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Data as entanglement: new definitions and uses of data in qualitative research, policy and neo-liberal governance

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Abstract

Data is an increasingly contested term and concept in qualitative research, but its definition and use is also changing in social policy development and public service management. The paper will explore these parallel and apparently independent developments and argue that, while deriving from different fields and aspirations, these developments have elements in common and data is a term now as much applied to and used in political governance, as it is in (what used to be seen as) disinterested science.

Keywords

Data, data entanglement, qualitative research, neo-liberal governance

Introduction

Data is an increasingly contested term and concept in qualitative research. Many recent contributions argue that data can no longer be treated as discrete, inert and interpretable, but rather must be understood as an emergent and relational manifestation of research activity, mutually constituted by researchers and participants acting in particular material circumstances (e.g. St. Pierre, Jackson and Mazzei 2016; Koro-Ljungberg, MacLure and Ulmer 2018). Equally however, the definition and use of data is also changing in social policy development and public service management. Data is now as much associated with the processes and procedures of systemic accountability and 'governing at a distance' (Lemke 2012, Rose and Miller 2008) as it is with the pursuit of supposedly objective evidence to inform the development and evaluation of policy. Data now actively manages and drives policy and practice by recursively impacting on the behaviours of social actors *in situ*. This move transcends policy fields but can be particularly observed in health, social care and education as governments seek to manage public services by setting targets for

service delivery and render the individuals within them responsible for meeting the targets. This paper will explore these parallel and apparently independent developments and argue that, while deriving from different fields and aspirations, these developments have elements in common and data is a term now as much applied to and used in political governance, as it is in (what used to be seen as) disinterested science.

Definitions and conceptualisations of data in the natural and social sciences

The term 'data' derives from Latin – 'something given' or 'having been given' (from *dare*, to give) – implying that it can indeed be given, that it is external to the observer or knower, tangible and transferable. It is associated with observations and experiments in the natural sciences and continues to carry the implications and resonance of science for activity in the social sciences, including qualitative research. The Oxford English Dictionary (OED) defines data as "Related items of (chiefly numerical) information considered collectively, typically obtained by scientific work and used for reference, analysis, or calculation". (It further notes, for pedants, that in this definition it is "a mass noun" and can take a singular verb.) The OED goes on to elucidate various compound words and uses including data analysis, data handling, data mining, databank, and so on. Thus, classically, data is inert, passive, 'out there', waiting to be discovered and collected, pre-existing and separate from the scientist who collects it. Moreover, data is not just collected, but categorised in various ways, so that analysis can aggregate and compare 'like-with-like'. Similarly, when variables are manipulated in experimental situations, data are, in effect, created, but are still regarded as being a property of the interaction of variables, external to the observer. The experimenter changes the independent variable to produce data pertaining to the dependent or outcome variable in question.

A similar set of assumptions seem to operate in much social scientific and qualitative research. Qualitative methods such as structured observation and even participant observation attempt to collect what we might term 'naturally occurring' data *in situ*. The implication and the assumption seems to be that the researcher can directly observe events without significantly interfering or intervening in them. Interviewing, focus groups and so forth try to elicit (create) data more specifically by directly interrogating participants. Clearly this involves intervening in social situations and setting up particular encounters, but still the assumption seems to be that this can be done without distorting the data collected in important ways. The texts produced - observational field notes and interview transcripts - are then regarded as the 'raw data' for conceptual categorisation (coding), aggregation and analysis. There is of course extensive discussion in qualitative research about the extent to which this can be done without interfering with and/or biasing the 'findings' of

the research. However, with appropriate practices and protocols (immersion in the field, interview schedules, triangulation of data sources and methods, member checks, etc.) it has long been argued that qualitative data can be collected, and that findings which are relatively independent of the researcher can be produced (Denzin 1970, Hammersley and Atkinson 1983, Miles and Huberman 1994). Furthermore with developments in digital technology and pressure for research to deliver better value-for-money and build knowledge across individual studies, archiving data, including qualitative data, is now becoming commonplace. This implies that qualitative data can be treated as an object, removed from the circumstances of its production, and aggregated and analysed across contexts and over time. Such developments are not without critical discussion; as Flick (2015) asks:

Can we use and re-use qualitative data in a meaningful way without really knowing the context of data collection...To produce such decontextualized data is not really what qualitative inquiry is about (p. 603).

