



## UWS Academic Portal

### Dubious objectivity

Holligan, Christopher

Published: 23/11/2022

*Document Version*  
Peer reviewed version

[Link to publication on the UWS Academic Portal](#)

*Citation for published version (APA):*

Holligan, C. (2022). *Dubious objectivity: the production of factoids and grey research governance*. Paper presented at Scottish Educational Research Association Conference 2022, Ayr, United Kingdom.

#### General rights

Copyright and moral rights for the publications made accessible in the UWS Academic Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

#### Take down policy

If you believe that this document breaches copyright please contact [pure@uws.ac.uk](mailto:pure@uws.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.

## SERA CONFERENCE PAPER- NOVEMBER 2022

### Dubious Objectivity

#### The Production of Factoids and Grey Research Governance

“There is a need for a more co-ordinated approach to knowledge creation through the synthesis of existing knowledge, which is then translated into a form that would be easily digestible for use by those on the front line.”<sup>1</sup>

##### The data have landed

First, they said they needed data  
about the children  
to find out what they're learning.  
Then they said they needed data  
about the children  
to make sure they are learning.  
Then the children only learnt  
what could be turned into data.  
Then the children became data.<sup>2</sup>

---

<sup>1</sup> Scottish Government (2017:9).

<sup>2</sup> Posted in his blog and tweeted by Michael Rosen at 22:20. Thursday, 8 February 2018.

## ABSTRACT

To date there is a surprising lacuna in our knowledge of the Scottish Government's research policy for educational research despite its national implications including a marginalising of academic departments of education in and statistical preferences about methodologies favoured in contract funding. In 2017 the Scottish Government's stated policy illustrated favoured: quantitative methods and private sector market research company expertise as a seeming neutral knowledge provider

This paper provides an analysis and critique of the Scottish Government's 2017 policy paper about the role, nature and organisation of educational research. The discourse analysis methodology deployed to evaluate the policy document focusses upon revealing the policy's spurious claims to objectivity and hegemonic aspirations over moderating professionalism. It is suggested this policy also annexes the neutral resonance of the concept of research for political ends achieved through 'data management' of school teaching cultures and other users of research produced evidence.

It is concluded that its 2017 research commitment is tantamount to being an ideologically motivated investment privileging hegemonic control over the organisation, management and construction strategically manufactured data sets. The policy zeitgeist therefore represents an audit culture designed to support a concept of evidence-based practice in a cosmos of league table metrics and growing restrictions over professional autonomy.

**Keywords:** *education, factoid, metrics, research, Scotland, policy,*

## BACKGROUND

Michael Rosen is the former British Children's Laureate whose poem *The Data have Landed* rails against the impersonal treatment of childhood and damage that an extractive conception of education research imposes. On 30 March 2018 he recited his poem at the last *National Union of Teachers* conference, receiving a standing ovation from delegates. The concept of data is synonymous with scientific measurement and Rosen's concern is that "data" discourse in education de-humanises. It undermines child-centred education and its 'landing' symbolises its hierarchic authority over the nuanced process of child learning. Rosen's poem expresses horror at the replacement of human worth by abstracted control in the guise of value free 'data'. His poem is a reminder that research epistemology and its material forms are transformative of education practice and the identities of the children as learners (Blaikie and Priest, 2017; Weber, 1987). The first enunciation from the Scottish Government above his poem belongs to a different view of schooling that does privilege leading by data. The factoid concept reference in the paper's title is designed to connect with the argument of the paper that the 'data turn' is problematical and productive of misconception.

Looking further into this issue the notion of data as a mere technical phenomenon as opposed to the external world being a socially constructed entity. Positivist assumptions conjure quantitative knowledge as impersonal and objective, in the vein of the positivist research paradigm (Little, 2019). That technicist ontology of social reality obviates notions values, contested philosophies of education and politics as underpinning interpretation of the social world. Max Weber described the dangers of an anonymising public discourse that resulted from a bureaucratisation of institutional practices. Anonymisation signals a calculative political bureaucracy (Bastin, 2009). Williamson (2016) charts the growth of digitised data analytics to govern

education systems, track and predict student performance; he refers to this as being a technique of education governance that confine education futures. A guise of seemingly objective statistical data he argues is incorporated into education governance and social control. Data governance, Williamson argues, is not a neutral form of steering (see Ozga, 2009). This project of governance through a type of knowledge production and deployment is associated with the role coercive and regulative approach to education adopted by the World Bank as a research creator (Zapp, 2017).

The research questions this study attempts to answer are twofold: what is the Scottish Government's nature of its data system devised as an education research strategy, expressed in its document *A Research Strategy for Scottish Education 2017* ('the 2017 research policy') attempting to do? And secondly, what does it tell us about the Scottish Government's ideological positioning towards research, teaching and expectations about professionalism? A critical case study is developed to explore this national policy ideology, produced in Scotland by its government officials. It is hypothesised that this policy orientation is likely to liquidate critical investigations of the education system and command the ground over research provision and quality assurance matters in an ecology beyond academia. The Scottish Government's research strategy is available on its website and searchable through academic library key word protocols. Such searches indicate that the Scottish Government identified research as a mechanism to audit and control education through data production systems of management. The latter are already dominant in policy fields including rural affairs, environment, health, and social care.

The education policy is therefore drawn from an national institutional idiom favoured by a governmentality of the Scottish Government's evidence-based zeitgeist leaning (Scottish Government, 2014, 2015). That zeitgeist, it is argued, situates the policy analysed within a functionalist business framework rather

than an academic platform designed to explore and accept intellectual serendipity. An upshot of that narrow orientation to knowledge production is research tendering and contract outsourcing means there can be patronage of networks outside of academia which reduce further its place in society along with its intellectual resources. The analysis undertaken identifies conditions conducive to privileging of non-academic networks, and a continuation of a historical impetus towards an ecology of research-reporting and the required labour processes that are not investigated through academic peer review; instead, such research report documents are eminently suited to bureaucratic evaluative mechanisms. This ontology of seemingly unproblematic knowledge production and its material representation belongs to the liminality of grey literature.

