength of the nation-state and the well-being of the individual. This is revealed in the organization's work on the knowledge economy and lifelong learning (Martens and Jakobi 2010; Carroll and Kellow 2011) and via its proclamation that "skills have become the global currency of 21st-century economies" (OECD 2012a, 10). The influence of the organization's education work—and PISA specifically—is also arguably tied to its capacity to stay ahead of policy and technological developments and to remain useful to the "end users" for whom such educational data are produced. As Barnett and Finnemore (2004) note, the OECD is very much "*an* authority" rather than necessarily "*in* authority," with the organization's influence largely derived from its production of relevant and informed policy advice.

The Directorate for Education and Skills is considered by many to be a model OECD directorate, in terms of its entrepreneurial capacity to attract funding for specific initiatives and for the efficiency and effectiveness of its programs relative to this funding. Given that a high proportion of the directorate's activities, including PISA, are funded by voluntary Part II payments, it therefore needs to "sell" the validity and benefit of its activities and programs to contributing nation-states and economies. The OECD does not have a large capacity when it comes to psychometric expertise and has long partnered with other organizations, such as the Australian Council of Educational Research (ACER), to develop, manage, and undertake its educational assessments. There is a long history of such partnerships in the OECD's education work. Indeed, Papadopoulos (1994) notes how the organization's Center for Research and Innovation—the first discrete OECD unit focused on education—was initially supported in the late 1960s by America's Ford Foundation and later joined by Anglo-Dutch Shell, with government funding from OECD member nations commencing only in 1971. PISA for Schools thus marks a continuation of these horizontal or "cellular" (Appadurai 2006) relationships with other nongovernmental organizations, insofar as its development was funded by philanthropic foundations and not government contributions. Moreover, accredited providers, most likely research organizations and edu-businesses, will oversee the administration of PISA for Schools within each participating nation. However, and marking an important dis-

tinction from the OECD's earlier education policy work, PISA for Schools will target (and purportedly benefit) local schools and districts, rather than its usual audience of national and subnational governments. Thus, while the OECD has developed PISA for Schools, its implementation involves a network of diverse policy actors of various kinds across multiple spaces. We now turn to a discussion of our theoretical framework, beginning with a consideration of the emergence of network governance in education.

Policy Heterarchies

Policy networks bring together a range of government and nongovernment actors in processes of governance, including policy production and enactment. Ball and Junemann (2012) argue that the emergence of new policy networks in education has led to "the boundaries and spatial horizons and flows of influence and engagement around education . . . being stretched and reconfigured in a whole variety of ways" (25). This stretching of the spaces in which policy influence is exerted has occurred with the restructuring of the state according to New Public Management (NPM) principles, where traditional bureaucratic modes of governing have increasingly been replaced with managerial values and tenets derived from the private sector (Jessop 2002). The adoption of networked modes of governance, informed by principles of neoliberalism and emerging from earlier practices of NPM, has thus led to the adoption of "polycentric" governance through relationships between multiple partners—government, business, philanthropic organizations, international organizations, and so on—in which governments often assume the role of facilitator (Shamir 2008). "Older" forms of government and bureaucratic authority have not entirely disappeared but are now supplemented by horizontal networks of politicians, business people, philanthropists, and consultants in policy-making processes.

Acknowledging this retention of hierarchal modes of governance with the inclusion of new nongovernmental elements, Ball and Junemann (2012) define policy networks as a form of heterarchy: "An organizational form somewhere between hierarchy and network that draws upon diverse horizontal and vertical links that permit different elements of the policy process to cooperate (and/or compete)" (138). These heterarchies of bureaucracy and markets bring together a diverse, and often geographically dispersed, array of policy actors and organizations to facilitate a variety of "flows" between them—flows of "people, information and ideas, language, methods, values and culture" (139). One may consider the implementation of PISA for Schools, at least in the United States, as occurring in the context of such moves toward heterarchical forms of education governance, in which a range of nongovernment organizations combine to sponsor policy and provide services that, in turn, enable schools to respond to new accountability regimes driven by government legislation (see Mintrop and Sunderman 2013).

The emergence of such heterarchical policy-making arrangements also has significant implications for comparative education research and policy sociology in education. As Ball (2012) has argued, contemporary policy analysis in education must look beyond the local and national to the global, and beyond the state to include international organizations, such as the OECD, and a proliferating array of nongovernment actors, including edu-businesses. As we will show, analysis of PISA for Schools requires an expanded and nuanced approach to policy analysis of this kind, given the involvement of a multitude of actors at various scales and spaces in the development, production, and enactment of the tests. Although informed by such theorizing around policy networks (Ball 2012; Ball and Junemann 2012), we do not deploy this approach in order to visually map the connections between the individuals and organizations associated with PISA for Schools. Rather, we use these insights to suggest how such networked relations—between the OECD, not-for-profit organizations, philanthropic foundations, research institutions, and private providers of assessment services—help to constitute "virtual" spaces of comparison that create an impetus for schools to act and how these new ways of acting in turn are produced by, and productive of, new heterarchical modes of power. Of particular relevance to our analysis here is the way in which policy networks can facilitate the emergence of "epistemic communities" with shared values and norms (Kallo 2009), in which diverse, and often spatially dispersed, individuals and actors exert policy influence across multiple polities and scales. As such, we also draw upon the "topological turn" (Lury et al. 2012) in cultural and social theory to help theorize new spatialities of social life and, specifically, the emergence of new topological spaces and relations of power.

Topological Rationality

This article also employs a theoretical framework that draws on contemporary thinking about new topological spatialities associated with globalization (Amin 2002) that are evident in contemporary education policy making (Gulson and Symes 2007). In the case of PISA for Schools and other large-scale assessments that facilitate global comparisons of educational performance, we argue that these spaces are produced through a form of topological rationality. We draw on the argument of Lury and colleagues (2012) that a proliferation of practices—including measurement, comparison, ranking, and so on—is creating new connections between what can be measured and compared, producing a space of commensurability that relates each system (or indeed school) to others (see Thompson and Cook 2014). In this way, topological spaces emerge as "the site[s] of situated practices" (Amin 2002, 391), where distance and proximity come to be defined through mutable relations that are not fixed by external reference to territory, borders, or scales. This is their post-Euclidean character: spaces defined by the relations

between points rather than the location of fixed points in a predetermined space.

Consider, for example, the space represented by the iconic map of the London Underground, where the location of stations on the map does not necessarily correspond with the physical location of stations across the city of London. However, the map is more useful precisely because it eschews this correspondence to physical location and instead focuses on relations between points (i.e., train lines and train stations), which are arguably what matters most when attempting to navigate the network. As such, the use of this map—indeed, its very creation in the first place—requires a form of topological rationality, a mode of reasoning that prioritizes relationships and continuities over physical location or distance.

To this end, Lury and colleagues (2012) argue that contemporary social life is being redefined by the growth of practices—the "becoming topological" of culture—that are generative of topological rationality, both in everyday life and in social and cultural theory ("cultural topology"). For example, the generation of large data infrastructures (Sellar 2014) relating to the comparative performance of education systems and schools—of which PISA for Schools is one element—enables modes of reasoning focused on the relationships between policy settings, despite these settings often being enacted in contextually different and geographically distant systems. Topological modes of culture thus emerge through processes and practices of continuity and ordering, where significant advances in capacities for generating, calculating, and comparing data allow for new kinds of connectivity to emerge that can effectively change the coordinates of governance: "This ordering of continuity emerges, sometimes without explicit coordination, in practices of sorting, naming, numbering, comparing, listing, and calculating. The effect of these practices is both to introduce new continuities into a discontinuous world by establishing equivalences or similitudes, and to make and mark discontinuities through repeated contrasts" (Lury et al. 2012, 4).