Nevertheless archiving is now well established and, taken together with the long-standing methodological injunctions noted above, we seem to be faced with a set of practices which St. Pierre (2011) has termed “conventional humanist qualitative methodology” (p. 611), whereby qualitative inquiry largely mirrors the language, assumptions and practice of the natural sciences. St Pierre (2013) also identifies what she calls the use of “brute data” in social research, including many approaches to qualitative research, which is regarded as “solid bedrock, building blocks of true knowledge that can be accumulated into regularities, generalities, scientific laws of the social world that emulate the scientific laws of the natural world” (p.224). Joan Eakin (2016) has recently summarised these sorts of activities as:

...post-positivist forms of qualitative research (PPQR) that operate more by positivist than interpretivist principles. PPQR uses qualitative data (e.g. words, texts) but analyses them through a realist objectivist lens. Data are seen to be ‘real’ and ...conceptual categories...are understood as ‘findings’ that reside in the data awaiting discovery...At the core of PPQR is a conception of qualitative research as *method* or technique...(p. 111, original emphasis).

We might wonder why so much qualitative research has adopted the language and underlying philosophy of positivist natural science, given that its starting point and rationale is, ostensibly, very different, i.e. to identify, describe, analyse and report the perceptions, interpretations and understandings of social actors from their own perspectives. But it can be argued that the very act of research implies the existence of some sort of additional external vantage point, some sort of privileged position from which to conduct the endeavour. Deriving from anthropology, and the very obvious powerful positioning of the (however benign) colonial observer over the ‘native’ or the

‘other’, qualitative research still assumes the position of observer, external to the culture, institutions and practices that are being investigated and reported on (of work, school, health care, youth, poverty, etc.). Moreover, given the increasing pressure for the findings of research to be immediately ‘useful’ in the context of (so-called) evidence-based policy making, the ‘what works’ movement, and ‘scientifically-based research’ (Torrance 2018), then it is perhaps not surprising that issues of sampling, coding, validity, reliability and generalisability have come to dominate many discussions of both the quality and the teaching of qualitative methods (cf. AERA 2006, Brown 2010, Cresswell et. al. 2011, Ragin et. al. 2004, and several of the entries in the recent 2nd edition of Tashakkori & Teddlie 2010).

Other approaches to social research have always been available of course, and other models of inquiry, policy development and professional decision-making could have been more fully explored and developed in social science and social policy. Historical research for example has a much more sophisticated view of what counts as ‘evidence’ as compared with the ‘what works’ movement. Documents and artefacts are found, explored, compared and contrasted, but are also recognised as social products in and of themselves, to be evaluated for warrant and veracity, rather than treated as objective ‘data’ *per se*. A high status profession such as law, with very high stakes consequences riding on what counts as admissible ‘evidence’, grounds decisions in the examination of cases and the interrogation of individual witnesses. These processes are then deployed in the exercise of deliberation and judgement, and conclusions reached in the context of relevant precedents. The individual investigating police officer does not also act as judge and jury in the way that at least some social science researchers seem to do. Such observations about other models of inquiry have been made before (e.g. Stenhouse 1978, Stake 1995), yet seem to be regularly eclipsed in the recurring ‘paradigm wars’ of social policy development. Social science has first and foremost appealed to the processes and practices of ‘science’ for its legitimacy, rather than those of history or the criminal justice system.

A static and linear model of research, policy and practice

A further problem with ‘conventional humanist qualitative methodology’ is its acceptance, along with social science research more generally, of a linear model of research and the implication that the production of knowledge (research) can and should precede action (i.e. policy and practice). Many philosophical issues are begged by whether or not we can observe data, isolate variables, identify cause and effect in social action, and so forth. They have been reviewed extensively elsewhere and I will not cover similar ground now (e.g. Howe 2004, Maxwell 2012, Morgan 2014).

However a key empirical problem with assuming that research must precede the improvement of policy and practice, and in particular with the ‘what works’ call for scientifically-based evidence, is that the linear model which it invokes, of problem identification, intervention, evaluation and application/dissemination, takes too long and, ironically, just doesn’t work. The ‘what works’ movement seems to believe that the social world is essentially static, that it can be treated as somehow ‘standing still’, waiting for a solution to a problem to be found and implemented. The assumption seems to be that a particular issue can be identified as a topic of policy concern and solutions pursued in a relatively straightforward manner.

