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(Un)teaching the 'datafied student subject': perspectives from an education-based masters in an English University

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That compulsory education is datafied is widely acknowledged. A significant body of literature illuminates the policy context and technologies that have given rise to what we now call datafication. Less research has focussed on the consequences of datafication on teachers and learners. In this paper, we offer a unique perspective of these consequences in relation to qualified, experienced teachers as learners on education-based masters courses. Working within a post-qualitative frame, we employ a lesser-known approach to research, 'conversation as methodology', in order to explore our experiences and develop our expertise as HE practitioners. Through conversation, we identify datafication as both affective and effective – it shapes and produces particular learning and teaching encounters and it also shapes and produces subjectivities. We suggest that for education-based masters courses, this is troublesome, and can result in a process of (un)teaching, as we challenge the values and practices on which a datafied education depends.

Keywords: datafication; compulsory schooling; subjectivities; affect; effect.

Introduction

This article explores the affects and effects of datafication in relation to teaching and learning on education-based postgraduate taught (PGT) masters programmes in Higher Education (HE). Interestingly, the few studies that analyse the teaching and learning of education-based masters (EBM) students refer to the process as troublesome (Morris and Wisker 2011; Cottle 2016). It is our contention that because students studying EBM courses often come from acutely datafied contexts, to the extent that their subjectivities are shaped by it, this notion of troublesomeness is exacerbated. Using a post-qualitative framework, we explore this proposition by offering a theoretical conceptualisation of the *datafied student subject* in order to analyse pedagogical encounters in their masters programmes. We also acknowledge and reflect on the resulting onto-epistemological tensions and how these affect teaching and learning. We suggest that in our EBM

courses, a process of 'unteaching' occurs, as we question, challenge and trouble the values and practices datafication produces.

As HE practitioners we endeavour to think about and develop our own practices. Drawing on Bojensen's notion of 'conversation as methodology', our approach is to is explore datafication through professional conversation, calling upon our intellectual and experiential expertise in order 'to inform innovative theoretical [and] empirical reflection' (2019, 654). This approach has allowed us to conceptualise and consider how datafication has shaped experiences and expectations of our teaching and learning encounters. As most of our students are themselves educators in compulsory school settings, this has implications for understanding how datafication is affective and effective in multiple educational contexts.

The paper's significance is threefold. First, we focus on teaching practitioners. Whilst a significant body of research seeks to explain how data work as a resource in educational contexts, and to explore the technologies, policies and commercial interests that support this, the experiences of school practitioners in relation to these data have 'largely been neglected' (Williamson 2018, 595). Second, we explore these experiences specifically among teachers participating in EBM programmes. Despite the increasing number of students embarking on masters programmes (Ho, Kember and Hong 2012), there is still very little research exploring how they develop and engage with teaching and learning (Macleod, Barnes and Huttly 2018). Specifically, we offer an original contribution to the field by examining how datafication shapes and influences teaching and learning encounters on EBM courses. Finally, we make use of what we believe to be a valuable yet underused methodological approach (Bojensen 2018) to advance the professional learning and knowledge of educators in HE. Our context is England, yet

much of what we say is applicable to international contexts, given that education

systems across the world are becoming increasingly datafied (Lingard 2011).

Datafication in compulsory schooling

The datafication of education is now widely acknowledged (Ozga 2009; Lingard

2011; Selwyn 2018). The world of education is being reconstituted by data to the extent

that, as Thoutenhoofd (2018) notes, to describe education without considering the

growth of data and what those data do, is to risk misreading, or completely missing, the

very object under study. It seems we cannot now think or experience education without

thinking or experiencing data. The speed, scale and spread of this (re)construction or

transformation have been exceptional and unprecedented (Selwyn 2015). The resulting

consequences have been acute and wide-ranging, with both affective and effective

dimensions – what Lewis and Holloway (2018) refer to as datafication's double

articulation. Data are *effective* because their production, collection, analysis and

dissemination shape modes of participation, and narrow the possibilities for teaching

and learning and thus the options for action (Jarke and Breiter 2019). Data are *affective,*

as they potentially remake both teacher (Lewis and Holloway 2018) and learner

(Bradbury and Roberts-Holmes 2018) subjectivities as calculable and performative,

with their capacity to render themselves knowable increasingly defined by data.