Research documents rather than academic papers are typically generated as the outputs of contract research tendering protocols. Such items belong to a category termed 'grey literature'. They are not subjected to academic peer-review falling therefore outside the scope of intellectual cultures of enquiry. Government departments are major producers of 'grey literature' whose purpose is to underpin and validate policy. 'Grey literature' includes documents that are not controlled by commercial publishing organisations. They are notoriously resistant to quality assessment. It is also difficult to search for and retrieve this literature (Adams *et al.*, 2016). The proliferation of 'grey literature' in modern society has left readers ignorant of its quality compared with 'white literature' which bears the quality hallmark of peer reviewing in academic journals (Farace, *et al.*, 2010: 30). The "facts" established by administrative policy officials in government units accustomed to output documents premised on quantitative methodologies, despite being 'grey information,' may nevertheless become established as legitimated policy factoids whose deeper research quality integrity is overlooked. These anonymizing documents

inevitably become sources for evidence-based practice (EBP) as they signal recommendations of Scottish Government education policy.

## **POLICY STEERING AND POWER**

To reiterate the paper's introduction the paper offers an interpretation of the 2017 education research policy as fundamentally a desire to articulate a new purpose for research governance in education. That purpose for research will bind schooling and professionalism to a narrow world of generalised bureaucratic governance that silences dissent from a status quo and moves education into the performativity characteristic of private sector business cultures. This interpretation clashes with received ideas about research as free enquiry, independent judgement and an absence of a prior political orientation. IN different terms an analogy is available to literary visions of society: oil fuel in Joseph Conrad's "carbon imaginary" underpinned projections of imperial social futures. In that cosmos knowledge was moulded to suit an "energy regime" designed to weaken critical interpretative practices about educational worth (see Tondre, 2020:59). So where does this narrow conceptual toolkit fit into the broader ideologies that characterise Scottish education outside of research fields found wider academic studies of Scottish education?

Biesta (2015) argues that a culture of measurement has eroded the democratic dimension of the teaching profession; his concept of 'the age of measurement' alludes to discourses of "added value" and other types of performance managerialism that shrink room for debate (Biesta, 2010). Humes (2021b) proposes that education bureaucracy in Scotland is autocratic, reflecting Weberian structures of power and subverting valued educational goals. Higher education is also afflicted by business practices that embed metrics of bureaucratic performance managerialism designed to deny agency; spurious question-begging administrative references to controlling vistas of "efficiency" and "effectiveness" are common tropes of this political position (Lynch, 2014;

Shepard, 2018). Humes (2020) describes the management of Scottish education as being a highly bureaucratic policy community of limited transparency and accountability. He cites the National Improvement Framework (Scottish Government, 2016) as part of this dominant narrative of controlling influence. Humes' (2020: 2) citation of the connection of this policy elite to PISA (Programme for International Student Assessment) is apposite to this paper as it foregrounds the concern of the governing group's commitment to calibrating the systems progress through quantitative benchmarks of pupil performativity in maths, reading and science (Scottish Government, 2010). In earlier and more recent work Humes (1986, 2021a) argues that a self-serving elite exercise control through stifling alternative voices in a zeitgeist of norms of professional conformity.

The privilege granted throughout the United Kingdom and elsewhere in recent years to a type of evidence-based policy narrative suggests a shift away from more subjective forms of governance by elite cultural formations, towards objective modes of control arising from scientific investigations of education phenomena (see Bridges *et al.*, 2009; Decuypere *et al.*, 2011). A quarter of a century ago evidence-based medicine spoke of a "new paradigm" based on experimental science to make practice cheaper and more effective. That knowledge base had simply to be mobilised into clinical work. Greenhalgh's (2014: 2) critique of that new paradigm highlights it as a "movement in crisis" drawing attention to unmanageable volumes of evidence, statistically significant benefits with limited clinical use in practice and carrying unintended consequences. Moreover, technology-driven algorithmic rules in medical environments create prompts that are management rather than patient driven, resonating with Humes' (2020) analysis that vested interests have misappropriated the evidence based "quality mark" in medical cultures.



The 2017 Scottish Government's research policy has not arisen *ex nihilo*. Numbering and measurement are pervasive qualities of systems thinking, designed to transform education practices into monolithic entities, the effectiveness of which can be assessed at a distance. The generalising power of political mathematics enables this contemporary ambition. Applied statistical methods, coupled with benchmarking through selected international comparisons, support a domineering form of research governance. Systems thinking is an approach to managing chaos and complexity as a platform for designing business architecture (Gharjedaghi, 2011). Persons, as Torrance and Forde (2017) recognise, are becoming mere aggregates of practices of mass data capture (Panayotova, 2019; Porter, 1995). In that vein Smart (2009) argues research methods are a means of knowledge construction that foster ways of seeing and judging reality. Torrance and Forde (2017) observe that Scotland's focus on narrow quantitative measures of attainment is in principle reductive; they may obliterate "social factors" that contribute to deeply rooted sources of disadvantage that explain attainment gaps.

The Scottish Government's analysis of the attainment gap is itself articulated through randomised controlled trials and quasi-experimental designs (Scottish Government, 2010; OECD, 2010; Sosu and Ellis, 2014). Hacking (1982) coins the phrase "avalanche of numbers" to describe the nineteenth century's fetishism for statistical categorisations of society's life events. For Hacking (1982: 280) the way we describe people is a by-product of the "needs of enumeration" as opposed to more inclusive and diverse classifications. Ben-Porath and Shahar (2017: 244) argue educational reforms informed by large data analysis will "flatten some of the features of the natural world and may give new meaning to the captured information". It is unsurprising that Hammersley (2013) refers to research-based policy as mythmaking: it reifies a selective vision as hegemonic and harmful (Hammersley, 2005).

## FORGING POLICY LIMITATIONS

Ball (2007: 9) argues research outsourcing by government and its agencies entails ‘destatisation’ which means the re-drawing of the public-private divide. Policy networks are increasingly a governance mechanism in public policy implementation and new public management (Murray, 2015).

McCambridge *et al.* (2013) report the risks of collaborative working that undermine the evidential integrity of policymaking arising from the influence of industry and corporations over Scottish Government health policies, where they found these actors misrepresented strong research evidence and promoted weak evidence in line with commercial interests. The evaluation of the Scottish Government’s *Applied Educational Research Scheme* (AERS) raised, besides governance difficulties, concerning issues of quality and impact (Taylor *et al.*, 2007). The Government, having invested millions of pounds of public funding in AERS, found the research quality and outcomes of the resulting work of UK universities disappointing. That experience of partnership with academics in higher education would no doubt have dampened their estimation of higher education’s relevance and research capacity and influenced policy decisions to look elsewhere for expertise.