Take the issue of raising educational standards, for example, which is then broken down into ostensibly interrelated constituent parts, with a series of causal links or ‘mechanisms’ being posited and pursued: the underachievement of poor inner city children, the importance of early reading, the development of intervention programs to promote early reading in target groups. Curriculum materials and teaching strategies are developed, interventions are designed and evaluated. Thus a multitude of intervening and interacting variables are identified and addressed. If appropriately developed and effectively taught such interventions may make a positive difference for some children. Often, of course, they do not; often there is ‘no significant difference’ found between intervention and control groups (Viadero 2009). But even successful interventions do not and cannot make a difference to all children in the target population – even positive results are only reported at the level of statistical probability, not individual certainty.

Meanwhile large scale replication and dissemination is difficult, demands additional and/or redirection of existing resources, and often creates as many problems as it solves. California’s attempt to implement smaller class sizes off the back of the apparent success of the Tennessee “STAR” evaluation illustrates many of these problems. The Tennessee experiment worked with a sample of schools, whereas California attempted statewide implementation, creating more problems than they solved by creating teacher shortages, especially in poorer neighborhoods in the state. There simply weren’t enough well-qualified teachers available to reduce class size statewide, and those that were tended to move to schools in richer neighborhoods when more jobs in such schools became available (see Grissmer, Subotnik, & Orland, 2009).

Furthermore, to return to the question of addressing underachievement and raising educational standards, the nature and the context of the problem changes over time, such that the relevance of the disseminated ‘solution’ diminishes. Large numbers of poor inner city children remain as

underachievers but the social and educational milieu, and conditions of production of their underachievement, differs over time. It is not that designing new programs to improve early reading is misguided, far from it, many such interventions are excellent. But they need to be understood as part of a continuing dynamic and responsive effort to improve achievement, not a definitive solution to a discrete and static problem.

Sellar and Thompson (2016) make a similar point at greater length and sophistication in their discussion of the role of number and calculation in the move from 'disciplinary' (Foucault) to 'control' (Deleuze) societies. They note the invention and development of statistics as part of the move to monitor and govern populations, but also note that "the calculative power was that of post hoc correlational analyses between fairly static categories" (p. 493). Governments could, once, operate more slowly and procedurally, but can do so no longer. Sellar and Thompson go on to discuss the implications of real-time monitoring, evaluation and feedback systems which new forms of technology, data gathering and data manipulation might produce. They focus particularly on the development of computerised adaptive testing in the context of schooling, noting that the instant feedback loops involved are based on particular (and particularly restrictive) models of learning – the learner can only get better at reproducing what is already in the system. Any new interpretation of an item can only be categorised as 'error'. The system is immediately responsive, but within an already delineated model of what can (and should) be achieved.

A much more open, dynamic and iterative model of social action is needed in order to explore the ways in which research might make a positive but not necessarily predictable or pre-determined difference to social problems. Such a model would investigate and explore options in action, without assuming that a particular or single best solution must exist, or that such a solution will not interact with the changing nature of the problem in unpredictable ways. On the face of it, qualitative approaches to research ought to be able to encompass and generate such a model, since social interaction is the core of a qualitative approach to research and the basis for the development of qualitative methods. But the issue of a linear and chronological approach to the relationship of research, policy and practice is not simply a product of the 'what works' movement. Social research more generally has experienced similar disappointments. Successive generations of social and educational researchers, including qualitative researchers, too often discover and rediscover social issues and problems rather than contribute to solving them. A significant illustration might be the cumulative work of researchers such as Hargreaves (1967), P. Jackson (1971), Willis (1979), McNeil (1986), McLaren (1989), Delpit (1995), and Lipman (2004), on the social organization of schooling

and its impact on disadvantaged groups of students. These studies are exemplars of the very best of their kind, and constitute a formidable body of knowledge about the ways in which schooling privileges particular manifestations of middle class culture and behaviour. The studies demonstrate how schooling contributes to the reproduction of social inequality, often despite the best intentions of teachers, administrators, and, sometimes, the researchers themselves as they have sought to feedback findings to promote change. However, while this and similar research has produced understanding and has documented the nature of the problem in terms of empirical evidence and the production of theoretical and analytic insight, it has not produced significant and lasting change to the nature of the problem investigated. Research-based understandings seem to have become an end in themselves, disconnected from processes of political and institutional change and, to reiterate, often despite the best intentions of the researchers themselves. Producing research is conceptualised as one thing, producing change is conceptualised as another. A better theory of how research might be linked to or implicated in social change is required.