Consequently, topological rationality changes the relationships between things (continuities/discontinuities) and establishes new conditions of possibility for action, including action directed at individuals or groups that may have previously been considered beyond (topographical) reach. In this sense, topological spaces exist as both mental objects and symbolic representations—for example, as both mental and paper maps of the Underground—but we see these spaces as woven into Euclidean spaces, insofar as they guide action in relation to other spaces and physical environments (e.g., catching a train from Hyde Park to Tower Hill). In the case of measures, comparisons, and inducements to "change" (i.e., policy settings and/or practices) at the heart of large-scale assessments in education, we are arguably seeing the emergence and proliferation of topological rationalities and spaces linked to new modes of global governance.

Power Topologies and New Spatialities

Turning to the literature in critical geography, there has been a series of debates about the effects of globalization on the nation-state and mechanisms of governance. Some theorists have drawn attention to new geographic scales and multiscalar relations (see Brenner 2004; Sassen 2006; Jessop 2008), such as the emergence of supranational governance (e.g., the European Union), new regionalisms (e.g., NAFTA and ASEAN), and governance by international and intergovernmental organizations that overlay the national scale. At the same time, others (see Massey 1994; Agnew 1999; Thrift 2006) have emphasized the constitution of new topological spaces "marked by overlapping near-far relations and organizational connections that are not reducible to scalar spaces" (Amin 2002, 386) and the embedding of the global in the local and national. The latter position need not exclude a scalar analysis of new governance relations in the context of globalization but rather draws our attention to a different set of issues. To this end, Amin argues that globalization constitutes "an energised network space marked by, first, the intensification of mixture and connectivity as more and more things become interdependent (in associative links and exclusions); second, the combination of multiple spatialities of organization and praxis as action and belonging at a distance become possible; and third, the erosion of the ontological distinction between place and space as 'placement' in multiple geographies of belonging becomes possible" (2002, 395).

Such an emphasis on connectedness, action at a distance, and simultaneous placement in multiple geographies highlights the need for thinking about how the spatialities of globalization involve not only new scalar layering but also how the mutability of topological space can connect previously (geographically) distant points to enable placement in multiple spaces—the "folding in" of the global into the local (Allen 2011). Particularly in the context of global comparisons such as PISA for Schools, the emergence of such topological spatialities also helps address how these multiple relations and placements create new possibilities for action and the exercise of power.

The "becoming topological" of culture also has significant implications for governance, with Allen and Cochrane (2010) pointing to the emergence of new power topologies that cut across traditional scalar relations between polities, where the "distant powers" of individuals and organizations are exerted across geographically remote, and yet topologically near, spaces. In this way, power is not merely located within space but itself constitutes the very spaces of action and influence, with power "not so much exercised over space or transmitted across it, as composed relationally through the interactions of the different actors involved" (Allen 2009, 207). The topological folding of space thus brings relations of power into direct contact with those it acts upon, assembling new geographies of power and possibilities for action by producing new spaces of governance. Referring specifically to the

changing relations between different spaces within Europe, Allen and Cochrane (2010) argue that such power topologies make available "new political possibilities for those previously apparently trapped at [the] 'local' level. The articulation of political demands has less to do with 'jumping scale' or formalizing extensive network connections, but rather more to do with the ability to *reach directly into* a more 'centralized' politics where proximity and reach play across one another in particular ways" (1087; emphasis added).

Drawing on this topological theorizing, one may describe new mechanisms of governance in terms of the changing capacities of actors and organizations to "reach into" different spaces in order to exert or gain power. This can involve actors "reaching into the politics of regions and localities in an attempt to steer and constrain agendas," actors "drawing within close reach those that are able to broker and influence decisions," and "other forms of mediated interaction [that] reach out beyond the region or locality to shape events within" (Allen and Cochrane 2010, 1075). As such, we consider the comparisons between schools and systems via PISA for Schools as constitutive of new topological spaces, in which particular actions are supported and given impetus, and where "power is not so much exercised over space or transmitted across it, as composed relationally through the interactions of the different actors involved" (Allen 2009, 207).

Topological rationalities thus make possible new ways of acting in the world through which nation-states and international organizations exercise "soft power" (Nye 2004) modes of governing, especially when one considers the OECD's limited ability to exercise binding authority or sanctions over member countries or economies (Mahon and McBride 2008). For example, the steering of schooling policy and practice at the local level may be enabled through the co-option and attraction of educators and policy makers, rather than their compulsion, providing the organization with "the ability to influence the behaviour of others to get the outcomes one wants" (Nye 2004, 2). The exercise of such soft power can be considered most effective when it is least apparent and engenders the required changes to local conduct (Lee 2015), creating an alignment of interests through political and cultural modes. Indeed, as Nye (2008) usefully notes of soft power in relation to the writings of Chinese philosopher Lao-Tzu, "a leader is best not when people obey his [*sic*] commands, but when they barely know he [*sic*] exists" (ix). Building on Woodward's (2009) conception of the OECD's normative and cognitive modes of governance, we would further emphasize the largely "soft" epistemological nature of the organization's global influence in education (Carroll and Kellow 2011; Sellar and Lingard 2014). This enables the OECD to exert considerable influence over which policy discourses—namely those that are evidence based (Head 2008; Wiseman 2010), reformist/ameliorative (Kaloyannaki and Kazamias 2009), and scientistic/positivist

(Lingard et al. 2015)—and which representations of student, school, and system performance (namely, PISA referenced) are most valued, thus determining (and restricting) what can count as "sensible policy" (Ball and Junemann 2012, 11) for local educators and policy makers.

Specifically, this article is concerned with the relationships between the topological rationality produced by measurements and comparisons of national, subnational, and school-level educational performance through PISA for Schools and the new networks and spaces that enable the emergence of topological mechanisms of governance by "reaching" into different policy spaces. We consider the employment of such a spatial and relational analytical framework as a necessary development to overcome what have been described as the "false dichotomies" of place/space and global/local within the comparative study of education (see Amin 2002; Larsen and Beech 2014). Rather, we would emphasize the relational and productive capacities of space, where topological spaces are constituted through the flows and connections between networked agents and organizations, with spaces being in a state of "always becoming." While comparative education has traditionally, although not exclusively, focused on the nation-state as its unit of analysis, more recent forays in the field (see Gulson and Symes 2007; Fenwick et al. 2011; Ball 2012) have sought to employ space "not simply as an object of concern, but as a conceptual tool for analysis" (Larsen and Beech 2014, 201). Indeed, Robertson (2010) contends that such a critical engagement with, and reconceptualization of, spatiality will help bring to the light the multiple complex processes at play in the constitution of "educational space" and the manner in which space is "deeply implicated in power, production and social relations" (15). In this way, the central premise of comparative education research—that is, "looking elsewhere to learn" (Sadler 1964)—can move beyond fixed territories and boundaries and can instead examine the connections, both material and discursive, through which education policy is currently produced and enacted.