Think Tanks or policy institutes are examples of organisations that support the development of evidence bases required by policymakers. Besides this research function these actors outside of academia conduct advocacy, influencing public opinion whilst keeping desired policies within political boundaries (Misztal, 2012; Nisbet, 1995). Think Tanks promote specific economic models and celebrate holding private meetings with ministers and business leaders (Stahl, 2008).<sup>3</sup> The Scottish Government’s contracting in 2018 included £50,000 won by *Craigforth* based in Castle Business Park, Stirling which describes itself as a

---

<sup>3</sup> <https://www.careers.ox.ac.uk/think-tanks>. Downloaded: 20/8/20.

“leading social research and support company”.<sup>4</sup> On Craigforth’s website the brand is projected as “Quality Research, Genuine Insight”. Academic credentials including research papers are not recorded on its website. The Craigforth team are described as “consultants” who are “able to approach a subject from many different angles”. Parallel to this profile is the company called *Why Research* based in Edinburgh whose website lists no publications nor are the CVs of its staffing identified.<sup>5</sup> Elements of anonymity surround the expertise that helps forge contributions to research policymaking. The concept of ‘grey’ extends beyond literature and knowledge to the Scottish Government’s choice of networks.

The Craigforth contract was to “support the implementation of the government’s commitment to provide 1140 hours of funded Early Learning and Childcare (ELC) by 2020, and as well to contribute to the evaluation of the expansion of funded ELC”.<sup>6</sup> Other market research companies funded by the Scottish Government include IPSOS Mori, SYSTRA, ScotCen Social Research, EKOS Limited, Progressive, ICF Consulting Services Limited, Why Research, and NFER (see Holligan, 2013). The Scottish Government’s favoured Education Endowment Foundation (EEF) utilises randomised controlled trials to evaluate pedagogy.<sup>7</sup> Citations of reputable international policy players gives symbolic legitimation to the Scottish Government’s research orientation:

“This approach has been formulated following the recommendations of *Improving Schools in Scotland: An OECD Perspective* - the 2015 review by the Organisation for Economic Co-operation and Development (OECD) of Curriculum for Excellence

---

<sup>4</sup> <http://www.craigforth.co.uk/>.

<sup>5</sup> <https://whyresearch.co.uk/>. Downloaded 21/3/21.

<sup>6</sup> <https://www2.gov.scot/Topics/Research/About/Social-Research/SR-Contracts>. Downloaded: 1/02/20.

<sup>7</sup> [www.educationendowmentfoundation.org.uk](http://www.educationendowmentfoundation.org.uk)

(CfE). In it, they argue for a more coherent approach to using data across the school system, in order to drive improvement”. (Scottish Government, 2017:2)

Scholars argue that the drive for school improvement will embed within an ideology of fact-gathering rather than looking at meanings, as big data’s grip on education policy deepens an ideology of ‘what works’ (Rokowski, 2017; Dawson *et al.*, 2018). Zhu *et al.* (2019) have modelled big data processing flow in the analysis and mining of large datasets, noting the use of decision-tree models to predict academic achievement by drawing upon student demographic data. Lafrate (2015) notes Big Data is concerned with data processing, in distinction to Smart Data which is concerned with analysis and value and integrating Big Data into business decision-making. Exemplars of this regime are available on Education Scotland’s National Improvement Hub where statistical sources are privileged, such as the work of the OECD and PISA.<sup>8</sup>

Education Scotland is a national body tasked by Government with supporting quality and improvement in learning and teaching. ‘What works’ is a key trope informing this policy culture.<sup>9</sup> Digital strategies and Big Data are championed by the Scottish Government as mechanisms to reform the public sector, enhance competitiveness and prepare children for the future workplace (Scottish Government, 2017). Arnott (2018) recognised how the Scottish National Party (SNP) administration developed its education and political policies through comparative national education performance data, acquired from the OECD PISA survey on attainment in 2016, to shape its policy debates and governance values. The foregoing review of the literature demonstrates there are grounds to expect a research strategy policy to endorse certain predictable limits to

---

<sup>8</sup> <https://education.gov.scot/improvement/research>.

<sup>9</sup> <https://www.jrf.org.uk/report/closing-attainment-gap-scottish-education>  
Downloaded: 13/3/20.

knowledge and external scrutiny. Critical discourse analysis is an ideal methodology through which to signpost the ideology underlying ontologies of data.

### **CRITICAL DISCOURSE ANALYSIS (CDA)**

Critical discourse analysis is a methodology associated with qualitative research strategies used across the social sciences and humanities. Leading international academic journals specialise in this approach; the Taylor and Francis journal *Critical Discourse Studies* and the Sage journal *Discourse Studies* are exemplary in this regard. This analytic esteem is reflected in educational policy analysis (Rogers *et al.*, 2016). The analysis within this tradition of enquiry often explores and exposes, through a micro-textual analysis, the ways in which a macro-ideological presence exists and thus it offers understanding of the wider political life of the micro-components of text. CDA deconstructs texts in ways that demonstrate enunciations of oppression through the discourses favoured by their authors. CDA frames policy and policymaking as a discursive or semiotic entity which, being aligned with the interpretivist tradition, foregrounds meaning over measurement (Fairclough, 2013). Social reality in this theoretical treatment is constructed by means of representations inscribed in discourse which then shape what is true within the social reality that policy produces.

So, Fairclough (2013) argues a discourse is a semiotic way of constructing social reality which it then governs in terms of the values inherent in the policy discourse (Fairclough and Fairclough, 2012). Reinforcing the micro-macro relationship is a body of evidence that presents CDA as supportive of classifying and identifying neo-liberal trends, dominations and exploitation (Ball, 2007; Fairclough, 1993; Rogers *et al.*, 2016; Apple, 2013). A discourse, therefore, unsurprisingly, defines what is the legitimate perspective through which a desired micro-physics of power operates (Leeuwen, 2008; Ball, 2007:1). Discourses are “institutionally consolidated practices of articulation” that

determine individual and collective action (Reisigl, 2013:11). The mantra ‘What works’ is illustrative of a discourse that was originally imported from the US which conceptually expresses the notion of evidenced-based policy. Fordham (2015) discovered that Stenhouse’s original vision of teacher research on curriculum construction and interpretation is no longer prevalent in English education policy. In its place is ‘what works’ pragmatism, often legitimated through the use of quantitative research methodologies, and he concludes it is now the dominant paradigm for the governance of the professional development of the teaching workforce. So how is this theorising enacted when applied to the analysis of the 2017 Scottish Government’s research strategy publication? The research questions set out in the paper’s introduction are addressed through the discourse analysis that follows and which describes a neo-liberal rationality.