The work of Bradbury and Roberts-Holmes is particularly useful for

understanding datafication in the compulsory education setting; the professional context

within which most of our students work. Albeit focussed specifically on early years

settings (e.g. Bradbury 2019) and the primary sector (e.g. Bradbury and Robert-Holmes

2018), in terms of definition and scope, their work is directly applicable to our student

body; the datafied educational world they describe is immediately recognisable in the

narratives of teaching and learning our students share with us, regardless of sector or role. Coined by Mayer-Schönberger and Cukier (2013), the term *datafication* more generally refers to the translation of qualitative information into quantifiable form. However, following Bradbury's and Roberts-Holmes' more specific use of the term for compulsory schooling contexts, we use *datafication* to denote the 'complex process where data has increased significance' and the subsequent affects and effects on 'practices, values and subjectivities' (Bradbury 2019, 8). We will expand on, theorise and complicate this working definition in the remainder of the paper.

Data clearly exist in multiple forms, and the meanings of *data* as a term have proliferated in recent post-qualitative work (Koro-Ljundberg, MacLure, and Ulmer 2018). However, in this paper, when discussing datafication, we purposefully restrict our meaning of *data* to refer to 'performance data' (Sellar 2014) or assessment and progression data in numerical form, since these are the meanings most common in compulsory schooling (Bradbury and Roberts-Holmes 2018). Such data, it has been shown, have enabled the current trends and associated practices in compulsory education in England of measurement, benchmarking, target-setting, performance management, monitoring and accountability (Ozga 2009). These trends and practices give rise to the profound affects and effects associated with what it means to teach and be a teacher (Ball 2003) and to learn and be a learner in schools (Bradbury and Roberts-Holmes 2018).

Research Context

The context of the research is a suite of part-time taught postgraduate masters awards for in-service education professionals provided by a large post-92 university in

England[1]. While our provision might be loosely described as 'professional development', it is important to differentiate between our programme and 'school-facing' models of Continuing Professional Development (CPD). As Cottle (2016) notes, whilst school-facing CPD and EBM courses are both valuable in developing practitioners' understandings, they offer very different types of learning. CPD is generally aligned to a training model of learning which focuses on the development of pre-defined teaching practices. Education-based masters courses, in contrast, aim to develop professional understanding via critical reflection and reflexive engagement with educational policy, theory and practice (O'Grady and Cottle 2016). Following this distinction, our masters courses bear little resemblance to CPD. This distinction is more pronounced given the theoretical investments of the authors of this paper, who constitute the core teaching and management team of our programme: we are all influenced by the post-qualitative turn in educational research. Postmodern, post-structural and posthuman approaches have shaped and embodied our educational research and practice, and reconstituted them as praxis.

Education is an assemblage (Deleuze and Guattari 1987/2004); we all experience it differently by virtue of its multiplicitious nature. Whilst, like our students, the authors of this paper might describe ourselves as teachers, it does not follow that our concepts of teaching, learning and datafication are the same as, or even similar, to those of our students. This point is significant, and we orientate much of this paper around it. Our students are mostly teachers in the compulsory sector in England. The affects and

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[1] Post-92 university refers to former polytechnics who were given university status through the Further and Higher Education Act 1992. They are sometimes referred to as 'new universities.'

effects of datafication felt by teachers have been more pronounced and profound than we have experienced ourselves. We make no claims that these affects and effects have been homogenous; however, we do believe that the context of our students' professional setting gives rise to particularities that comprise their experience of datafication. As university lecturers working almost exclusively on masters programmes, the authors conceptualise and experience datafication in particular ways, according to the complex networks of relations that constitute our educational assemblage, inclusive of our theoretical investments. We offer a more detailed account of these investments now.

Theoretical frame

Our enquiry into datafication is realised through particular onto-epistemological arrangements (St. Pierre 2018). Ontologically, we acknowledge and accept the broadly post-qualitative position that 'there is no Real – nothing foundational or transcendental – nothing beneath or above, outside – being to secure it' (St. Pierre 2018, 649). We think/act/live an ontology of becoming(s) – reality as 'a continual process of flux or differentiation… masked by powerful and pervasive illusory discourses of fixity, stability, and identity' (Martin and Kamberelis 2013, 668). Epistemologically, we are keen to expose how particular ways of knowing (the powerful and pervasive illusory discourses) dominate educational policy and practice, and to explore the process by which these become foundational, securing their status as truth and thus producing realities (St. Pierre 2013). The following explanation illustrates how these onto-epistemological dispositions might influence the aims and outcomes of a post-qualitative examination of datafication in education;

> ...postmodern and post-structural approaches to truth and knowledge in the human
> sciences aim to trouble or deconstruct positivist arguments, quantitative

representations, and structuralist logics… By eschewing notions of essentialist identities, brute data, and fixed categorization of phenomena and processes, postmodern/post-structural approaches aim for more dynamic, historic, contingent, and situated understandings of complex human interactions, events, and institutions (Palermo, 2002; Sarup, 1993).

