Abstract

This paper examines how policy pressure for increased performance on standardised measures of student achievement influenced the teacher learning practices that arose in a school setting in Queensland, Australia. Drawing upon research and theorising of governing by numbers, and applications to the governance of education, and particularly teachers' learning, the research analyses how a group of Year 3 teachers collaborated to better inform themselves about the nature of their students' learning. The research reveals that the governance of teachers' learning under current policy conditions was manifest through both teachers' compliance with and critique of a strong focus upon school, regional, state and national data – specifically, students' attainment in 'levelled' readers and other school-based standardised measures of reading and mathematics, and school, state and regional results on national literacy and numeracy tests. There is little research that highlights the tensions around these numbers as governing technologies in relation to specific formal, ongoing instances of teacher professional development practices. The research cautions against the influence of such governing processes for how they potentially narrow teachers' attention to more standardised measures of students' learning, even as teachers may critique these more reductive effects.

Keywords: governing by numbers; standardised testing; teacher learning

Conceptual resources: Governing by numbers in education

In an early, but influential account of the power of numbers, Nicolas Rose (1991) argued that processes of governance and governing rely upon and produce various forms of 'state numbers', statistics; on this rendering of the state, numbers and politics are intricately imbricated: 'the relation between numbers and politics is mutually constitutive' (p. 673). The result is a process of 'governing by numbers' (Rose, 1991), whereby decisions are made within modern democracies on the basis of statistical data generated by and through the state. The state becomes 'knowable' through numbers[1].

While Rose (1991) focused more explicitly upon the broader relationship between processes of quantification and democracy, and how 'democratic power is *calculated* power' (p. 673; emphasis original), this process of governing by numbers has been taken up in education by educational policy sociologists in myriad ways. Ozga (2009) provides a helpful account of the increasing centralisation of control of education through the collection of large bodies of data in England. The production of data is essential for these governance practices, enabling processes of comparison across time (e.g. with

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[1] The common latin root in both 'state' and 'statistics' also reflects this mutually constitutive process.

earlier results) and space (e.g. other schools, municipalities/states/provinces/countries): 'constant comparison is its symbolic feature, as well as a distinctive mode of operation' (Ozga, 2009, p. 150).

Such processes of governing have occurred through various 'flows of data' whereby traditional approaches of implicit knowledge and understanding about practices have been replaced with performance management processes 'in which performance is made visible and transparent' (Ozga, 2008, p. 263). In the context of Europe, Grek (2008) flags how there has been a shift in education policy from focusing upon education as part of cultural understanding within Europe, to a conception of education as 'governed by numbers' as part of a broader vehicle for economic reform. As part of this process, education has also taken a much more prominent role in 'constructing' Europe. The OECD's PISA programme is central to this work, helping to establish the 'comparative' turn and indirectly (but substantively) influencing education policy within countries as they come to compare themselves against one another within this commensurate policy space (Grek, 2009). In later work, Ozga and colleagues also refer to 'governing by numbers' in Europe more broadly (Simola, Ozga, Segerholm, Varjo & Andersen, 2011). Just as Rose (1991) argued democratic power is '*calculated* power', and citizens must '*calculate about* power' (p. 673; emphasis original), so too educators are required to 'calculate' and 'calculate about' evidence of the educational practices in which they have been involved.

In a recent editorial in the *Journal of Education Policy*, Ball (2015) refers to the 'tyranny of numbers' (p. 299) that surrounds the deployment of various forms of measuring and monitoring characterising current modes of educational governance. This is expressed globally, through the deployment of OECD PISA results, in particular, as a means of calibrating the worth of different national (and, increasingly, sub-national) educational systems. These cross-national comparative education indices serve to foster a 'global' education policy field as a commensurable space of equivalence across national settings (Lingard & Rawolle, 2011). Through the development of PISA-based Test for Schools, and the Programme for International Assessment of Adult Competencies (PIAAC), the OECD has sought to further expand its influence within and across nation-states, with such numbers constituting a 'new global mode of governance' in education (Sellar & Lingard, 2013).