In comparative education, world culture theory (Meyer 1971, 1977) has been perhaps the dominant account of institutional and policy convergence across a global space, and the implied isomorphism of systems and schools across the globe in PISA (and PISA for Schools) testing is redolent of the world culture position. Moreover, the modernist, neopositivist social science underpinning the tests and their application globally can be seen to be exemplary of the global diffusion of modernity suggested by world culture theory. In its early manifestations, this position often downplayed the importance of local and/or national contextual considerations and agency, but later renditions have tried to work across the convergence of the global and the specificities of the local (Carney et al. 2012). We would see our research as acknowledging both "top-down" (global) and "bottom-up" (local) processes inherent within the local reform of schooling policy and practice, yet

we argue in this article that concepts from topology provide a productive way of thinking about these new spatialities of globalization in education.

Findings

"Bring[ing] People Together": Governing Education through Heterarchy

The development of PISA for Schools exemplifies recent transitions that have occurred in contemporary education policy making, with education policy frequently "being 'thought,'" influenced, and done locally and nationally in many different sites by an increasing number and diverse set of actors and organizations (Ball and Junemann 2012, 9) across the public, private, and voluntary sectors. Given this rethinking of education policy and policy-making processes, it is perhaps not surprising that such changes can significantly affect how schooling is conceptualized nationally and locally, thereby enabling and constraining possibilities for action.

PISA for Schools was first conceived in late 2010, when the ACER—at the time responsible for main PISA item development—was tasked by the PGB to undertake item development for the trial of this new school-level PISA variant. Funding for the pilot was sourced outside of the normal Part II contributions made by OECD member governments for the main PISA study and was obtained exclusively through philanthropic donations from key US foundations, including (among others) Bloomberg Philanthropies, the William and Flora Hewlett Foundation, the Kern Family Foundation, and the Carnegie Corporation of New York (see table 1). CTB/McGraw-Hill, the American publisher and testing provider, was accredited by the OECD as the exclusive US administrator of PISA for Schools until 2015, an example of the involvement of the edu-business sector in education policy work (see Burch 2009; Ball 2012). In the United States alone, a total of 16 different philanthropic foundations, edu-businesses, and not-for-profit agencies were involved in the development and enactment of PISA for Schools, all of which were situated outside of state or national government.[1] However, it must be noted that for PISA for Schools to be made available in a new OECD member country, a national representative to the PGB must first seek the political approval of the government before requesting the authorization of the PGB. Here we can see the operation of heterarchical modes of governance (Ball and Junemann 2012) that combine vertical and horizontal elements, as the national government retains a form of gatekeeper status in terms of authorizing PISA for Schools participation. This demonstrates the

[1] The 16 organizations involved in the development and enactment of PISA for Schools in the United States included the OECD, PGB, ACER, Alliance for Excellent Education, Bloomberg Philanthropies, America Achieves, Carnegie Corporation of New York, Kern Family Foundation, William and Flora Hewlett Foundation, CTB/McGraw-Hill, EdLeader21, Bechtel Group Foundation, Craig and Barbara Barrett Foundation, National Public Education Support Fund, Rodel Charitable Foundation of Arizona, and the Stuart Foundation.

continuing influence of central governments in networked forms of policy making and governance, in which the state, although occupying a different role, never entirely "goes away" (Ozga 2009).

The US not-for-profit America Achieves, an organization funded by many of the same philanthropies that funded the development of PISA for Schools, is deserving of especial attention here, as it provided extensive administrative support for the trial pilot by serving as liaison between the OECD, philanthropic foundations, and the participating schools and districts. This reflects not only the vast array of actors involved in PISA for Schools but also the increased role of the philanthropic and voluntary sectors in processes of education policy making and delivery (Ball 2008, 2009, 2012), a situation Olmedo (2014) describes as "philanthropic governance." While the promotion of PISA for Schools is to the obvious benefit of the OECD, a central concern of partner organizations like America Achieves, and hence a primary motivation for their involvement in the school-level survey, has been enabling US schools to learn from the supposed best practices of high-performing international systems. Indeed, in the words of one America Achieves official, the stated rational of the not-for-profit is to "start public demand for 'raising the bar' for US students, and really promoting policies on 'what works' in education."[2]

In this context, America Achieves has played a significant linking role in terms of coordinating the various parties in the development and enactment of PISA for Schools, demonstrating the significance of policy heterarchies and relational connections to the project's success. An America Achieves executive described the organization's "enabling" role in such terms, suggesting its primary purpose was to "bring people together": "We want to be kind of a coalition builder and bring people together, and so this project [PISA for Schools] offered a great opportunity. . . . There was the OECD, who really wanted to develop a school-level instrument; there were US-based funders who were interested in funding it. But just like anything there needed to be an entity to coordinate the whole thing, to shepherd it along, to understand what the US goals would be. So we stepped in and took on the project."[3]

However, and despite the clear involvement of a diverse network of policy actors and partners, it was evident that these commercial, not-for-profit and philanthropic organizations were facilitators of a policy position largely developed by the OECD, rather than being active participants in its construction. In this sense, we can see, simultaneously, the OECD's exercise of soft power to attract and co-opt partner organizations into promoting PISA for Schools and the emergence of policy networks that apprehend pos-

[2] Personal communication with Steven Lewis, January 2014.

[3] Personal communication with Steven Lewis, January 2014.

sibilities for using PISA for Schools to further their own agendas. As noted by an interviewee within the Directorate for Education and Skills, "it's not like these organizations are helping us [by] promoting this. It's actually more us helping the schools and the organizations in these countries use the instrument, I would rather say. Because, as such, it's not a product that we are selling. For the moment we are not, the OECD is not getting anything out of this."[4]

The discursive construction of schooling and best practice advocated by the OECD through main PISA was retained within PISA for Schools, despite the OECD relying upon a variety of supporting agencies to develop, administer, and fund the program, and in this way the OECD thus preserves—at least in the United States—the primary steering and oversight role for PISA for Schools. While the OECD does not currently receive any financial benefit from the provision of the school-based assessment, the comments above ("the OECD is not getting anything out of this") belie its ability to use such networks to further extend its policy reach and relevance into new local spaces. As noted by Ball and Junemann (2012), such networks facilitate diverse flows of "people, information and ideas, language, methods, values and culture" (139), helping to constitute the very epistemic communities through which the OECD exerts its governance function in education.

In addition to its implementation in the United States, the OECD has engaged extensively with other member countries to explore increasing the international availability of PISA for Schools. To this end, the OECD has announced that English schools will be able to implement the assessment from the 2014–15 school year, and the results of a Spanish field trial involving 225 schools—and conducted in four national languages (Castilian, Catalan, Galician, and Basque)—are currently being evaluated. Such an expansion of scale indicates a clear interest within the OECD for enacting the program globally. As described by a PGB national representative, "you could actually be linking up the schools doing PISA-based Test for Schools across the world and getting them to establish their own links and comparing their own data and perhaps learning from one another, going out to see one another. There's all sorts of possibilities really, you know, if you have got enough countries who are engaged in it."[5]

While it remains to be seen how broadly PISA for Schools will be taken up outside of the United States, there are nonetheless possibilities for significant expansion of the program and the global network of schools that it could help to constitute. This is significant, given that the OECD and its US partner America Achieves is presenting PISA for Schools as an opportunity to facilitate direct school-to-school comparisons and collaboration, both do-

[4] Personal communication with Steven Lewis, September 2014.