(Martin and Kamberelis 2013, 669)[2]

We also take seriously St. Pierre's assertion that 'the post-qualitative researcher must *live* the theories' (2018, 604). We endeavour to live our theories through our educational values and practice. For example, we designed our masters courses with the intention of disrupting and reframing students' understandings of their professional contexts. They aim to expose and analyse the metanarratives (Lyotard 1984) that shape and sometimes distort educations aims, values, practices and outcomes. We ask our students to recognise how powerful regimes of truth (Foucault 1977) based on reductionist understandings of knowledge and learning have gained control in England's compulsory school sector, and that this might affect how they and we know, learn and teach. Thus, in our teaching and learning we approach the concept of datafication from a particular standpoint.

Significantly, incorporated into the work of the post-qualitative scholar is the conscious abandoning or 'undoing' of the essentialised human subject (St. Pierre 2013), replaced by more unsettled understandings of life and the world as multiplicities of relations and connections. The human subject – the teacher, the student – can no longer be thought of as fixed or contained entities. Rather, the individuating essence, what

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[2] In choosing to include this quotation from Martin and Kamberelis (2013) we also aim to make clear that our purpose is not to denounce or dismiss all 'quantitative representations' but to 'trouble' or 'deconstruct' the discourses that claim them as truth.

makes one person or thing distinct from another, is itself an assemblage where both human and non-human machines such as social, cultural, environmental, or technological assemblages enter into the very production of subjectivity itself (Goodchild 1996). Given the aims of this paper, we now explore the concept of the human subject in more detail, specifically relating it to the rise of datafication in compulsory schooling.

Theorising the datafied (student) subject

As we have already seen, theories of datafication claim both affective and effective consequences. We acknowledge these as significant but also dependent on the particularities of one's experience of and engagement with education. Our students' experiences of education have been profoundly shaped by neoliberal discourses and regimes of truth that have reimagined education as an economic activity rather than a social, cultural and ethical one (Bradbury and Roberts-Holmes 2018). This has led to the evolution of the 'performative school', where 'performative tools are employed to measure the performance and success of schools and teachers' (Clapham 2016, 132). This phenomenon is encapsulated by the term *performativity*, the 'policy technology' that mediates the neoliberal school and which Ball defines as:

> a technology, a culture and a mode of regulation, or a system of 'terror' in Lyotard's words, that employs judgements, comparisons and displays as means of control, attrition and change. The performances […] represent the worth, quality or value of an individual or organisation within a field of judgement. (2000,1)

The symbiotic relationship between neoliberalism, performativity and datafication has produced a new system of progressive and dispersed domination: Deleuze's (1995) societies of control. It has had a profound impact on education, schooling and –

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importantly for our purposes – the re-making of teacher subjectivities; 'datafication produces specific teacher subjectivities – as data collector, organiser of data-producing environments or as personification of their pupils' attainment data' (Bradbury and Roberts-Holmes 2018, 57). 'Good' teachers are the producers of 'good' assessment and progression data; enabling schools to demonstrate their worth via simplified comparisons of achievement and attainment. There is a lot at stake. The concept of the good professional is bound into the production of good data so that data become active agents, capable of more than just representing attainment. As Beer and Burrows contend (2013, 64 in Selwyn 2015, 70), 'data is recombinant and recursive, it shapes as well as merely captures culture'. Datafication means teachers' 'subjectivity is defined by norms which prescribe the "good teacher" as one who is familiar with their data and responsive to it' (Bradbury and Roberts-Holmes 2018, 32).

At work, then, our students must change their practice. This can lead to a change in their ethos, since holding on to personal values which are irreducible to data becomes risky as it is unproductive in the performance of the good teacher (Lewis and Holloway 2018). The personal interests, concerns and wisdoms of the teacher are replaced by state-endorsed neoliberal logics, technologies and discourses that recreate education, teaching and learning in their own image as 'the external world of policy enters and establishes itself in the individual psyche' (Moore and Clarke 2016, 668). Thus, data become immensely powerful and can radically shift how teachers engage with and in the world of education. Over time, '[d]atafication has thus created a situation where teachers can only know themselves and their practice as data' (Lewis and Holloway 2018, 48): they become a datafied teacher; a datafied subject; our datafied student subject.