This governance through numbers is overtly critiqued by some commentators, including for being too abstracted to the sorts of policy tasks with which they are commonly associated. Hutt (2014) refers to how processes of quantification of assessment have a long history, and how such tests have always encouraged a form of 'contextless accountability'. Piro and Mullen (2013) argue teacher effectiveness is profoundly and problematically reconstructed in relation to econometric modelling which privileges evidence in the form of standardised test results, downplaying necessary professional judgment. Labaree (2014) is critical of broad-based tests such as PISA that 'measure a set of economically useful skills that no one teaches' and state level accountability systems in the US, such as those associated with *No Child Left Behind*, that focus on 'mastery of content that is taught but not relevant' (p. 1). Au (2011) critiques the standardization of teaching and curriculum practices as a result of high-stakes testing, and Angus (2015) is highly critical of the neoliberal social imaginary that frames such standardization as

future-oriented, but that actually narrows curriculum, pedagogy and assessment in ways that 'are likely to make schools more boring places for all students' (p. 409).

Governing teachers' learning through standardised testing

While there is substantial literature on the way in which numbers have been deployed more broadly as tools for educational governance nationally and globally (e.g. Meyer and Benavot's (2013) influential compendium on PISA as a tool for 'global educational governance'), there is less emphasis upon how these governing processes operate at a more local level, including in relation to the nature of teachers' professional learning practices. As the following account of relevant literature indicates, some literature does provide insights into how teachers' learning is influenced by various forms of numeric assessments of teachers' work. There is also some literature specifically in the Australian context, which explores how assessment and professional development practices are constituted in varied ways, including for both more performative and educative purposes. Some of this literature also draws upon research into the effects of standardised testing in Australia, revealing how such numeric data are deployed for educational governance purposes.

In their recent overview of literature on teachers' use of assessment data to inform instruction, Datnow and Hubbard (2015) reveal how benchmark assessment data dominate how teachers engage with data, even as such data are not necessarily used to inform instruction, or in limited and limiting ways. They reveal how a lack of professional learning opportunities is seen to impede teachers' use of data, and how teachers' beliefs and the nature of assessment all influence such engagement and contribute to variability in understanding and use of data, in spite of pressure for consistency. Also reflecting the relatively limited knowledge of teachers' learning vis-à-vis data use, Mandinach and Gummer (2015) argue that '[i]n spite of the massive push for data-driven decision making, the field still lacks a clear understanding on how teachers use data.' (p. 3). In the Indonesian context, Ashadi and Rice's (2016) broad case study approach into the effects of high stakes standardized tests reveals the selectivity of teachers' learning, with those teachers teaching classes sitting high stakes tests perceived as receiving more opportunities for professional learning than teachers not teaching these classes.

Some literature that purports to explore the nature of teachers' learning in relation to numeric data is broadly descriptive, and untheorized; Bergman's (2012) account of the uses of standardized (and other) data at Sherwood Forest Elementary school in Washington is an example of more celebratory, descriptive, untheorised accounts of teachers' efforts to engage with such data. Other literature (e.g. Twombly, 2014)) calls for teachers to derive data from deeply grounded observations of students to capture students' learning rather than standardized test scores, but without adequate reference to relevant literature or theorising about what this might look like.

Some literature is critical of more performative approaches to teacher learning encouraged by the use of testing data. In what is described as a 'personal perspective', Erskine (2014) laments how testing changes how teachers teach, corrupting teaching practice, and student learning. More substantively, Glazer and Peurach (2015) argue how occupational control, enabled through the logic and leverage of what they describe as 'epistemic communities', serves as a counter to more performative governance practices. Rather than the way in which approaches to improving teaching and learning in American public schools are dominated by market pressures to improve, or bureaucratic controls and demands, Glazer and Peurach (2015) argue for teachers to develop their professional capacities and language around instruction as a vehicle to improve teaching.

The governing of teacher learning through such epistemic communities is evident, for example, in the ways teachers seek to engage with various forms of documentation and evidence of student learning in schools as part of their teacher learning practices. In broad terms, Fiore and Suárez (2010) describe the use of such documentation as 'the systematic act of collecting, interpreting and reflecting on concrete traces of learning' (p. 1). Falk and Darling-Hammond (2009) provide insights into the value of various forms of documentation as alternatives to the 'single score from a standardized test' (p. 78).

Instead, '[i]t adds other dimensions to what is known about individuals, enabling the range of their knowledge and skills, as well as their special strengths and ways of working to be seen' (p. 78). The governing of teacher learning through documentation is also evident (although not explicitly expressed as such) in how Krechevsky, Rivard and Burton (2009) argue that documentation enables an alternative form of accountability of teachers based on personal experience, for one another's learning, and to the wider community. Duckor and Perlstein's (2014) summary of teachers' accounts of the use of more authentic assessment modes of learning developed through collaborative reflection on teaching and learning and classroom practices at Central Park East Secondary School also contrasts with more standardized test-based approaches to governing teachers' learning.