[5] Personal communication with Steven Lewis, October 2013.

mestically and (in time) internationally. To this end, a policy analyst within the Directorate for Education and Skills revealed that a future goal was for participating schools to "use these results for improvement and for learning from other schools, in the same country [at first] but ideally also in other countries. Now of course that is a bit difficult at the moment because we don't have that many countries participating in the program. But the program would be a lot more valuable once we have more countries, because then schools can sit together with their school reports from different countries and really start discussing why they get the results they get and what can they learn."[6]

However, this school-based learning must also be understood in the context of the OECD's discursive construction of high performance and best practice, and it remains to be seen how such school-to-school professional development will be substantively educative—what Phillips (2000) describes as "policy learning"—and not merely uncritical "policy borrowing" (Steiner-Khamsi 2004). Nonetheless, the formation of global networks of schools that may be facilitated by PISA for Schools exemplifies the emergence of new heterarchical forms of educational governance, as new kinds of horizontal relationships are forged between schools across nations and the OECD in response to vertical pressures from governments for accountability data.

"Reach[ing] Out Farther": New Topological Spaces of the OECD's Education Governance

Whereas main PISA provides aggregated national and subnational data on student performance to inform government policy making, PISA for Schools alternatively compares school-level performance data against national and international PISA benchmarks. For example, the school-level report in the United States compares individual school performance—its mean and distribution in reading, mathematics, and science—against the PISA 2012 results of the United States, Shanghai (a "top" schooling system), and Mexico (a "bottom" schooling system). Such comparisons are enabled by PISA for Schools employing an equivalent assessment framework to that of the main PISA survey, ensuring that school performance is comparable with national and subnational performance on main PISA (see table 1).

However, it is important to note here that a school's performance—both across the three domains (science, mathematics, and reading) and overall—is determined by the average performance scores of its sampled students on PISA for Schools, which is itself compared with the average performance scores of nations and systems on main PISA. Gorur and Wu (2015) have recently highlighted how an excessive focus on average PISA scores obscures a great deal of complexity in performance, particularly in regard to item content and test completion, which raises significant concerns for using such

[6] Personal communication with Steven Lewis, September 2014.

data to drive policy development. A deputy superintendent from a large, urban school district in a southern US state revealed a similar preoccupation with their average performance data on PISA for Schools: "I went straight to pages 13–16 and pulled that from each one of the schools' reports, because that's where you can see the specific data comparisons [tables and graphs of a school's mean performance scores for reading, mathematics, science and overall, compared to the mean system performance scores for the US, Shanghai and Mexico]. I didn't really look at the rest of the stuff because there was way too much wording, way too much content, [and] not enough specifics."[7] In this way, we consider the use of "average performance scores" in PISA for Schools reports as problematic, especially when its stated raison d'être is to drive critical reflection and policy reform at the school level instead of creating yet another league table of school performance.

PISA for Schools was developed in the context of main PISA, and its notional focus on national schooling systems, being of limited significance or value to local educators and policy makers. This is especially applicable in schooling systems such as the United States, where—despite the presence of federal and state education departments—local authorities maintain considerable control over policy and decision making (Rutkowski 2015). The collection of main PISA data in the United States has thus historically been of limited use to teachers and administrators working within schools and districts, both for its limited ability to facilitate local school-level policy making and the difficulty in apportioning responsibility (and blame?) to individual schools for national performance. As noted in the comments of a superintendent whose district participated in PISA for Schools, there was considerable "local" concern about the potential utility of "national" PISA: "Because, okay, it's great or it's not so great that your country does 'X' [its performance on main PISA], but how do you know where you as a school district or you as a state or you as a province stand? And until you have something that can come down to a local level, it's difficult to have it be useable for policymakers who would actually change instructional programs. So this [PISA for Schools] was a dream come true."[8]

A central reason for developing PISA for Schools was thus to broaden the relevance of PISA data to local educators and policy makers, in which "the school-level assessment complements the main PISA studies by making PISA-based results more accessible to a wider audience" (OECD 2013b, 2). In this way, the lessons from main PISA could be extended not just to national schooling systems but also to individual schools and their district authorities, enabling the OECD to exert a greater level of policy influence and relevance across a wider audience. A PGB national representative expressed

[7] Personal communication with Steven Lewis, November 2014.

[8] Personal communication with Steven Lewis, February 2014.

similar sentiments: "My perception is that they're [the OECD] still really wanting to be the ones who are doing the analysis and saying, 'This is what we think is the right policy for countries and schools to be doing.' . . . They're just wanting to *reach out farther*, is my guess, in the promulgation of their own policies. . . . I think these [schools] are all audiences, really, for them."[9]

We note here too that in some nations (e.g., Australia and the United Kingdom) there is an oversampling on main PISA, enabling comparisons between the performances of the Australian state systems of schooling that are nominally responsible for education; the same is the case in the United Kingdom. The lack of such oversampling in the United States and local level of control are important backdrops to the push for PISA for Schools in the United States. In this way, the OECD is able to "reach into" (Allen and Cochrane 2010) topographically distant local policy spaces that, through PISA for Schools, are rendered topologically near, enabling a more immediate influence to be exerted on school practice and policy by increasing the relevance of OECD data to local spaces.

Significantly, a key modality of PISA for Schools—the international school-to-system (and potentially school-to-school) comparisons—situate individual schools (and school districts) within a "global education policy field" (Lingard and Rawolle 2011), thereby evaluating their performance against nominally high-performing national systems as designated by the results of main PISA. The reasoning behind such international comparisons thus seemingly aligns with the OECD's stated purpose for main PISA, providing both a means of looking abroad for examples of best practice and gauging how well systems (or in this instance, schools) are preparing students to participate in the global economy: "In a global economy, the benchmark for educational success is no longer progress by state standards alone, but the best performing education systems internationally. With this new OECD Test [PISA for Schools], schools now have the tools to see themselves in the light of what the world's educational leaders show can be achieved" (OECD 2013a).

The OECD presents PISA for Schools as a logical next step for local policy makers and educators, a voluntary and efficient way to validate the performance of their schools and districts in the same way that main PISA purports to evaluate national systems through an objective external benchmark. However, unlike main PISA, any school possessing the desire and the necessary US$11,500 to administer the test can participate, insofar as this does not interfere with the scheduled implementation of the main PISA survey in their national context. By doing so, these schools and districts can receive the imprimatur of the OECD, thus purportedly demonstrating to local and national stakeholders that they are a "world-class" institution that

[9] Personal communication with Steven Lewis, February 2014 (emphasis added).

adequately prepares its students for the global economy.[10] Given the broad recognition and awareness of the OECD, and the PISA "brand," within national education discourses and policy making, the ability of PISA for Schools to produce legitimate and internationally recognized "proof" of a school's performance may well make such evidence a valued commodity for local communities (see Rutkowski 2015), especially for schools that are doing well. Indeed, and in the context of evidence-based (or perhaps "evidence-informed") education policy making (Head 2008; Wiseman 2010; Lingard 2013), the evidence most valued by participating schools and districts is that which relates to measurable changes in, and positive representations of, local performance.

In this way, according to the logic of the OECD, school performance can no longer be sufficiently assessed within the nation but must now also be compared globally in order to assess success, further construing—and bestowing meaning to—education through the lens of a "global eye" (Nóvoa and Yariv-Mashal 2003). These comparisons not only situate schools within a global space but also create a local impetus for action based on their relative success or otherwise. We can see evidence of such reasoning within the comments of a US principal whose school participated in the PISA for Schools trial: "I wanted to know, how do we do as a school? Are my faculty members preparing our students to compete against the rest of the world? . . . If I'm not, then what do I need to change?" Interestingly, these international comparisons with PISA "poster children" provide schools with a valuable form of "externalization" (Schriewer 1990), a means to justify and legitimate local reform agendas in a manner akin to that observed in national systems (see Sellar and Lingard 2013).