## **ANALYSING THE 2017 RESEARCH STRATEGY**

### **Research (re) purposing**

The literature analysis given earlier demonstrates that the construction of knowledge and its mobilisation is a dominant form of prescriptive governance and mode of legitimating policy choice. The 2017 research strategy is not an exception to the ambitions of this policy world. We can characterise it as a quasi-scientific colonisation of education professionalism and it reaches its bony arm around definitions of effective teaching. The ribs of this embodiment of evidence mobilisation are adumbrated through a seemingly enlightened desire towards collegiality, for example through a discourse of a “sharing of the lessons of international evidence,” indicative of a purported shift towards alternate and generic sources of wisdom. Research re-purposing is effected through particular policy priorities that the national research strategy is expected to be instrumental in delivering.

Four Scottish Government national priorities underpin the workload of the 2017 strategy that are likely to be delivered by concatenations of partnerships, echoing previous histories of research contracting. The national priorities are expressed as follows: improving attainment especially in literacy and numeracy, closing the attainment gap between the most and least disadvantaged children, improving children and young people's health and wellbeing, and enhancing employability skills to ensure school leavers access positive destinations. Local authorities "must collaborate effectively" with school leaders and teachers to explore "outcomes" "impact", "interventions" and "improvement". Its nomenclature of "standards" and "quality indicators" are managerialist moves fostering different conversational exchanges not only in staff room conversations, but also embodied in assessment protocols. Michael Rosen's dystopian imaginary can embrace these attempts to re-model professionalism as research data and research evidence enter a professional life world and its governance through a dogma of evidence (Ball, 2007; Ben-Porath and Shahar, 2017; Biesta, 2015). So how does this analysis of the spirit of the 2017 policy present in the details of that policy as a written document that largely eschews academic issues throughout its strategic engagement with deliverables?

### **Discursive control mechanisms**

The phrase "discursive control mechanisms" in this section indicates the conglomeration of managerialist terminology that establishes the political life of the research strategy. Printed in bold type in the strategy document **The Research Challenge** refers to the Scottish Government's instruction that "research activities" must deliver the National Improvement priorities. It shouts at the reader to pay attention to and accept their construct of challenge. According to the 2017 Strategy teachers as research workers are expected to submit to being "trained" and accept they have "better access to data" to support "research infrastructure", undertake "system performance" and identify "what

works”. The teaching workforce through “effective commissioning and dissemination of evidence” will become more effective. Workshops will train professionals to understand “the use of data and evidence”.

The national Challenge is disaggregated by reference to “**Key Actions**” (KA) which research projects are expected to deliver. Each of the three **Actions** is pervaded with a discursive linguistics: “system characteristics”, “empowerment”, “infrastructure”, “best evidence”, “collaboration and interchange” and “networks”. According to Michel Foucault modern power is exercised through discourses with the notion of evidence being mobilised to organise governance (Cameron and Panovic, 2014). Moreover, the KA must use “existing datasets”, develop “improved data”, “translate international lessons”, “develop new Scottish evidence” and “implement the lessons of research” designed for “empowering practitioners to produce and use evidence and data” and “behaviour of secondary indicators” about attainment. Akin to narrative research paradigms the aim in the following sections is to describe and understand the 2017 strategy rather than measure and predict (Salkind, 2012). From the thick description given in this section research is constructed as a machine whose self-referential nature disconnects it from the poignant reality portrayed by Michael Rosen. Conforming to a narrative structure the following three sections utilise extracts from the 2017 document to illustrate its prescriptive meaning and political destination.

### **Discourse 1: Data frame**

A discursive strand presents the nature of research as the “sourcing” of data nationally and internationally, a model followed by the EEF, mentor and partner of the Scottish Government. Under the Freedom of Information Act (Scotland) 2002 the author requested from Scottish Government on 28 February 2020 data about the EEF partnership that connected with Scottish Government policy. The response (received 25 March 2020) came from the *Scottish Attainment*



*Challenge Policy Unit*. The Unit indicated EEF enabled the introduction of the Learning and Teaching Toolkit into the Scottish school system, and described this resource as presenting “accessible summaries of global research on 35 different educational approaches”.<sup>10</sup> The FOI also revealed that the EEF was resourced by £68,000 of funding in the years 2017/18 and 2019/20 for work with *Annual Attainment Scotland*. The EEF’s leaning towards quantitative evidence base is echoed in the purposeful construction of education research’s role, described in the 2017 strategy as follows:

“We believe that each level of the education system in Scotland has a vital role in harnessing the power of evidence and data in order to deliver continuous improvement in the education system”. (Scottish Government, 2017:2)

Power as invested in “evidence and data” emerges as a panacea for positive growth in education. Philosophical contestation about the purpose of schooling and educational ideals are not connected and so we are ignorant of the meaning of the national trajectory. The education system presents as lacking energising resources. The education research strategy incorporates a model about the governance of education that prescribes how teachers must work under the auspices of this data superstructure of “continuous improvement”. Data framing is accompanied by an intensification in monitoring and professional control (Ozga, 2009). Collegiality is folded in the envelope of teamwork whose agency is defined by the boundaries of a vision of medical practitioners engaged in delivering clinical sessions, or working as applied machine learning engineers:

“Teachers must collaborate with their Support staff, parents, children and young people to identify patterns and outcomes for individuals. In addition, they are expected to design and deploy appropriate interventions, and monitor impact to learn lessons for improvement”. (Scottish Government, 2017:3)

---

<sup>10</sup> FOI Reference: 202000018463. The Toolkit contract ended on 31<sup>st</sup> March 2020.

Discourses circulate in the document as a “data driven approach”. These extracts suggest a social world of grey research governance from which human feeling, values and difference have been removed. Yet schooling is inseparable from its connectedness to humanity and its flourishing. Michael Rosen suggests that aliens have landed and stolen education, a disappointment he might feel reinforced by this command:

“Combining this coherent approach to data with research to effectively share the lessons of international evidence, to identify effective interventions, establish ‘what works’ in the Scottish context and continuously learn from the data that is gathered ... This data driven approach will be combined with a focus upon increasing the levels of collaboration and communication... (Scottish Government, 2017:3)

This ‘data turn’ in education conjures education in the form of a mechanism whose engine oil is data. Governance is abstracted and seemingly free of cultural bias. The data driven model means it may be sourced beyond the nation state. The anonymity that characterises the depiction of evidential processes recurs in the intellectual thinness of the representation of expertise set out on the websites of its private and third sector research partners.