Reluctant to engage in practices that reinforce the reification of teachers' subject positions, we choose to conceptualise the datafied student subject as a theoretical construct which we use to complicate and problematise our own practice as teachers. The datafied student subject is not a corporeal entity – our students are not datafied subjects. However, we accept the construct as a virtual characteristic of the real in the Deleuzian sense, as an incorporeal event that can never be fully present (Boundas 2010) but which remains a realm of reality. The construct works as a cultural and social machine, plugging into or entering the production of teacher subjectivities. We use this machine to develop our praxis, to move thought, and to better understand the relations between ourselves, our students and our programme.

Reflexively, we also ask, 'how does the construct of the datafied subject work in the production of our own teacher/academic subjectivities?' In responding to the question, it is first important to explain how the authors experience datafication as university lecturers working predominately on EBM courses. We contend that we are 'datafied' less and differently when compared to our students. This is in no small part due to our relative lack of 'visibility' (Bradbury and Robert-Holmes 2018). Lewis and Hardy (2015) remind us that comparison and evaluation via readily available and accessible (i.e. visible) performance-related data can transform the individual into 'objects to be manipulated' (Porter 1995) – Strathern's (2000) 'tyranny of transparency'. Mechanisms for rendering university 'performance' visible through data are increasingly influencing HE generally and university lecturers specifically (Thiel 2019). For example, in the UK the National Student Survey (NSS) –which asks students to judge courses using a Likert-type scale – has been shown to reshape (or distort) the purpose of higher education to the extent where 'the primary aim is not the production of, for example, 'better' or 'more critical' lecturers or institutions, but the enhancement

of institutional 'performance' and 'competitive standing' (Thiel 2019, 550). However, the NSS is aimed exclusively at undergraduate students and currently no equivalent exists for PGT students in which all providers participate (although one is currently being trialled - see OfS 2019). Participation in the nearest equivalent, the Postgraduate Taught Experience Survey (designed and managed by a non-governmental professional membership organisation) remains voluntary. The authors of this paper all work in a non-participating institution. In addition, unlike postgraduate courses in the UK that offer pre-service teacher education and/or confer qualified teacher status, the authors' EBM programmes are aimed at in-service professionals and are therefore not subjected to external inspection by a national government body and its associated reporting processes. This type of inspection, according to Bradbury and Robert-Holmes (2018), is a fundamental component in the infrastructures of visibility, as it renders the 'performance' of institutions knowable via the grades or levels awarded across a range of predetermined categories. As a result, and at least for the time being, the amount of accessible (or visible) data generated in relation to the authors' 'performance' is significantly reduced. This is, however, in comparison with our students, and it is clear that we do remain both affected and effected by datafication. For example, judgements regarding our competence or success as academics who produce 'quality research' are made possible via the quantitative metrics publication produces (Cheek, Garnham and Quan 2006). We also generate a large amount of 'attainment data'. Every time we assess a students' understanding by assigning a numerical outcome to the testing of learning outcomes we produce data that could and may well in the future function to inform comparative judgements about the success or value (added) of our courses and by extension of ourselves and our practice. However, the authors' professional status as predominantly teaching academics, coupled with the relative lack of scrutiny of

teaching on our masters programmes, means that, for now at least, in our working world these data matter less – we would argue a lot less – than the data produced by, for and about teachers in the compulsory sector.

We therefore suggest that, by virtue of the particularities of our work and professional context, we are less thoroughly datafied than our students. However, we remain keen to employ self-consciously critical reflexivity to examine how the construct of the datafied subject as a virtual characteristic of the real, plugs into the construction of our own subjectivities, and motivates and shapes our practice. As Bettez contends, critical reflexivity can serve as an essential guide in navigating the complexity of qualitative research in postmodern contexts, if we 'consider what new possibilities might arise when we critically reflect upon our assemblage in relation to the assemblage of those associated with our research' (2015, 935-936). The 'new possibilities' that arise for the authors of this paper feel distinctly like the 'uncomfortable reflexivity' that Wanda Pillow advocates. Uncomfortable reflexivity requires that both the researcher and the researched are acknowledged as 'multiple, complex, and proliferative' and that 'research methods, methodologies, and writing strategies should attempt to reflect such complexity' (Pillow 2003, 193). We ask whether and to what extent our practices, our writing and our methodologies are defence mechanisms brought into the actual by the virtual presence of our possible and potentially datafied selves. Lather writes that in post-qualitative work 'agency is enactment in the possibilities and responsibilities of reconfiguring entanglements. Both determinism and free will are re-thought, and the complexity of a field of forces becomes the focus in assessing response-ability in the face of power imbalances' (2016, 126). The 'response-ability' of these authors may be revealed in the writing and reading of this paper in ways we had not at first realised or consciously intended.