Moreover, and reflecting the comments of district leaders whose schools had participated in PISA for Schools, it is perhaps also a means for elite communities to promote themselves as "world-class" in relation to their local performance, with the attendant—although problematic—assertions of their being "better than Finland":

> The good news for us was when we got the results back we were *better than Finland*, so we could pat ourselves on the back for that.
>
> We've always had a real sense that we should be benchmarking against the best. The PISA Test for Schools pilot was an opportunity that our superintendent really wanted to get a lot of our schools to participate in and see how "world class" we were.[11]

[10] "World class" is an anodyne, nondefined concept that seems to circulate uncritically in the contemporary education policy space that, we would argue, needs some critical attention in the policy literature.

[11] Personal communication with Steven Lewis, February 2014 (emphasis added). The problematic phrase "better than Finland" refers to a school's mean performance score on PISA for Schools surpassing the mean performance score of the Finnish system on main PISA (2009 or 2012). It does not suggest whatsoever that the US schools in question performed better than every school in Finland's

Besides the evidently problematic suggestion that an individual US secondary school can be "better" than an entire school system, such statements highlight the ability of PISA for Schools to forge connections and place schools in multiple "geographies of belonging" (Amin 2002). Some US schools and districts seemingly positioned themselves more in relation to systems in Shanghai and Finland than their local comparator institutions, especially in the context of repeatedly poor and diminishing US national performance on main PISA. These responses also reveal the diverse motivations for schools to compare themselves against international high performers and PISA benchmarks, ranging from being more reform-oriented to the arguably more promotional, marketing, and normative intentions of some high-performing institutions (see table 1). Additionally, the potential for direct school-to-school comparisons across nation-states and systems in the future is yet another example of how PISA for Schools forges topological relations, and continuities, between physically distant actors and organizations.

Collectively, we see such comparisons, and the responses they elicit among school leaders, as exemplifying how PISA for Schools facilitates the relational proximity between the global and the local, a "folding in" (Allen 2011) of topological space that elides the physical (and political, cultural, etc.) distance between schools and international school systems to produce an emergent topological continuity. Schools and systems are thus constituted by the OECD as being one and the same: isomorphic education spaces or units of analysis that can be compared and (importantly) learned from irrespective of national context or student population, creating, in effect, "nonlocal locals" (Lingard et al. 2014). Within such a discursive construction there is no meaningful distinction, spatial or taxonomical, between high-performing schools and high-performing schooling systems, exemplified by the notion that a school district can be "better than Finland." It also demonstrates how PISA for Schools reflects an emergent topological mode of culture and its processes of "sorting, naming, numbering, comparing, listing and calculating" (Lury et al. 2012, 4), where practices of continuity and ordering both create new equivalences (i.e., connecting schools with international schools and schooling systems) and new discontinuities (i.e., differentiating between top and bottom local and international performance).

In driving the emergence of these new topological spaces, such comparisons clearly reveal to schools new possibilities and problematics, and indeed imperatives, for action based on their comparative performance against international PISA benchmarks and schooling system performance. Furthermore, this ability to form continuities between schools and school-

national sample for the main PISA survey, regardless of how this realization might inhibit local promotional opportunities. The reliance by such schools on mean performance scores also raises issues around the utility of the mean performance data from PISA and, by association, PISA for Schools.

ing systems within a commensurate topological space mediates the diffusion of "lessons" from main PISA to schools themselves. Indeed, one may more accurately describe the assessment not as "PISA for Schools" but rather as "PISA to Schools," *pre*positioning (Serres 1994) the OECD as the unquestionable global (and now local) expert on matters of education policy (Grek 2013; Rutkowski 2015). In this way, PISA for Schools helps to constitute the topological spaces through which the OECD can reach into (Allen and Cochrane 2010) and connect with local education spaces, in order to influence policy and practice and, in turn, extend its own soft power policy reach.

"Lessons from PISA": Defining Global "Best Practice" to Schools

It must be stressed that such PISA for Schools comparisons of local performance occur predominantly through the human capital and skills-based framings of education—the "economization" of education (Rizvi and Lingard 2010)—actively promoted by the OECD, an emphasis that largely marginalizes other possible renderings of school effectiveness. Significantly, the OECD can normatively define what counts for schools using the PISA for Schools instrument in the same way as it does for national systems via main PISA, with participating schools "indigenizing" (Steiner-Khamsi 2004) the OECD's discursive construction of what constitutes schooling success, and the means to achieve such success, to the exclusion of other possibilities. Reflecting the OECD's ability to selectively construe what counts in relation to best practices, the 160-page school reports contain 22 vignettes, or "breakout boxes," that highlight the policies and practices of high-performing schooling systems (as defined by main PISA), including Shanghai, Singapore, Finland, and Japan (see OECD 2012b). In conjunction with the performance comparisons between schools and system, these examples of best practice provide yet further continuities (and help mark potential discontinuities of performance and/or practice) within a commensurate space of measurement.

While educational leaders have historically sought to learn and borrow from other national schooling systems, creating "reference societies" (Schriewer and Martinez 2004), such comparative learning has primarily existed at the system level. However, in this instance the OECD is arguably facilitating this policy borrowing from international PISA "poster children" at the school level, with the policies employed in other systems legitimating local reform (see table 1). Whereas school-to-system performance comparisons connect schools and international systems within a commensurate space of measurement to create a local impetus to action, these examples of best practice instead provide a ready prescription of how schools should act. In effect, as noted by Rutkowski (2015), this enables the OECD to emphasize "what they deem important and dismiss educational topics and

knowledge that fall outside their agenda" (5), not only to national systems via main PISA but now to the level of schools themselves. PISA for Schools thus enables the OECD to link itself to participating local schooling spaces, establishing a direct presence through "mediated and distanciated forms of reach" (Allen and Cochrane 2010, 1082) to influence and steer local policies and practices.

The notion of individual schools looking elsewhere for policy solutions raises several key issues, not least of which is the question at the heart of comparative education: what is actually obtained through the study of international schooling systems and their policy settings (Sadler 1964)? Despite the OECD's insistence that public policy has the greatest capacity to influence variations in student performance (see OECD 2010, 3), it has been strongly argued that schooling system success on PISA, exemplified by the much celebrated Finland (Simola 2005; Sahlberg 2011) and Shanghai (Tan 2012, 2013, 2015), is significantly mediated by local historical and cultural factors in addition to policy settings. While one may contend that comparative education as a field has become increasingly more analytical and nuanced in outlook apropos of such policy borrowing or learning (see Steiner-Khamsi 2010), the purposeful inclusion of international best practice within the PISA for Schools reports presents a decidedly more normative approach. As noted in an interview with a policy analyst within the Directorate for Education and Skills: "We also want to embed this [PISA for Schools] in the *broader policy lessons from PISA* and whatever we can learn from PISA that is relevant for school-level improvement. So all of those *lessons from PISA* we've also put into the report, so it's quite comprehensive. . . . So it's not just showing the schools, 'this is what your students answered; this is how they performed.' We can also explain to them, based on [the OECD's] international research, *what is actually important here for improvement.*"[12]

Such comments reveal a supposed universality regarding the school-level policy advice advocated by the OECD, instituting a form of governing through "the power of the example" (Simons 2015) that omits any reference to the individuating and contextualized characteristics of schools or systems. In this way, the discontinuities identified through schools-to-system performance comparisons are further emphasized by differences in their respective policies and practices, as there is no reason why—beyond different (and allegedly transferable) policy settings—two schools and/or systems should demonstrate substantively different outcomes in student performance. Given that the underlying premise of PISA for Schools is to provide school-level guidance on "the policies required to catch-up with the best [international] performers" (OECD 2012b, 3), the highlighting of high-performing practices effectively provides an ensemble of ready-to-go policy

[12] Personal communication with Steven Lewis, September 2014 (emphasis added).

reforms. However, as with main PISA, these policy suggestions are proffered in a completely decontextualized manner, eliding the distinction between local individuating characteristics or, indeed, the conceptual difference between a school and a schooling system.