### **Discourse 2: Governance frame**

This paper identifies a policy implementation regime within a bureaucratic tradition using managerial practice to secure a politics of education. The networking described indicates empathy for private sector managerial techniques in the creation and distribution of knowledge (Osborne, 2010). Governance is not a matter for conversational exchange or even professional dialogue and debate. Instead, it is categorically asserted how it will work for the conduct of future education research, as the following extract illuminates:

“We will incorporate the governance of this programme within the wider governance arrangements in place for education in Scotland, and in particular will ensure

reporting lines to the National Improvement Framework Programme Board.” (Scottish Government, 2017:14)

Williamson (2015, 2016) describes these “reporting lines” and accountability hierarchy as policy instruments. The voice of a technocratic state is annexing education and re-defining professionalism by locating it within managerialist audit. Governance of the programme put forward in the 2017 policy document is extended to “stakeholders” whose identity is not shared and “a wider group of researchers” which does not necessarily include university academics:

“an **Academic Reference Group**, containing a wider group of researchers and stakeholders, will be convened to offer advice and guidance on the future direction of the strategy.” (Scottish Government, 2017:14)

The classification of ‘academic’ expertise in this way suggests a service role, not a role that is foundational to the bureaucracy operation or its initial oversight of methodology and networking. The anonymity of the Academic Reference Group means it is ‘grey’ in the manner of the anonymised ideologies in research companies in this policy network. The marginal status of academics and universities symbolises a continuation of what A.H. Halsey (1995) quaintly called a decline of “donnish tradition” following Thatcherite reforms of academic tenure. Neoliberal rationality instead privileges other types of expertise including the EEF’s work of building centres of excellence (Scottish Government, 2017:14). The policy document describes “a need to maintain accessible up-to-date summaries of the state of existing evidence on interventions” (Scottish Government, 2017:14). Governance through hierarchies is couched in a business world idiom of “delivering”, “secretariat”, “evolution”, “cost” and “investments”. Accordingly, the National Advisory Group which evaluates performance and delivery:

“...will be made up of organisations who have a direct role in evaluation and research. They will feed into the development and evolution of the strategy, but have a more direct role in delivering particular aspects and will be well informed about existing networks and investments in education research...” (Scottish Government, 2017:14)

Williamson (2015, 2016) argues educational institutions and governing practices have increasingly turned to digital data-base technologies that function as policy instruments. These data visualisations construct knowledge of education systems and are coupled with learning analytics that afford tracking learner performance. One of the 2017 policy’s advisory group’s remits is to “Oversee an on-going engagement process with stakeholders” (Scottish Government, 2017:14). Annex A in the 2017 document lists the “organisations contacted”. Edu-capitalism relies upon technocratic governance to serve the state’s ambition to become embedded in a globalising knowledge economy.

### **Discourse 3: Business frame**

Businesses are ideological sites for struggle over language where politics, business and society are inextricably linked (Barakos, 2020). Social organisation discourse is a site of agency and power (Alhaidari, 2017). Workplace meetings display hierarchy, technical procedural steps respect it (Alhaidari, 2017). So how is this pertinent to the research strategy? The exploitation of a bullet point format for the 2017 policy document forecloses debate and impedes controversy. Business communication advocates visual toolkits to make messages stick (Shaw, 2015). Bullet point communication as a process of rationalisation seals off threat from alternative research strategy visions and governance, effectively performing Adam Smith’s “invisible hand” of governance (Gerth and Mills, 2009). Accountability mechanisms are widespread in the neo-liberal education policy (Taylor Webb, 2011).

The fifteen pages that comprise the 2017 research policy document are peppered by ninety-five bullet points. (Scottish Government, 2017). It is a discourse of can and will do. Exemplar ‘can do’ action statements fall under the rubric “The research challenge”. A second cluster of these directives lurk beneath the heading: “System characteristics and performance: what works and what has worked?” which is elucidated as follows:

- “Deploying the best available international evidence through partnership with the Education Endowment Foundation.
- Translating international lessons into the Scottish context and developing new Scottish research evidence.
- Examining the capacity and structure of education professionals to receive and implement the lessons of research and recommend necessary changes”. (Scottish Government, 2017:4)

Wolf’s (2018) analysis of public relations and activist communication recognises that bullet point discourse reflects the political management of corporate goals and the elimination of challenge. A business framing prescribes what will count as research territory and it will legitimate that field (Goffman, 1974). Taylor Webb (2011: 735) argues neo-liberalism is a political-economic theory that emphasises the efficiency of market economics to develop and legitimate government priorities. Data, governance, and business frames interpenetrate; together they deliver neoliberal rationality, and (presumably) Michael Rosen’s worst knowledge management nightmare. It is not surprising that the SNP has consistently sought to ‘frame’ the issue of independence in economic terms; Elias’ (2019) theorising of that strategic behaviour is consistent with the econometric business tone of its education research policy.

## **DISCUSSION**

This paper claims to illustrate the presence of a monochromatic political skin wrapping the Scottish Government’s 2017 education research policy. That

policy is premised upon positivism and holds the key to making Scottish education ultimately congruent with a globalised model of educational induction into neo-liberal attitudes and the lifestyle of the marketplace. The Scottish Government's 2017 policy document emphasises that the front line in the classroom requires data that has been moulded into a synthesis of "existing knowledge". The origins and integrity of the sources utilised are areas of silence. As the field of the systematic review has received Scottish Government funding, such reviews might take that role. Traditionally the local schoolmaster was held in esteem in Scotland and local schools were of great importance in the nineteenth century. Together with the local authorities the schoolmaster has played a key role in determining education policy and practice since the Reformation in Scotland. The individual 'lad of parts' formed part of this democratic sentiment (Raftery *et al.*, 2007; Paterson, 2003). The teacher of the twenty-first century is being co-opted into a front line that is not of their own making and where data will govern.

In this paper it is argued that the 2017 research strategy is designed to cause a re-orientation in the nature of professionalism, centralise power through metrics, potentially block dissent and make intellectual alternatives to the dominant mainstream educational practices invisible. The downgrading of independent scrutiny as argued in the paper's introduction will inevitably shape the credibility and legitimacy of the outputs. The quantitative logic characterised through discourse analysis demonstrates interconnections between a business culture and its preferred mode of communication (Fuchs, 2017).