Methodology

We experience the tensions of the post-qualitative researcher. We resist the traditional codifications of qualitative enquiry while acknowledging that their privilege continues to influence us. We ask, how do we develop new ways of thinking about our practice and of our teaching and learning experiences using a post-qualitative frame?

We are always becoming as practitioners, and are thus constantly developing new ways of understanding through our interactions with our students, management practices, policies – and each other. We believe that we are always in 'experimentation with the real' (Deleuze and Guattari 1980/1987, 12 in St.Pierre 2018, 604), and that learnings and understandings are always evolving. We recognise our *conversations* as crucial loci for these experimentations – for thinking about the *becoming* of our practice (Thomson 2015). Specifically, for this paper, our conversations draw from our experiences as practitioners to inform and produce new ways of thinking about datafication's affects and effects and how these shape particular learning and teaching encounters and (re)produce subjectivities in EBM courses. We argue that these conversations typify more post-qualitative approaches which do not set up artificially boundaried moments to 'collect data' through interviews or focus groups. We recognise that despite provocations from leading post-qualitative scholars (for examples see Koro-Ljundberg, MacLure and Ulmer 2018 and Koro-Ljungberg, Löytönen and Tesar 2018) traditional notions of qualitative data and data collection persist and continue to dominate the field. Of these, the most prized are those that privilege participant voice – widely valued and understood as an expression of human agency and representative of human experience (Arndt 2018). However, we heed Arndt's caution that 'an individual's story is only always that which the listener makes of it' (2018, 95). We therefore choose not to

present qualitative data in the form of participant (our students') voices. Instead, we present this paper, in and of itself, as the continuation of professional conversation between its authors; we acknowledge that our conversations are informed by our position as listeners, and we contend that what we hear is as much our story as it is our students'. Further, we suggest this method is representative of the actualities of understanding how knowledges about our practices are developed through the everyday (Fenwick and Nerland 2014) as we grapple with and attempt to make sense through the in-between of the teaching and learning encounters we experience and 'the words that putatively represent it' (MacLure 2013, 659).

Our understanding of how these conversations can contribute to our own practice knowledges is informed by the notion of 'conversation as educational research', a term developed by Bojensen (2019) to refer to a particular form of conversation based on Blanchot's (1993) notion of plural speech. As Bojesen explains, for Blanchot, conversation is:

> an experience where language and the movement of thought takes priority, rather than the perspectives, positions, or arguments of particular individuals [and] an experience wherein thinking about what is said becomes more important than saying what we think. (2019, 650)

This kind of conversation does not try to synthesise contradicting thoughts or ideas, to reach consensus, to prove a hypothesis or to generate truths. It is more likely to reflect the qualities of talking with friends: it is discontinuous, proliferative, disorganised. Yet as more recent professional learning theories attest (Thomson 2015), from conversing in this way we still learn and develop – our thinking shifts. This recalls Deleuze's notion of *inquiry* as 'becoming, always incomplete, always in the midst of being formed,

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[going] beyond the matter of any liveable or lived experience' (Deleuze 1993/1997, 1, in St.Pierre 2018, 604).

We believe this type of conversation is reflective of the ways in which we seek to 'move thought' in relation to our masters programme. As colleagues, we share an office, and we often find ourselves engaged in the kinds of conversations that reflect Blanchot's definition of plural speech. These conversations happen 'in the moment', but we have also carved out deliberate spaces to reflect on and discuss our practice, and to develop our thinking about the relationship between datafication and teaching and learning on EBM courses. The informality of these conversations helps as we 'chew the fat' about our programme, our teaching, our students' learning, in a form of unofficial professional development. We have no agenda, and although the conversations rarely result in definitive outcomes, they are nonetheless important and highly valued. They provide us with space to think, to verbalise our ideas, to hear others, to raise questions and reframe our thinking. Bojensen notes that whilst this type of conversation occurs frequently amongst educational professionals, 'because of the force scientific logic imposes on educational thought' (2019, 651) it is not normally conceived of as research. However, and in keeping with our wider theoretical investments, we agree with Bojensen that such conversations can be a productive research method and are an 'important means through which to recall, elaborate on, and develop educational thought and expertise' (2019, 654). This paper is a continuation of our conversations about datafication, how it enters into the production of teacher subjectivities and the subsequent implications of this for teaching and learning on EBM courses. In the reminder of the paper we focus on three related themes that have emerged as significant, and which continue to concern us. We begin with the overarching theme of 'troublesome' learning and why, for teachers embarking on EBM courses,

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troublesomeness might be exacerbated. We then explore how datafication contributes, considering specifically the production of student subjectivities and the related issue of onto-epistemological positioning.