Significantly, this issue of commensuration is not limited to schools and systems. Whereas main PISA arguably positions different national schooling systems within an equivalent and decontextualized space of measurement, PISA for Schools situates participating schools within the same topological space, so that best practice in Shanghai is presented—according to the OECD—to be equally relevant for all schools, be they in the United States or the United Kingdom. Further emphasizing such decontextualization, these policy solutions and examples of best practice are identical within the reports of all participating schools within the United States and the United Kingdom, with the OECD deciding which examples of best practice are included within the report. These assumptions are obviously problematic, as they downplay any meaningful consideration of local conditions or the possibility that there is as much variation within systems (e.g., schools in the United States) as between systems (e.g., Shanghai and the United States). While purporting to provide schools with the broader policy lessons from PISA, the policy advice within PISA for Schools effectively propagates the OECD's discursive construction of schooling, and the indicators of successful schooling, to a new local audience, further expanding the epistemic communities that the OECD helps to produce and sustain. This is an important element of the OECD's "epistemological" modes of global governance of education (Sellar and Lingard 2014).

Conclusion

Our analysis of PISA for Schools demonstrates quite clearly the emergent spatialities associated with new modes of heterarchical governance in education, including the emergence of what we would describe as topological spaces of measurement, comparison, and governance. As such, schools and schooling systems are positioned within a topological and commensurate space, in which continuities (comparative links and supposed isomorphism between systems and schools) help to mark discontinuities (differential performance, practices, and policies). In particular, we consider the identification of these discontinuities between participating schools and high-performing systems as providing the key impetus for local reform through system-to-school learning from main PISA (PISA to Schools). In this way, we see PISA for Schools reflecting the wider enfolding of global tests and discourses into local policies and policy-making processes (Thompson and Cook 2014), where the language of "elsewhere" is used to justify local reform. Our topological and relational analysis also emphasizes the importance

of acknowledging the spatial as a lens for understanding education policy-making processes within the field of comparative education, rather than merely providing fixed territorial units of analysis centered on the nation-state. As we have shown, eliding the ontological distinction between place and space has significant implications for how comparativists approach and undertake their research, both conceptually and methodologically. At the same time, we have suggested that OECD's PISA, in all its manifestations, also reflects the world culture theorists' argument about the global diffusion of modernity.

The initial development of PISA for Schools and continuing item maintenance have been funded solely by US philanthropic trusts, rather than the voluntary Part II contribution of governments or the OECD (see table 1); however, the test arguably meets a need for accountability data that is driven by legislation in the United States (e.g., Race to the Top). Also, and in spite of the enhanced involvement of new policy actors, the PISA governing board at the OECD retains the overarching responsibility for the program to ensure the validity of both the test itself and the comparisons being made with main PISA results. Such PGB involvement is clearly about protecting the PISA "brand." The expansion of PISA for Schools thus extends the policy influence of the OECD by enabling an unmediated influence on thinking about policy and practice at the level of schools and districts, extending the global eye (Nóvoa and Yariv-Mashal 2003) of comparison to the local scale. It also greatly enhances the relevance of PISA to the school level, making it applicable for informing local policy and practice and, at the same time, making schools accountable to international performance comparisons and benchmarks in a way not previously possible with main PISA (see table 1). However, the interviews suggest that PISA for Schools also promotes the interests of the schools and districts that voluntarily choose to implement the program, providing—by their own reckoning—both global examples of best practice and a means of sharing such insights with networks of like-minded schools. Therefore, PISA for Schools contributes to the emergence of new horizontal and vertical relationships in education policy networks that cut across traditional boundaries and spaces.

As we have noted, CTB/McGraw-Hill will do the analysis of PISA for Schools data for participants in the United States. These schools, or their overarching authorities, will pay for this service provision, and it is likely that schools and districts at the ceiling of performance on existing state and national-level testing will be the most enthusiastic participants in PISA for Schools. In this heterogeneous mix of players we can see an emergent mode of heterarchical governance comprising multiple players: an international organization, international and local policy makers, private- and public-sector participants, and educational practitioners. In this case, the state is using vertical policy mechanisms (e.g., regulations and incentives to gen-

erate accountability data) that, in turn, open up horizontal spaces for new kinds of policy actors, such as intergovernmental organizations (the OECD) and edu-businesses (CTB/McGraw-Hill).

What we have shown in our analyses are the manifestations of the new spatialities of globalization, not only as a context for heterarchical governance but also as the very means of its expression. We see the OECD reaching into new local spaces and promoting a topological rationality at the local school level by enabling comparison with the performance of schools and systems that are topographically distant, strengthening its position as the global expert and, in turn, its ability to normatively determine what counts in education. In this way, PISA for Schools produces new points of connection and topological spaces, an "infrastructure of accountability" (Anagnostopoulos et al. 2013) that folds the local and global together and elides the ontological distinction between place and space, and school and system. PISA for Schools will potentially also bring the OECD's education work to the attention of teachers, parents, principals, and local communities, thus expanding the epistemic communities that the OECD helps to constitute and through which it exerts its soft-power mode of global governance in education. Again, it must be reiterated that the OECD, unlike the accredited test providers, does not stand to financially benefit from the enactment of PISA for Schools. However, the program's real value lies in its ability to facilitate the OECD's reach into, and connection with, local education spaces in order to directly influence school-level policy and practice, thereby extending its own policy reach and relevance in the process. With PISA for Schools, the OECD has seemingly opened up innumerably more willing audiences, and spaces, ready to purchase its particular rendition of schooling success.

References

Agnew, John. 1999. "Mapping Political Power beyond State Boundaries: Territory, Identity and Movement in World Politics." *Millennium—Journal of International Studies* 28 (3): 499–521. doi:10.1177/03058298990280030701.

Allen, John. 2009. "Three Spaces of Power: Territory, Networks, Plus a Topological Twist in the Tale of Domination and Authority." *Journal of Power* 2 (2): 197–212. doi:10.1080/17540290903064267.

Allen, John. 2011. "Topological Twists: Power's Shifting Geographies." *Dialogues in Human Geography* 1 (3): 283–98. doi:10.1177/2043820611421546.

Allen, John, and Allan Cochrane. 2010. "Assemblages of State Power: Topological Shifts in the Organisation of Government and Politics." *Antipode* 42 (5): 1071–89. doi:10.1111/j.1467-8330.2010.00794.x.

Amin, Ash. 2002. "Spatialities of Globalisation." *Environment and Planning A* 34 (3): 385–99. doi:10.1068/a3439.

Anagnostopoulos, Dorothea, Stacey A. Rutledge, and Rebecca Jacobsen, eds. 2013. *The Infrastructure of Accountability: Data Use and the Transformation of American Education*. Cambridge, MA: Harvard Education Press.

Appadurai, Arjun. 2006. *Fear of Small Numbers: An Essay on the Geography of Anger*. Durham, NC: Duke University Press.