Thus large tracts of social research, including qualitative research, still operates with a linear and chronological set of assumptions with respect to the relationship between research, policy and practice. The one (research) is assumed logically and necessarily to precede the other (changed policy and improved practice). In the UK this relationship is even conceptualised and institutionalised in the language and procedures of the government's Research Excellence Framework (REF), with 'research' being said to comprise, and being deconstructed into, the separate categories of 'Outputs' and 'Impact'. The assumption is thus: identify problem, investigate problem, propose solutions, evaluate solutions (including, often, with qualitative and mixed methods research designs as well as RCTs), disseminate solutions, solve problem. The sequence of linked activity involves and assumes a seamlessly connected chain of problem-research-data-analysis-policy-solution. Except, to reiterate, the problems generally persist. Something isn't quite right with the linear model or with adherence to the notion of "conventional humanist qualitative methodology" (St. Pierre 2011) which parallels the language, approach and assumptions about 'data' of the natural sciences. Such endeavours may even seduce well-intentioned researchers into "the earnest advocacy that often leads to posturing and over-claims to make a difference" (Lather 2016a, p. 1)

New debates about the dynamic nature of data in qualitative research

Recently, considerable debate has been prompted in qualitative research about the nature of 'data', what counts as 'evidence' in debates over policy, and in what ways qualitative research might be able to dispense with the idea of data and embrace a more entangled, emergent and intra-active

notion of the role of the researcher in the creation of research activity and outcomes. As we have seen, St. Pierre has been querying the limited and reductive nature of many teaching texts for some time now, along with what she sees as the desiccated nature of much qualitative research which is produced as a result. Denzin (2013) has written about the possible “death of data”; St. Pierre and Jackson (2014) edited a special edition of *Qualitative Inquiry* on “Qualitative Data Analysis After Coding”; Koro-Ljungberg, MacLure and Ulmer (2018), have contributed a chapter on “Data and its Problematics” to the fifth edition of Denzin and Lincoln’s (2018) *Handbook of Qualitative Research*. Further arguments about ‘entanglement’ are apparent in discussion of the “New Empiricisms and New Materialisms” (St. Pierre, Jackson and Mazzei 2016). The arguments are complex and not easily summarised. However the core of the claims being made in these papers is that data are not inert, but created in and through the activity of the researcher, entangled in the material production of the activity. Moreover these claims go beyond what we might broadly term the well-understood idealist arguments about ‘the social construction of reality’ (Berger and Luckman 1967). Rather these new arguments embrace ideas of material embodiment, emergence and immanence; data are considered to be relational, emerging out of the assemblage of researcher, researched and the material conditions of the research act. Thus ‘research’ is not ‘designed’ and then, sequentially, undertaken, rather it is just ‘done’, emergent, produced in the moment along with other forms of social action: “There is no ‘doer behind the deed’...the doer is produced either by or alongside the deed” (St. Pierre, Jackson and Mazzei 2016, p. 7). The act of research is co-produced in the moment of its realisation.

Additional to this discussion, but clearly related to it, are new approaches to understanding number and quantification, and the nature and implications of the calculations and analyses that underpin and derive from new computational technologies (de Freitas, Dixon-Roman and Lather 2016). De Freitas and colleagues note that number and quantification no longer simply count and analyse what ‘is’ (i.e. externally observable, static, data), but create and bring into being what is ‘yet to come’ (i.e. entangled data) through “computational reconfigurations of subjectivity and the social” (p. 431). They argue that “algorithms are making high-stakes decisions” (p. 432) but that the ontology and epistemology of number which underpin algorithms must encompass indeterminacy rather than certainty if new forms of quantification are to remain open to new possibilities.

I will return to these arguments below. The point which I want to make for the moment however, is that these critiques of the concept and use of the term ‘data’ in social research relate to philosophical and methodological arguments within the research community. They are largely

internal debates prompted, perhaps, by some of the engagements of qualitative inquiry with the demands of policy, and disillusionment with lack of educational and social change, but they are largely internal to the field none-the-less. The argument is about the philosophical basis and direction of social research, particularly qualitative research, and what theories and activities qualitative inquiry might encompass in the future. However, similar or, at least, parallel and somewhat comparable changes can also be identified in the field of policy and governance and it is to this that I now turn.