Conversations on a theme

Theorising troublesomeness

There is relatively little research on how students engage with part-time study on PGT programmes (Ho, Kember and Hong 2012). What literature there is suggests that the experience for teachers who undertake masters level study is a particularly *troublesome* one (Morris and Wisker 2011, Cottle 2016).

> Troublesomeness can occur [when] getting to grips with new theoretical perspectives, ontology and epistemology, challenging and re-evaluating previously held ideas. This can be exacerbated when students have built up fixed notions of the world and of their discipline through previous experiences and professional practice. (Morris and Wisker 2011, 5)

Morris and Wisker (2011) and Cottle (2016) suggest that this problem is intensified for EBM students because of the acculturation of their own professional practices, which positions the students differently compared with undergraduates, who are usually 'novice practitioners' (Wright 2019). Although it has been acknowledged that teachers' realities are important to consider when understanding the 'troublesome learning journey', there has been little theorising about what is actually happening to produce this so-called troublesomeness. Following Deleuze (2004), we argue that our teaching and learning encounters are social and cultural events. These events are both the product of a synthesis of forces but also represent a moment of generation, where new forces are brought to bear. New assemblages are therefore created and enter into the (re)production of teacher student subjectivities - 'becoming "moves

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through" [the] event' (Stagoll 2010, 91). It is our contention that the particularities

of the EBM teaching and learning event produce forces that amplify the tensions

inherent in the learning process because they catalyse the actualisation (or calling

forth) of singularities returned from the (virtual) datafied teacher construct

(Boundas 2010). These forces are produced because as datafication constructs a

teacher's practice-based knowledge, values and subjectivities as previously

described, these then produce particular 'datafied' onto-epistemological

arrangements (St. Pierre 2018) through which our students make sense of their

world. These arrangements are markedly different from our own. This results in

conflict or tension, or exacerbated 'troublesomeness'. We explore these processes

further now, considering firstly the (re)production of student subjectivities and

then the related tensions caused by what we refer to as onto-epistemic dissonance.

Reproducing subjectivities

Committed as we are to the concept of becoming, we endeavour to develop a

transformative praxis: not one that replaces one way of seeing or engaging in the world

with another (which would constitute a transition) but one that creates change or

induces difference. Mezirow (1978) draws our attention to the specificity of

transformation in adult or professional learning, where students' subjectivities are

constructed through powerful and pervasive discourses that influence and shape their

subsequent learning experiences. In addition, Illeris (2014) has emphasised the

complex relationship between the teaching and learning process, transformation (or

becoming) and change in student subject positions and self-understandings. We support

these views, and believe this complex relationship is fundamental to masters level

study. In short, datafied subjectivities influence how our students engage with and in

teaching and learning encounters (Taylor 2008) and thus the experience of transformation or becoming.

Transformation can be traumatic (Taylor 2008). For our students this may be particularly acute, given that they work in educational settings and therefore arrive as students with an existing body of professional knowledge(s) and expertise. This means that they are both *knowers* and *learners* when inhabiting the space of a masters student, which can have troublesome implications. As noted, our courses are purposefully designed to disrupt students' understandings of their professional contexts, to expose for analysis the metanarratives we believe are distorting educational aims and values. With St. Pierre, we believe 'we need new concepts in order to think and live education differently' (2004, 285) – now more than ever as datafication spreads through people, practice, systems, institutions and jurisdictions. Yet this generates a challenge, as students may legitimately experience our approach as deliberately undermining their existing professional knowledge and expertise – as a process of (un)teaching.