Through *No Child Left Behind* (2002) and *Race to the Top* (2009) legislation, such tests have become dominant. However, at the same time, through what they describe as a 'logic of assessment', Duckor and Perlstein (2014) refer to how analysis of portfolios of evidence are used to help teachers develop a shared understanding of approaches to assessing student progress that is more authentic, and that does not rely upon more typical standardized and numeric forms of assessment: CPESS 'was organised in order to maximise teachers' collaborative capacities to reflect on student growth' (Duckor & Perlstein, 2014, p. 11).

In the Australian context, in which the research presented here was undertaken, Comber's (2012) institutional ethnographic research into the effects of mandated national literacy assessment (NAPLAN – National Assessment Program: Literacy and Numeracy) upon teachers' work more broadly provides some glimpses into how the focus upon more numeric indicators of student learning exerts influence. Such an approach is described as foregrounding a strong focus upon technocratic rationality as a

vehicle for effecting change. This is evident in the faith placed in standardised reading texts, and standardised testing to provide data as some sort of 'base-line'/evidence of student learning. Van Leent and Exley (2013) also provide specific insights into how a literacy coach served as a vehicle for professional development in Queensland, in the context of strong pressure for improved results on these NAPLAN tests, and a reductive emphasis upon such testing.

The emphasis upon NAPLAN results is part of the development of an increasingly national system of schooling in Australia (Lingard, 2010), as teachers' work and learning become increasingly framed by national assessment practices; this is the case even as the costs of the test are seen to outweigh its benefits (Carter, Klenowski & Chalmers, 2016). More broadly in relation to teachers' learning, Author (2015) refers to how teachers' work, including their learning practices, have been influenced by increasingly enumerative logics of practice, particularly in relation to standardized national literacy and numeracy testing in Australia (NAPLAN)); this is the case even as there is evidence of teachers simultaneously endeavouring to 'appropriate' more performative concerns about student test results for more educative professional development purposes (Author, 2014).

Relatedly, and on the basis of published research in Australia, and insights from the Australian Primary Principals Association, Klenowski and Wyatt-Smith (2012) elaborate the effects of NAPLAN, revealing problematic effects of the accountability agenda, and the need for professional development for increased assessment literacy of teachers. Klenowski's (2016) analysis of Aboriginal and Torres Strait Islander education in Queensland state schools also highlights how secondary uses of NAPLAN (e.g. for accountability purposes) are deployed by systems and schools, revealing how what is 'learned' by those involved is that they will be held to account for their students' results on the test. This is in contrast with more developmental approaches to teachers' learning, as advocated through the shared moderation of assessment against specified standards, and the learning that occurs through such collective experience (Klenowski, 2011).

However, it is in keeping with more performative approaches to teachers' learning which fixate upon numeric markers of evidence as proof of teachers' capacities rather than as part of a broader repertoire of resources to inform teachers' learning (O'Leary & Wood, 2016). In their research, Polesel, Rice and Duffler (2014) reveal a smaller proportion of teachers believe NAPLAN is useful for identifying areas to inform their teaching to advance student learning (more diagnostic purposes) than those who believe NAPLAN is a vehicle for 'ranking' and 'policing' schools, but also that aggregate results within individual schools can be useful for identifying areas for professional learning. Arguably, just as notions of professionalism and leadership have become increasingly 'datafied' (Thompson & Mockler, 2016), with increased manipulation of data by teachers as they become increasingly fixated upon the contents of the database than students' actual learning (Thompson & Cook, 2014), so too have teachers' learning practices more broadly.

The emphasis upon data forms part of a broader audit discourse which constitutes teacher learning as both a policy 'problem' and 'solution' (Mockler, 2013) and in which increased focus upon various forms of appraisal are used to help make teachers' learning and effects 'calculable', even as they have the potential to be used for more productive and ongoing teacher learning (Mockler, 2015). The focus on data as part of teachers' work and learning also resonates with Moore and Clark's (2016) application of Berlant's (2011) notion of 'cruel optimism', in which more traditional occupational forms of professionalism are deployed within more performative contexts, and how teacher learning more specifically is subject to ongoing processes of change and translation, even as this has unpredictable effects (Watson & Michael, 2016).

Within this context, how teachers in school settings more broadly in Australia (and beyond) learn from and engage with standardized test score data in particular, under current policy conditions, remains an area for further investigation.