The conceptualisation and use of data in neo-liberal governance

The definition and utility of 'data' is also beginning to morph and develop in the field of social policy and public service management. Data is now as much associated with the processes and procedures of accountability and 'governing at a distance' (Foucault 2009, Lemke 2012, Rose and Miller 2008) as it is with the pursuit of 'research' or 'science'. This move transcends policy fields but can be particularly observed in health, social care and education as governments seek to manage public services by setting targets for service delivery and render the individuals within them responsible for meeting the targets (Crawshaw 2012, Ozga 2009, Lingard, Thompson and Sellar 2016, Torrance 2015). In education the move is perhaps exemplified and amplified, globally, by international comparisons of educational achievement such as the Trends In Maths and Science Study (TIMSS) and, particularly, the Programme for International Student Assessment (PISA) organised and orchestrated by the Organisation for Economic Co-operation and Development (OECD). The latest PISA programme of tests were taken in 2015 by students in 72 countries. In order to produce comparable results for aggregation and analysis the tests cannot assess the content of 72 different national curricula so instead comprise assessments of general skills and abilities which are considered important for 15 year olds to know and understand. The reference point for this transnational policy development then, is the skills and abilities which policy makers and test designers think are relevant and important for a global economic competition, rather than the content and cultural specificity of particular courses of study. The trend was critically reviewed in a recent special edition of *Teachers College Record*, and summarised very succinctly by the title of David Labaree's (2014) paper "Let's Measure What No-one Teaches". At the same time however, national testing systems which should, in principle, reflect a wide range of local curriculum goals in their approach to accountability, are similarly narrow in the range of measures used, limiting the validity of the exercise and again focussing attention on a very restricted set of 'data'. In Australia for example, the NAPLAN process focuses, as the acronym implies, on literacy and numeracy (National Assessment Programme – Literacy and Numeracy, Lingard et. al. 2016). In England national tests at

age 11 involve Maths and English, with 'English' deconstructed into distinct tests of Reading, Grammar, Spelling and Punctuation (Torrance 2017)

At first sight the setting and measuring of public service targets, and the construction of league tables and international rankings of countries' achievements in Maths, Science and Literacy, would appear to invoke the external and inert model of the natural sciences - data about educational achievement as somehow 'out there', waiting to be discovered - "Related items of (chiefly numerical) information considered collectively" (OED). But these "items" are very specifically created and produced, manufactured, fabricated, in order to support policy and, in turn, political governance. National assessment focuses on a very narrow range of indicators. PISA tests 'what nobody teaches'. League table positions are generated across schools, districts, states and countries; targets are set and met, or missed. Lingard, Thompson and Sellar (2016) argue, furthermore, that such 'data' is now taking on a life of its own, *qua* data. The pursuit of 'good data' and the avoidance of 'bad data', drives behaviour and public service activity, rather than inertly measuring it. Data has agency in and of itself, irrespective of the concerns and even resistance of individual social actors in particular situations. Pursuing the data (or perhaps being driven along by it) becomes far more important than simply doing what might ordinarily be thought of as a 'good job'. Performativity dominates both the definition and the achievement of 'high quality' provision. Lingard et al's analysis derives from Australia, but similar observations can be made internationally, as the *Teachers College Record* special issue indicates (Laberee 2014). A recent paper on "The 'datafication' of early years pedagogy" in England (Roberts-Holmes 2015), reflecting the narrowness of the measures deployed, and the intensity of the pressures produced, includes several comments from teachers about the compulsion to produce 'good data':

"We're totally data driven...We'll be punished if we have poor data so obviously it's a huge pressure to get the data looking good...it has really influenced thinking...";

"It's all based on data...the data is driving the pedagogy...";

"We have constant meetings looking at the data...you gotta play the game. If you're being judged on a score – teach to it – you're a fool if you don't. You must teach to the test"

(Roberts-Holmes 2015, p. 306).

Thus 'data' used dynamically in the policy sphere, renders actual definitions and manifestations of quality redundant. Rather the 'data' is taken as an absolute indicator of quality, a substitute for it, becoming as important if not more so in driving changes in behaviour as static scientific data about 'what works'. There are parallels again with Sellar and Thomson's (2016) observations about the impact of real-time monitoring and feedback loops, here embedded in the technology of national testing and league tables. Why wait for the (possibly unhelpful) results of the (scientific) evaluation when you can build policy implementation and behaviour change into the instrument of evaluation itself. The implications of Sellar and Thomson's analysis are similarly pertinent – that such feedback loops can only reinforce the policy status quo, the already-assumed-to-be-perfect solution which is built into the evaluation and feedback procedure of a closed system.