As noted earlier "new paradigms" annex objectivity and truth (Ball, 2007: 2). Hartley (2019) describes how an algorithmic bureaucratic governance of education has taken hold of the management of education. In similar vein, Biesta (2009) laments that, despite early promises of innovation, the Teaching and Learning Research Programme (TLRP) in England foregrounded evidence

as factual data over qualitative meaning and ignoring value issues.<sup>11</sup> Further disenchantment amongst academics is found in Garland's (2012) discussion about the demise of education's role in creating a society worthy of humanity. Garland cites Paul Goodman (1966) who classified school education as a case of "Compulsory Mis-education" designed to inculcate conformity. There are clearly fundamental debates about educational values and the purpose of education which do not feature in the 2017 policy for education research formulation. There is, indeed, a telling absence of academic sources to evidence the claims of this policy.

Biesta (2010) is not alone in his concern that what is measurable may lack educational importance and stifle alternative ideological debates about the forms of good education. A politics of measurement is integral to the fabric of institutional power, which some may also regard as a masculine construction (Foucault, 2008; Mills, 2017). That ontology of research practice finds echoes across other institutions, such as the General Teaching Council for Scotland, which belong with those who govern Scottish education and are gatekeepers of what is acceptable authority.

Goldstein (2004) describes how in the US teachers policed themselves into silence, fearing personal and professional sanctions if they critiqued the national policy called '*No Child Left Behind*'. EBP is intended to re-orientate the apparently subjective mindset of classroom practitioners towards practices based upon formal research evidence (Lingard, 2013). In recent years the Scottish Government has networked with and celebrated the work of The Education Endowment Foundation (EEF) also funded by the English Department of Education, London. That alliance is not exceptional to the 2017 policy's capitalist neo-liberal leanings. The EEF provides:

---

<sup>11</sup> TLRP *Teaching and Learning Research Programme*.

“Summaries of education evidence, offering teachers ‘best bets’ of what has worked most effectively to boost the attainment of disadvantaged pupils”.

EEF ‘help’ is presented as a discourse of “Toolkits” available to teachers, to fix and repair teaching and learning in classroom environments.<sup>12</sup> The EEF describes its origins and types of support as follows:

“The Education Endowment Foundation was established in 2011 by The Sutton Trust, as a lead charity in partnership with Impetus Trust (now part of Impetus - The Private Equity Foundation) with a £125m founding grant from the Department for Education. The EEF and Sutton Trust are, together, the government-designated What Works Centre for Education”.

The EEF aims to build “a global evidence ecosystem for teaching”. It has a funding stream connected with “The Private Equity Foundation”.<sup>13</sup> The Scottish Government comments that the EEF will “help develop the Scottish research infrastructure and resource” (Scottish Government, 2017: 8). Stepping back, these developments are congruent with the knowledge economy of twenty-first century capitalism (Peters and Taglietti, 2019; Peters and Neilson, 2019; Sellar and Zipin, 2019). The EEF has commented that it has contributed to the existing evidence base “by funding over one hundred randomised control trials (RCTs) in education” (Dawson *et al.*, 2018: 292). C.W. Mills (1959 [2000]: 3) was prophetic in his judgement that people:

“often feel that their private lives are a series of traps...their visions and their powers are limited to the close-up scenes of job, family and neighbourhood...Underlying this sense of being trapped are seemingly impersonal changes in the very structure of continent-wide societies...”

---

<sup>12</sup> <https://educationendowmentfoundation.org.uk/evidence-summaries/>

<sup>13</sup> <https://impetus.org.uk/our-team>



Teachers' labour will fall within what Rose (1999: 52) refers to as "technologies of government" which are "imbued with aspirations for the shaping of conduct in the hope of producing certain desired effects..." F. W. Taylor's (1856-1915) industrial production-line 'scientific management' strategy, as Rose suggests, is an example of governance designed to increase the efficiency of labour through conduct control. Taylor was credited with destroying the soul of work and fostering dehumanizing conditions, ushering in a general deterioration in working conditions (Crowley *et al.*, 2010).

Sellar and Zipin (2019) argue the production of human capital has become an increasingly key rationale for education policy. Peters and Taglietti (2019) refer to mathematics and the "Technology-State". Repo (2017: 157) argues gender equality legislation is an expression of a bioeconomic "technology of power" designed to maximize the life productivity of European populations within neoliberal governmentality. Biopolitics, she proposes, takes biological life as the object of governance. The population as a biological entity is seen as the source of economic reproduction (Foucault, 1981). By virtue of examining the 2017 education research policy we learn that its construction makes us all amenable to the biopower of the state and its expression through national politics. It is important to recognize how the commodification of research which has resonance in the European enlightenment can be re-purposed to serve other values. Through setting up systems of mass state education through pseudo-scientific data generation the Scottish policy making establishment is on a course that will stultify creativity. By co-opting research into this questionable agenda, the policy makers will create an illusion that we are embarking on a new era of educational enlightenment free from historical prejudice.

## REFERENCES

Adams, J., Hiller-Brown, F.C, Moore, H.J. and Lake, A.A. (2016) Searching and synthesising ‘grey literature’ and ‘grey information’ in public health: critical reflections on three case studies, *Systematic Reviews*, 5:164.

AlHaidari, F.M. (2017) *The Discourse of Business Meetings.: Agency and Power in Financial Organisations*. Palgrave Macmillan.

Apple, M.W. (2013) Between traditions: Stephen Ball and the Critical Sociology of Education, *London Review of Education*, 11(3): 206-207.

Arnot, M. (2018) Reshaping the ‘nation’: education, ‘performance data’ and policy discourses in Scotland. *European Conference on Educational Research*, Free University of Bolzano, Italy

Ball, S. (2007) *Education plc: Understanding private sector participation in public sector education*. London: Routledge.

Barakos, E. (2020) *Language Policy in Business: Discourse, Ideology and Practice*. Amsterdam: John Benjamin Publishing Company.

Bastin, M. (2009) The mediatisation and anonymisation of the world in the work of Max Weber, *Max Weber Studies*, Vol. 9 (1/2): 123-141.

Ben-Porath, S. and Shahar, T.H.B. (2017) Introduction: Big data and education: ethical and moral challenges, *Theory and Research in Education*, 15(3): 243-248.