Ball, Stephen. 2008. "New Philanthropy, New Networks and New Governance in Education." *Political Studies* 56 (4): 747–65. doi:10.1111/j.1467-9248.2008.00722.x.

Ball, Stephen. 2009. "Privatising Education, Privatising Education Policy, Privatising Educational Research: Network Governance and the 'Competition State.'" *Journal of Education Policy* 24 (1): 83–99. doi:10.1080/02680930802419474.

Ball, Stephen. 2012. *Global Education Inc.: New Policy Networks and the Neo-liberal Imaginary*. New York: Routledge.

Ball, Stephen, and C. Junemann. 2012. *Networks, New Governance and Education*. Bristol: Policy Press.

Barnett, Michael, and Martha Finnemore. 2004. "The Power of Liberal International Organisations." In *Power in Global Governance*, ed. Michael Barnett and Raymond Duvall. Cambridge: Cambridge University Press.

Brenner, Neil. 2004. *New State Spaces: Urban Governance and the Rescaling of Statehood*. Oxford: Oxford University Press.

Burch, Patricia. 2009. *Hidden Markets: The New Education Privatisation*. New York: Routledge.

Carney, Stephen, Jeremy Rappleye, and Ivera Silova. 2012. "Between Faith and Science: World Culture Theory and Comparative Education." *Comparative Education Review* 56 (3): 366–93. doi:10.1086/665708.

Carroll, Peter, and Aynsley John Kellow. 2011. *The OECD: A Study of Organisational Adaptation*. Cheltenham: Elgar.

Carvalho, Luís Miguel, and Estela Costa. 2014. "Seeing Education with One's Own Eyes and through PISA Lenses: Considerations of the Reception of PISA in European Countries." *Discourse: Studies in the Cultural Politics of Education* 36 (5): 1–9. doi:10.1080/01596306.2013.871449.

Fenwick, Tara, Richard Edwards, and Peter Sawchuk. 2011. *Emerging Approaches to Educational Research: Tracing the Socio-Material*. Oxon: Routledge.

Gorur, Radhika, and Margaret Wu. 2015. "Leaning Too Far? PISA, Policy and Australia's 'Top Five' Ambitions." *Discourse: Studies in the Cultural Politics of Education* 36 (5): 647–64. doi:10.1080/01596306.2014.930020.

Grek, Sotiria. 2009. "Governing by Numbers: The PISA 'Effect' in Europe." *Journal of Education Policy* 24 (1): 23–37. doi:10.1080/02680930802412669.

Grek, Sotiria. 2013. "Expert Moves: International Comparative Testing and the Rise of Expertocracy." *Journal of Education Policy* 28 (5): 695–709. doi:10.1080/02680939.2012.758825.

Gulson, Kalervo, and Colin Symes, eds. 2007. *Spatial Theories of Education: Policy and Geography Matters*. London: Routledge.

Head, Brian W. 2008. "Three Lenses of Evidence-Based Policy." *Australian Journal of Public Administration* 67 (1): 1–11. doi:10.1111/j.1467-8500.2007.00564.x.

Jessop, Bob. 2002. "Liberalism, Neoliberalism, and Urban Governance: A State-Theoretical Perspective." *Antipode* 34 (3): 452–72. doi:10.1111/1467-8330.00250.

Jessop, Bob. 2008. *State Power*. Cambridge: Polity.

Kallo, Johanna. 2009. *OECD Education Policy: A Comparative and Historical Study Focusing on the Thematic Reviews of Tertiary Education*. Jyvaskyla: Jyvaskyla University Press.

Kaloyannaki, Pella, and Andreas Kazamias. 2009. "The Modernist Beginnings of Comparative Education: The Proto-scientific and the Reformist-Meliorist Administrative Motif." In *International Handbook of Comparative Education*, ed. Robert Cowen and Andreas Kazamias. London: Springer.

Larsen, Marianne, and Jason Beech. 2014. "Spatial Theorising in Comparative and International Education Research." *Comparative Education Review* 58 (2): 191–214. doi:10.1086/675499.

Latour, Bruno. 1987. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press.

Lee, Jack T. 2015. "Soft Power and Cultural Diplomacy: Emerging Education Hubs in Asia." *Comparative Education* 51 (3): 1–22. doi:10.1080/03050068.2015.1037551.

Lingard, Bob. 2013. "The Impact of Research on Education Policy in an Era of Evidence-Based Policy." *Critical Studies in Education* 54 (2): 113–31. doi:10.1080/17508487.2013.781515.

Lingard, Bob, and Shaun Rawolle. 2011. "New Scalar Politics: Implications for Education Policy." *Comparative Education* 47 (4): 489–502. doi:10.1080/03050068.2011.555941.

Lingard, Bob, Sam Sellar, and Aspa Baroutsis. 2015. "Researching the Habitus of Global Policy Actors in Education." *Cambridge Journal of Education* 45 (1): 25–42. doi:10.1080/0305764x.2014.988686.

Lingard, Bob, Sam Sellar, and Glenn C. Savage. 2014. "Re-articulating Social Justice as Equity in Schooling Policy: The Effects of Testing and Data Infrastructures." *British Journal of Sociology of Education* 35 (5): 710–30. doi:10.1080/01425692.2014.919846.

Lury, Celia, Luciana Parisi, and Tiziana Terranova. 2012. "Introduction: The Becoming Topological of Culture." *Theory, Culture, and Society* 29 (4–5): 3–35. doi:10.1177/0263276412454552.

Mahon, Rianne, and Stephen McBride, eds. 2008. *The OECD and Transnational Governance*. Seattle: University of Washington Press.

Martens, Kerstin, and Anja Jakobi. 2010. "Expanding and Intensifying Governance: The OECD in Education Policy." In *Mechanisms of OECD Governance: International Incentives for National Policy-Making?*, ed. Kerstin Martens and Anja Jakobi. Oxford: Oxford University Press.

Martens, Kerstin, and Dennis Niemann. 2013. "When Do Numbers Count? The Differential Impact of the PISA Rating and Ranking on Education Policy in Germany and the US." *German Politics* 22 (3): 314–32. doi:10.1080/09644008.2013.794455.

Massey, Doreen. 1994. *Space, Place, and Gender*. Cambridge: Polity.

Meyer, John W. 1971. "Economic and Political Effects on National Educational Enrollment Patterns." *Comparative Education Review* 15 (1): 28–43.

Meyer, John W. 1977. "The Effects of Education as an Institution." *American Journal of Sociology* 83 (1): 55–77.

Mintrop, Heinrich, and Gail L. Sunderman. 2013. "The Paradoxes of Data-Driven School Reform: Learning from Two Generations of Centralised Accountability

Systems in the United States." In *The Infrastructure of Accountability: Data Use and the Transformation of American Education*, ed. Dorothea Anagnostopoulos, Stacey A. Rutledge, and Rebecca Jacobsen. Cambridge, MA: Harvard Education Press.

Nóvoa, António, and Tali Yariv-Mashal. 2003. "Comparative Research in Education: A Mode of Governance or a Historical Journey?" *Comparative Education* 39 (4): 423–38. doi:10.1080/0305006032000162002.

Nye, Joseph S., Jr. 2004. *Soft Power: The Means to Success in World Politics*. New York: PublicAffairs.

Nye, Joseph S., Jr. 2008. "Foreword." In *Soft Power Superpowers: Cultural and National Assets of Japan and the United States*, ed. Watabane Yasushi and David L. McConnell. New York: M. E. Sharp.

OECD. 1965. *Teaching Physics Today: Some Important Topics*. Paris: OECD.