Be careful what you wish for – entangled data

The debate about what counts as data in qualitative research might seem a little parochial then, even narrow and esoteric, in comparison to the pressure on teachers, students and others involved in the provision of public services. Yet it may be that there are some resonances or echoes of the one in the other. Arguments about entanglement, immanence and the emergent position of the researcher in the research process seems to have some parallels with the way in which the production of data to inform the management of public services has morphed into constant real-time data awareness, data vigilance and even data servitude. Just as the 'research act' emerges, so too do the effects of data management on those in public services that construct the data.

Koro-Ljungberg, MacLure and Ulmer (2018), reviewing the debate over data in qualitative research, argue that:

It is no longer possible to imagine the researcher positioned at arm's length from the data, exercising interpretive dominion over it...Equally however data cannot be thought of as mere social construction with no material footing in the world...Instead, in new materialist thought researchers, participants, data, theory, objects and values are mutually constituted by each 'agential cut' into and out of the indeterminacy of matter... (p. 16).

St. Pierre (2013) drawing extensively on Deleuze argues further that "Being in every sense is entangled, connected, indefinite, impersonal, shifting into different multiplicities and assemblages" (p. 226). Thus the key issue for research is to produce something new, rather than simply seeking to provide an account, however nuanced, of what is 'there' :

For Deleuze, philosophy is fundamentally a matter of living rather than knowing... “instead of asking for conditions of possible experience...look for the conditions under which something new, as yet unthought arises” ... (p. 225).

Lather (2016a) explores similar issues and ideas, seeking a possible reconciliation or resolution between the natural and interpretive sciences, even a new science: “the science possible after the critiques of science” (p.1). She notes that “post-humanist theories of agency” locate “agency within intra-active relational entanglements” (p.2). Thus action, behaviour, understanding, are immanent and emerge *in situ*. She further argues that, given this:

Another kind of theory of change is called for...a theory of change that is imminent rather than vanguard [involving] practice-based accretions rather than the ‘big bang’ of some new paradigm...that occur at a low level of visibility...as they remake through a network of mutual determinations (p.3)

There are resonances here with my earlier critique of much social research operating with a linear and mechanistic model of change. Change, rather, might arise out of “a network of mutual determinations” which includes the researcher. Lather goes on to deploy her argument with respect to policy development and implementation, noting that much qualitative inquiry demonstrates “the wild profusion of local practice” (p. 4, quoting Fenwick and Edwards 2011).

However, to link back to the production and role of data in neo-liberal governance, might not the individual responsabilisation of teachers, students, health care workers and the like, in their quest to “get the data looking good” be one example of such a “network of mutual determinations”? Isn’t this exactly how neo-liberalism insinuates itself into every aspect of our professional and personal lives? It seems as if neo-liberalism already operates with a much more sophisticated theory of change than empirical social science. Change has occurred in public institutions (and indeed in commercial organisations as well) in precisely this “immanent” incremental fashion – with “practice-based accretions” slowly ‘bringing the frog to the boil’ so to speak, so that almost without noticing it, everything has changed. Lather (2016a) actually makes almost exactly the same interpretive point but draws different conclusions, seeing the slow accretions of neo-liberal accountability as evidence of their fragility:

How everyday material practices assemble and align with objects, ideas and behaviours involved in “new governing behaviours” particularly the over-reliance on “flows of data” as “calculating devices” ...illustrate the precarity of what looks so solid and immutable (p.4).

Well, certainly, neo-liberal “governing behaviours” are assembled and invoked in and through everyday practice, they are indeed neither “solid” nor “immutable”, but they *feel* as if they are. This surely exemplifies the power of neo-liberalism and the paradox of current theoretical thinking. Data are certainly not ‘out there’, waiting to be discovered. They are not inert, passive, manipulable . They are indeed created through, in and by our activity. But by this very process, in neo-liberal accountability, they exercise as much “interpretive dominion” over us, as we do over them. They govern us, we do not govern them. Data, researcher, institution and social actor are indeed entangled – but not in a good way!

Lather (2016a) also wonders about whether or not the turn to a more relational ontology, to “something not containable, in excess of meaning” (p. 1) might produce an “incalculable subject...as a counter to neo-liberal and Big Data efforts to count and parse, capture and model our every move, a subject outside the parameters of the algorithms” (p. 2). But again, does this not invoke the same theoretical paradox? If we are entangled with data, implicated in both its production and use, we cannot stand outside of the process. We produce neo-liberal data and governance even as we feel that it produces us.