Biesta, G.J.J. (2009) *Educational research, democracy and TLRP*, *Education-line*: Invited lecture presented at the ESRC Teaching and Learning Research Programme Event Methodological Development, Future Challenges London.

Biesta, G.J.J. (2010) *Good education in an age of measurement: Ethics, politics, democracy*. Boulder, CO: Paradigm.

Biesta, G.J.J. (2015) Education, Measurement and the Professions: Reclaiming a Space for Democratic Professionalism in Education. *Educational Philosophy and Theory*, 49(4): 315-330.

Blaikie, N. and Priest, J. (2017) *Social Research: Paradigms in Action*. Cambridge: Polity Press.

Bridges, D., Smeyers, P. and Smith, R. (eds) (2009) *Evidence-based education policy: what evidence? what basis? whose policy?* West Sussex: Wiley Blackwell.

Cameron, D and Panovic, I. (2014) *Working with Written Discourse*. London: Sage.

Crowley, M., Tope, D., Chamberlain, L.T. and Hodson, R. (2010) Neo-Taylorism at Work: Occupational Change in the Post-Fordist Era, *Social Problems*, 57(3): 421-447.

Day, S., Lury, C. and Wakeford, N. (2014) Number ecologies: numbers and numbering practices. *Distinktion: Journal of Social Theory*, 15(2): 123-154.

Dawson, A., Yeomans E. and Brown, E.A. (2018) Methodological challenges in education RCTs: reflections from England's Education Endowment Foundation. *Educational Research*, 60(3): 292-310.

Decuyper, M, Simons, M. and Mauchelein, J. (2011) 'Perform, measure, accurately optimise': on the constitution of (evidence-based) education policy, *International Studies in Sociology of Education*, 21(2): 115-135.

Elias, A. (2019) Making the economic case for independence: The Scottish National Party's electoral strategy in post-devolution Scotland, *Regional & Federal Studies*, 29(1): 1-23

European Union News (2013) *UK Contract Notice: Scottish Government Social Research Issues Contract Notice for Engaging Families to address the Achievement Gap in Scottish Education - an Evidence Review*. 18 December.

European Union News (2014) *Scottish Government Contract Notice: Education Scotland Issues Contract Notice for "Knowledge into action in Education: Research and Development Project"*, 16 August.

Fairclough, I. and Fairclough, N. (2012) *Political Discourse Analysis: A Method for Advanced Students*. London: Routledge.

Fairclough, N. (1993) *Discourse and Social Change*. Cambridge: Polity Press.

Fairclough, N. (2013) Critical discourse analysis and critical policy studies. *Critical Policy Studies*, 7(2): 177-197.

Farace, D. and Schopel, J. (2010) *Grey Literature in Library and Information Studies*. Boston: K.G. Saur.

Fordham, M (2015) Realising and extending Stenhouse's vision of teacher research: the case of English history teachers, *British Educational Research Journal*, Vol. 42 (1): 135-150.

Foucault, M. (1981) *The History of Sexuality 1: The Will to Knowledge*. Harmondsworth: Penguin.

Foucault, M. (2008) *The Birth of Biopolitics: Lectures at the College De France 1978-79*. Trans. G. Burchell 2008. New York: Palgrave Macmillan.

Fuchs, C. (2017) Raymond Williams' communicative materialism, *European Journal of Cultural Studies*, 20(6): 744-762.

Garland, C. (2012) "We Teach All Hearts to Break": On the Incompatibility of Education with Schooling at All Levels, and the Renewed Need for a De-Schooling of Society, *Educational Studies*. Jan/Feb2012, 48(1) 30-38.

Gerth, H.H. and Mills, C.W. (2009) *From Max Weber: essays in sociology*. Oxford: Routledge.

Gharjedaghi, J. (2011) *Systems Thinking: Managing Complexity and Chaos: A Platform for Designing Business Architecture*. Burlington: Elsevier.

Goodman, P. (1966) *Compulsory Miseducation and the Community of Scholars*. New York: Random House.

Goffman, E. (1974) *Frame Analysis: An Essay on the Organization of Social Life*. London: Harper & Row.

Goldstein, R.A. (2004) Who Needs the Government to Police us When We Can Do It Ourselves? The New Panopticon in Teaching. *Cultural Studies – Critical Methodologies*, 4(3): 320-328.

Greenhalgh, T. (2014) Evidence based medicine: a movement in crisis? *British Medical Journal*, 348: 1-7.

Hacking, I. (1982) Biopower and the Avalanche of Printed Numbers. *Humanities in Society*, 5: 279-295.

Halsey, A.H. (1995) *Decline of donnish dominion: the British academic professions in the twentieth century*. London: Clarendon Press.

Hammersley, M. (2005) "Is the evidence-based practice movement doing more good than harm? Reflections on Iain Chalmers' case for research-based policymaking and practice", *Evidence and Policy*, 1(1): 1–16.

Hammersley, M. (2013) *The Myth of Research-Based Policy and Practice*, London, Sage.

Hartley, D. (2019) The emergence of blissful thinking in the management of education, *British Journal of Educational Studies*, 67(2): 201-216.

Holligan, C. (2013) Liquid modernity: Exploring the Research-Contract Nexus within Contemporary Scottish Political Culture. *Scottish Educational Review*, 45(1): 6-22.

Humes, W.M. (1986) *The Leadership Class in Scottish Education*. Edinburgh: John Donald Publishers.

Humes, W.M. (2020) Re-Shaping the Policy Landscape in Scottish Education, 2016-2020: The Limitations of Structural Reform, *Scottish Educational Review*, 52(2).

Humes, W. (2021a) Power, policy and personality in Scottish education, 1885-1928, *Journal of Educational Administration and History*.

Humes, W. (2021b) The 'Iron Cage' of Educational Bureaucracy, *British Journal of Educational Studies*, 1-19.

Lafrate, F. (2015) *From Big Data to Smart Data*. London: John Wiley and Sons.

Leeuwen, T. (2008) *Discourse and Practice: New Tools for Critical Analysis*. Oxford Scholarship Online.

Little, D. (2019). Positivism. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations*, pp: 2-5.

Lingard, B. (2013) The impact of research on education policy in an era of evidence-based policy. *Critical Studies in Education*, 54(2): 113-131.

Lynch, K. (2014). Control by numbers: new managerialism and ranking in higher education, *Critical Studies in Education*, 56(2): 190-207

McCambridge, J., Hawkins, B. and Holden, C. (2013) Industry Use of Evidence to Influence Alcohol Policy: A Case Study of Submissions to the 2008 Scottish Government Consultation, *Policy Forum*, 10(4): 1-6.