OECD. 2010. "PISA 2009 Results: What Makes a School Successful? Resources, Policies and Practices (Volume IV)." OECD Publishing, Paris. doi:10.1787/19963777-en.

OECD. 2012a. "Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies." OECD Publishing, Paris. doi:10.1787/9789264177338-en.

OECD. 2012b. "How Your School Compares Internationally: OECD Test for Schools (Based on PISA) Pilot Trial [US Version]." OECD Publishing, Paris. http://www.oecd.org/pisa/aboutpisa/pisa-based-test-for-schools-assessment.htm.

OECD. 2013a. "OECD Develops New Tool to Help Schools Improve." OECD Publishing, Paris. http://www.oecd.org/newsroom/oecd-develops-new-tool-to-help-schools-improve.htm.

OECD. 2013b. "The OECD Test for Schools (Based on PISA): Questions and Answers (U.S. Version)." OECD Publishing, Paris. http://www.oecd.org/pisa/aboutpisa/pisa-basedtestforschools.htm.

OECD. 2014. "A Teachers' Guide to TALIS 2013: Teaching and Learning International Survey." OECD Publishing, Paris. doi:10.1787/9789264216075-en.

OECD. 2015. "PISA-Based Test for Schools: Country Information." OECD Publishing, Paris. http://www.oecd.org/pisa/aboutpisa/pisa-based-test-for-schools-country-specific-information-and-global-learning-network.htm.

Olmedo, Antonio. 2014. "From England with Love . . . Ark, Heterarchies and Global 'Philanthropic Governance.'" *Journal of Education Policy* 29 (5): 575–97. doi:10.1080/02680939.2013.859302.

Ozga, Jenny. 2009. "Governing Education through Data in England: From Regulation to Self-Evaluation." *Journal of Education Policy* 24 (2): 149–62. doi:10.1080/02680930902733121.

Papadopoulos, George. 1994. *Education 1960–1990: The OECD Perspective*. Paris: OECD.

Phillips, David. 2000. "Learning from Elsewhere in Education: Some Perennial Problems Revisited with Reference to British Interest in Germany." *Comparative Education* 36 (3): 297–307. doi:10.1080/713656617.

Rizvi, Fazal, and Bob Lingard. 2010. *Globalising Education Policy*. New York: Routledge.

Robertson, Susan L. 2010. "'Spatialising' the Sociology of Education: Stand-Points, Entry-Points and Vantage-Points." In *The Routledge International Handbook of the Sociology of Education*, ed. Michael W. Apple, Stephen Ball, and Luis Armando Gandin. Oxon: Routledge.

Rutkowski, David. 2015. "The OECD and the Local: PISA-Based Test for Schools in the USA." *Discourse: Studies in the Cultural Politics of Education* 36 (5): 683–99. doi:10.1080/01596306.2014.943157.

Sadler, Michael. 1964. "How Far Can We Learn Anything of Practical Value from the Study of Foreign Systems of Education?" *Comparative Education Review* 7 (3): 307–14.

Sahlberg, Pasi. 2011. *Finnish Lessons: What Can the World Learn from Educational Change in Finland?* Series on School Reform. New York: Teachers College Press.

Sassen, Saskia. 2006. *Territory, Authority, Rights: From Medieval to Global Assemblages*. Princeton, NJ: Princeton University Press.

Schriewer, Jürgen. 1990. "The Method of Comparison and the Need for Externalisation: Methodological Criteria and Sociological Concepts." In *Theories and Methods in Comparative Education*, ed. Jürgen Schriewer and Brian Holmes. Frankfurt am Main: Peter Lang.

Schriewer, Jürgen, and Carlos Martinez. 2004. "Constructions of Internationality in Education." In *The Global Politics of Educational Borrowing and Lending*, ed. Gita Steiner-Khamsi. New York: Teachers College Press.

Sellar, Sam. 2014. "Data Infrastructure: A Review of Expanding Accountability Systems and Large-Scale Assessments in Education." *Discourse: Studies in the Cultural Politics of Education* 36 (5):1–13. doi:10.1080/01596306.2014.931117.

Sellar, Sam, and Bob Lingard. 2013. "Looking East: Shanghai, PISA 2009, and the Reconstitution of Reference Societies in the Global Education Policy Field." *Comparative Education* 49 (4): 464–85. doi:10.1080/03050068.2013.770943.

Sellar, Sam, and Bob Lingard. 2014. "The OECD and the Expansion of PISA: New Global Modes of Governance in Education." *British Educational Research Journal* 40 (6): 917–36. doi:10.1002/berj.3120.

Serres, Michel. 1994. *Atlas*. Paris: Julliard.

Shamir, Ronen. 2008. "The Age of Responsibilisation: On Market-Embedded Morality." *Economy and Society* 37 (1): 1–19. doi:10.1080/03085140701760833.

Shank, Gary D. 2002. *Qualitative Research: A Personal Skills Approach*. Upper Saddle River, NJ: Pearson.

Simola, Hannu. 2005. "The Finnish Miracle of PISA: Historical and Sociological Remarks on Teaching and Teacher Education." *Comparative Education* 41 (4): 455–70. doi:10.1080/03050060500317810.

Simons, Maarten. 2015. "Governing Education without Reform: The Power of the Example." *Discourse: Studies in the Cultural Politics of Education* 36 (5): 712–31. doi:10.1080/01596306.2014.892660.

Steiner-Khamsi, Gita, ed. 2004. *The Global Politics of Educational Borrowing and Lending*. New York: Teachers College Press.

Steiner-Khamsi, Gita. 2010. "The Politics and Economics of Comparison." *Comparative Education Review* 54 (3): 323–42. doi:10.1086/653047.

Tan, Charlene. 2012. "The Culture of Education Policy Making: Curriculum Reform in Shanghai." *Critical Studies in Education* 53 (2): 153–67. doi:10.1080/17508487.2012.672333.

Tan, Charlene. 2013. *Learning from Shanghai: Lessons on Achieving Educational Success*. Dordrecht: Springer.

Tan, Charlene. 2015. "Education Policy Borrowing and Cultural Scripts for Teaching in China." *Comparative Education* 51 (2): 196–211. doi:10.1080/03050068.2014.966485.

Thompson, Greg, and Ian Cook. 2014. "Becoming-Topologies of Education: Deformations, Networks and the Database Effect." *Discourse: Studies in the Cultural Politics of Education* 36 (5):1–17. doi:10.1080/01596306.2014.890411.

Thrift, Nigel. 2006. "Space." *Theory, Culture, and Society* 23 (2–3): 139–46. doi:10.1177/0263276406063780.

Waldow, Florian, Keita Takayama, and Youl-Kwan Sung. 2014. "Rethinking the Pattern of External Policy Referencing: Media Discourses over the 'Asian Tigers' PISA Success in Australia, Germany and South Korea." *Comparative Education* 50 (3): 302–21. doi:10.1080/03050068.2013.860704.

Wiseman, Alexander. 2010. "The Uses of Evidence for Educational Policymaking: Global Contexts and International Trends." *Review of Research in Education* 34 (1): 1–24. doi:10.3102/0091732x09350472.

Wiseman, Alexander. 2013. "Policy Responses to PISA in Comparative Perspective." In *PISA, Power, and Policy: The Emergence of Global Educational Governance*, ed. Heinz-Dieter Meyer and Aaron Benavot. Oxford: Symposium Books.

Woodward, Richard. 2009. *The Organisation for Economic Co-operation and Development (OECD)*. Oxon: Routledge.