Possibilities for ‘the new’

In a separate but related article, Lather (2016b) reviews and reflects on the new approaches to the role and use of number and quantification in social research, as noted above (de Freitas et. al. 2016). She reports “how ‘datafication’ produces new governmentalities by way of new intensifications and embodiments” (p. 502). But she also notes that different understandings of the role and nature of quantification as produced-in-situ (as part of an assemblage) rather than given (data), might lead to fruitful possibilities for a rapprochement “across qualitative and quantitative social science inquiry...[to] bridge the sciences and humanities in challenging positivism, empiricism, and scientism” (p. 503). There are certainly possibilities here. If both qualitative and quantitative data and analysis are understood as produced in real time, through assemblages of social action, then new opportunities might arise for research to locate itself self-consciously as part of an assemblage and feed into unfolding deliberations and decisions. But equally if the feedback loops are closed, then such an emergent assemblage will only ever be able to reproduce the present (albeit with greater and greater intensity) rather than create something new.

It is here however, in these possibilities, that we can perhaps find some opportunities for conducting research, and particularly qualitative research, differently. If we think of research, and again, particularly qualitative research, as a form of co-constructed intervention in social action, rather

than a static and linear gathering of information to produce findings, we may have more purchase on the activities that we seek to understand and change. Many conceptualisations of research activity already argue that the major social, economic and environmental problems that we face demand collaborative, cross-institutional and trans-disciplinary research teams to address 'global challenges' (RCUK 2017, WUN 2017). Such calls still invoke the power of 'expert knowledge' but nevertheless acknowledge that bringing together new configurations of disciplines and people may be able to produce new perspectives and potential solutions. In parallel with such large scale policy calls there are also more ethical and epistemological arguments for involving research subjects directly in the research activities that seek to study and supposedly improve their lives (e.g. AHRC 2016, Facer and Pahl 2017, Pahl 2015). Who sets the research agenda? Who defines the nature of the problem to be investigated? Who defines 'the field', its boundaries and problems? Who defines policy problems? Who defines what counts as evidence and a successful solution? How might different forms of community knowledge be identified and engaged? Again, there is significant interest in addressing such questions through collaborative investigation *in situ*, producing new insights and practices through collaborative interventions to co-construct the definition of the problem and a range of possible new solutions. In some ways such aspiration are reminiscent of previous 'action-oriented' conceptualisation of research: action research (e.g. Carr and Kemmis 1986, Elliott 1991); participatory action research (Cammarota and Fine 2008); design research (Design Based Research Collective 2003); and tinkering (Hargreaves 1999). Each of these various approaches to research understands that research is an iterative and cyclical process, but perhaps still interprets that cyclicity in terms of forward movement and pragmatic, interactive engagement with the objects of 'the real', rather than emergence, indeterminacy and the intra-active production of 'the new' *in situ*. To return to Lather's (2016a) reflections on the development of a more relational ontology, it is not that we necessarily will produce something new, but that the prospect at least exists if we conceptualise research as a process of constant possibility rather than something which we can drive in particular directions.

Data then, are not inert. They are produced, but in turn become an agentic part of the assemblage that produces them. Thus theories of entanglement in qualitative research certainly address the problem of linearity in thinking about the relationship between research, policy and practice. Ideas of emergence and immanence locate the possibility of change in the here-and-now and the pursuit of change in the *practice* of research, as well as the findings of research. As such we might try to re-orient ideas about 'what works' towards ideas about what 'might work' if discussed, explored and realised in action, *in situ*, with research participants and respondents in particular communities addressing particular problems. The deliberation and judgement of the criminal justice model might

be brought into social policy and social action, rather than the inert model of the natural sciences. Equally however it becomes clear that any claims for research must become more modest, and take their place in the larger assemblage. Data, once released from the Pandora's Box of inertia and passivity, will not necessarily prove benign in its effects. The "incalculable subject" is currently very busy trying to calibrate itself. Even governments, pursuing better national positions in international league tables, and coming under pressure if a nation appears to perform worse than previously, end up being as much subject to data as in control of it. Having said this however, it is apparent that entanglement and emergence are indeed "not containable, in excess of meaning" and as such at least provide the possibility of producing something new and, as yet, unforeseen.

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