Misztal, B. (2012) Public Intellectuals and Think Tanks: A Free Market in Ideas? *International Journal of Politics, Culture and Society*, 25(4): 127-141.

Mills, C.W. (1959 [2000]) *The Sociological Imagination*. Oxford: Oxford University Press.

Mills, C. (2017) *Biopolitics*. London: Taylor and Francis.

Murray, D.W. (2015) *Drowning under unintended consequences: a specific example of policy mess*. EdD Thesis, University of Edinburgh.

Nisbet, J. (1995) *Pipers and Tunes: A Decade of Education Research in Scotland*. Edinburgh: SCRE.

OECD (2010) *PISA 2009. Overcoming Social Background. Equity in Learning and Outcomes*. Vol. 111, Paris: OECD.

Osborne, S.P. (2010) *The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance*. London: Routledge.

Ozga, J. (2009) Governing education through data in England: from regulation to self-evaluation, *Journal of Education Policy*, 24(2): 149-162.

Paterson, L. (2003) *Scottish Education in the Twentieth Century*. Edinburgh: Edinburgh University Press.

- Panayotova, P. (ed) (2019) *The History of Sociology in Britain: New Research and Re-evaluation*. London: Palgrave Macmillan.
- Peters, M.A. and Neilson, D. (2019) New histories of capitalism: from delineation to critique. *Educational Philosophy and Theory*, 51(14): 1399-1407.
- Peters, M.A. and Taglietti, D. (2019) Deleuze's rhizomatic analysis of Foucault: Resources for a new sociology? *Educational Philosophy and Theory*, 51(12): 1187-1199.
- Porter, T.M. (1995) *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, NJ: Princeton University Press.
- Raftery, D. McDermid, J. and Jones, G.E. (2007) Social Change and Education in Ireland, Scotland and Wales: Historiography on Nineteenth-century Schooling, *History of Education*, 36:4-5, 447-463
- Reisigl, M. (2013) Critical Discourse Analysis. In: (Eds) R. Bayley, R. Cameron and C. Lucas (Eds.) *The Oxford Handbook of Sociolinguistics* 1-23. Oxford: Oxford University Press.
- Repo, J. (2017) Gender Equality as Bioeconomic Governmentality in a Neoliberal EU. In S. Prozorov, and S. Rentea (Eds.) *The Routledge Handbook of Biopolitics*. London: Routledge, 157-351.
- Rogers, R., Schaenen, I., Schott, C. and O'Brien, K. (2016) critical Discourse Analysis in Education: A Review of the Literature, 2004-2012. *Review of Education Research*, 86 (4), 1129-1226.
- Rokowski, G. (2017) Privatisation in Education and Commodity Forms, *Journal of Critical Education Policy Studies*, 15(3): 29-56.



Salkind, N.J. (2012) *Encyclopaedia of Research Design*. Thousand Oaks: Sage.

Scottish Government. (2010) *Programme for International Student Assessment (PISA) 2009- Highlights from Scotland's Results*. Statistics Publication Notice Education Series ISSN 1479-4569. Edinburgh: Scottish Government.

Scottish Government (2014) *Rural Affairs and Environmental Strategic Research Strategy 2011-2016*. Edinburgh: Scottish Government.

Scottish Government (2015) *Delivering Innovation through Research: Scottish Government Health and Social Care Strategy*. Edinburgh: Scottish Government.

Scottish Government (2016) *Delivering Excellence and Equity in Scottish Education: A Delivery Plan for Scotland*. Edinburgh: Scottish Government.

Scottish Government (2017) *A Research Strategy for Scottish Education*. Edinburgh: Scottish Government.

Sellar, S. and Zipin, L. (2019) Conjuring optimism in dark times: Education, affect and human capital. *Educational Philosophy and Theory*, 51(6), 572-586.

Shaw, G. (2015) *The art of business communication: how to use pictures, graphs and charts to make your message stick*. New York: Pearson.

Sosa, E. and Ellis, S. (2014) *Closing the Attainment Gap in Scottish Education*, York: Joseph Rowntree Foundation.

Smart, C. (2009) Shifting horizons: Reflections of Qualitative Methods, *Feminist Theory*, 10 (3): 295-308.

Stahl, J.M. (2008) *Selling Conservatism: Think Tanks, Conservative Ideology, and the Undermining of Liberalism, 1945-Present*. University of Minnesota, Doctorate. UMI Number: 3318033.

Taylor Webb, P. (2011) The evolution of accountability, *Journal of Education Policy*, 26:6, 735-756.

Taylor, C., Connolly, M., Power, S. and Rees, G. (2007) *Formative Evaluation of the Applied Educational Research Scheme*. Edinburgh: Scottish Government.

Tondre, M. (2020) Conrad's Carbon Imaginary: Oil, Imperialism, and the Victorian Petro-Archive, *Victorian Literature and Culture*, 48(1): 57–90.

Torrance, D. and Forde, C. (2017) Social Justice Leadership in Scottish Education, *Scottish Educational Review* 49(1): 51-66.

Weber, M. (1930/2001) *The Protestant Work Ethic and the Spirit of Capitalism*. London: Routledge.

Weber, M. (1987) *Economy and Society: An Outline of Interpretative Sociology*, (Eds) G. Roth and C. Wittich. Berkeley: University of California Press.

Williamson, B. (2015) Governing software: networks, databases and algorithmic power in the digital governance of public education, *Learning, Media and Technology*, 40(1): 83-105.

Williamson, B. (2016) Digital education governance: data visualization, predictive analytics and ‘real-time’ policy instruments, *Journal of Education Policy*, 31(2): 122-141.

Wolf, K. (2018) Power struggles: A sociological approach to activist communication. *Public Relations Review*, 44, 308-316.

Zhu, J., Kang, Y., and Zhu, R., and Wei, D. (Eds) (2019) College Academic Achievement Early Warning Prediction Based on Decision Tree Model, in: *Big Data 7th CCF Conference, Big Data 2019 Wuhan, China. Communications in Computer and Information Science*, 1120, 351-366. Springer.

Zapp, M. (2017) ‘The World Bank and Education: Governing (through) knowledge’, *International journal of educational development*, 53, pp. 1–11. doi: 10.1016/j.ijedudev.2016.11.007.