Take the following simple example. Despite our students' first-hand experience of the neoliberal-performativity-datafication trinity (Apple 2006), they are unlikely to be familiar with the academic literature that identifies and critically analyses these concepts and their impact on education and teaching practices. Our students' first encounter with Ball's 2003 article, *The teacher's soul and the terrors of performativity,* can provoke a strong emotional response. Ball identifies the underlying neoliberal system of accountability dominant in compulsory education in the UK, but also implies that the logics and technologies underlying it have created a new type of teacher who can only serve the system: 'Look, teachers! Look what's happened to your soul!' Understandably, some students find the implications of this distressing. Where a teacher who has been judged 'good' or 'outstanding' is suddenly confronted with a

critical discourse that challenges notions of judgements within education, it leads to rupture. This rupture can be keenly affective, tearing through constructed understandings of professional selves as students recognise their becoming through datafied assemblages. These affects can be actualised as emotions such as disappointment, regret, hostility or resentment. On occasion, this manifests as sites of resistance, as our students attempt to preserve a sense of themselves as autonomous, agentic beings capable of rational and ethical decision making. In some cases, we see a reluctance to continue to engage with alternative concepts or critical reflections on policy and practices. Some students return to comforting victory narratives; the impulse to reconfirm themselves as successful performative teachers who can meet specified standards and targets (Dillabough 1999) is understandable.

However, many of our teacher students react differently. Like those in Ball's (2003) article, they are accustomed to anxiety and stress (Perryman and Calvert 2019), and many start their masters with a partly-articulated sense that their educational values are being undermined through neoliberalism's regime of accountability; but they do not always have the concepts or theoretical constructs to fully articulate their discomfort and rationalise their experiences. For these students, Ball's *terrors* can provide the solace and relief of a long-sought diagnosis, a recognition that this *is* real and there *is* a name for it, a sense that they are not, after all, deluded. This is not traumatic, but it is no less affective.

Whilst the qualities of affect induced by Ball's article may differ from student to student, we believe that in all cases the process is enabling, allowing students to develop philosophical frameworks through which to understand their practice, values and subjectivities differently. This, we claim, is an essential practice in the production of their *reflexivity.* As Kamler and Thomson assert, 'developing a reflexive disposition is

profoundly about the being and doing of scholarship' (2014, 75). It is about asking critical questions of themselves and their practice and challenging practice norms and assumptions: For our students, reflexivity is not about reflecting upon the self, but about trying to understand, in Foucault's phrase, 'what what they do does' (Foucault 1982, 187).

Onto-epistemological dissonance

We now consider the changes to onto-epistemological arrangements brought about through the teaching and learning event. As Taylor (2008) suggests, as students develop intellectually through the learning process, and as their relationship with knowledge and truth is challenged and then reframed, their epistemological positions also develop and shift. Previous work on the intellectual development of university students has mainly focused on undergraduates, providing a means through which teachers can understand the relationship between their students' approaches to learning and ways of knowing (Marouchou 2012). Students move from reproductive to more transformative and deeper modes of learning depending on their epistemological positioning. This is conceptualised as a shift from dualism, where there is either a right or a wrong answer, to relativism, where the contextual nature of knowledge is recognised and welcomed (Belenky et al. 1986; Hofer and Pintrich 1997). It is a move from epistemic certainty to uncertainty and complexity.

The affects and effects of datafication mean that our students may well have developed a datafied onto-epistemology that aligns itself with more objectivist philosophical positionings. As Clapham notes, datafication necessarily privileges a positivist epistemology as 'performativity mediates what constitutes knowledge, what knowledge is of worth and whose knowledge has legitimacy' (2016, 132). Datafication

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is reductive (Bradbury 2019): it simplifies complex assemblages and re-presents them as solvable statistical problems (Selwyn 2015). Accountability in education demands truths by measurement using quantitative data. There is no room for uncertainty. Our own post-qualitative positioning, as noted, can produce a state of onto-epistemic discord between our students and us. This has implications for teaching and learning and has both affective and effective consequences that can further exacerbate an already troublesome experience.

We see this desire for epistemic certainty shaping our encounters with masters students. According to Marouchou (2012, 18) 'students' views on learning have an impact on the way they approach their learning, which in turn may influence the quality of their learning outcomes'. These views are formed through onto-epistemological positionings (Kelly 2017). We are all teachers and learners, but our different educational contexts can lead to very different appreciations and expectations of what is involved in the teaching and learning process. As an example, we want students to spend time reading, exploring their field, grappling with often contradictory theories and generating their own questions and understandings through self-directed enquiry. We encourage this often messy process because we believe learning should be rhizomatic; yet our students often find it difficult and frustrating. If epistemic certainty is the aim, it seems entirely reasonable that a teacher should tell their students what they need to know and how to demonstrate that they know it. Our refusal to do this can be a source of tension: we will not say precisely how many references are needed, or give explicit instruction on essay structure, or define a term exactly. This tension is more pronounced given the increasing marketisation of HE (Bhatt and MacKenzie 2019). Our students invest large amounts of their own resources in continuing their study and understandably want 'value' from the student / teacher exchange. What constitutes

value is obviously contentious, as are the means by which it can apparently be measured (for example, the national surveys discussed above). How and whether to hold firm to our pedagogic principles or respond more readily to students' expectations has been a key theme in our datafication conversations. As we have acknowledged, whilst we inhabit relatively less datafied spaces, we are by no means immune to the influence of data in our contexts. For example, our students may not participate in national or externally administered surveys, but of course they do still evaluate teaching and learning; and whilst these internal evaluations may lack 'the power of visibility' (Bradbury and Robert-Holmes 2018), we still see in ourselves the desire to 'do well', for our students to say and write good and positive things about their course, their learning, and our teaching.

We observe another effect of onto-epistemological discord in how students engage with learning about research methods and enquiry, which, in keeping with masters level study generally (QAA 2001: 28), remains a fundamental component of PGT programmes. The onto-epistemic shift to postmodern, poststructural or in our case post-qualitative positionings has disrupted notions of knowledge, truth and meaning, and challenged more positivistic and scientistic modes of knowledge production. In turn, customary conceptualisations of method, methodologies and research data have altered as innovative and creative approaches gain ground (Koro-Ljundberg, MacLure and Ulmer 2018). While we welcome these changes, here again we acknowledge another context in which the discord between disparate onto-epistemological positionings is potentially amplified. This is noted by Cottle, who found EBM students reluctant to engage with research methods modules apparently because they 'were rejecting or resisting a developing academic identity and had chosen to remain in a state of liminality on the threshold of transformation' (2016, 9).

In our conversations similar issues surfaced and we have wondered how best to engage our students in learning about research methodologies. However, how we understand this reluctance differs somewhat from Cottle's interpretation. If viewed as a consequence of epistemic dissonance, this resistance could be considered as stemming from our different subjectivities. For our students, datafication has reinforced the primacy of positivisitic and scientist modes of knowledge production and they come to recognise the associated vocabularies and practices as constituting research. Additionally, the discourse around evidence–based teaching and the use of randomised control trials has reinforced the relationship between educational research and positivistic modes of enquiry (Biesta 2007). Research is assumed to prove an intervention has 'worked', a 'truth' can and should be found; evidence is quantitative rather than qualitative. For example, on beginning the research methods module, many of our students' intention is to design an enquiry that will satisfy datafied school developmental priorities. The aim is to *prove* impact and contribute to school improvement (Clapham 2016).

Small-scale practitioner research that is generally within the scope of a masters dissertation tends to lend itself to more qualitative approaches, since small-scale quantitative studies can be problematic. Here we find ourselves again 'unteaching', attempting to encourage our students to rethink knowledge production, research and data as qualitative, rather than quantitative, undoing the work of datafication. Where we are successful, and students take up the mantel of qualitative (or even post-qualitative) enquiries, we experience the power and pervasiveness of neoliberal discourses and regimes of truth. As St. Pierre (2000, 478) notes, humanism 'is the air we breathe, the language we speak..., the politics we practice... [and] the futures we can imagine'. Not surprisingly then, students struggle to think data and research qualitatively without

recourse to positivist concepts and quantitative vocabularies. They wonder how to *triangulate*, how to ensure the correct *sample size;* will their *results* be *generalisable,* where is their *proof?* In considering how to respond, we wonder to what extent this state of the 'in-between' might be a useful or productive site for learning; how we might avoid or mitigate against the temptation of replacing one regime of thought or truth with another (St. Pierre and Pillow 2000). Deleuze and Guattari's (1987/2004) suggestion of putting the tracing back onto the map is useful in this regard. Here, and with reference still to research methods, the tracing represents the notion that there is a certain way to 'do science'; it is stable, linear. The map is different: it is a state of becoming, it is changeable and rhizomatic; there is no science to apply, and research methods and knowledge are open, debatable concepts. We cannot simply substitute one set of beliefs for another, thereby perpetuating 'a simple dualism by contrasting maps to tracings, as good and bad sides' (Deleuze and Guattari 1987/2004, 13). If we lay the tracing over the map, if we look for contrasts and ruptures between the two, it becomes part of the process by which we might construct new ways of knowing. In this way the tracing is not discarded but becomes central to enabling critical, reflexive thinking. In other words, we cannot just teach research methods. We must work with our students as always and already implicated in the process of coming to know.

An invitation to continue the conversation

This article has explored the affects and effects of datafication on teaching and learning in EBM courses. We have argued that this work is significant given its under-representation in current research and literature. In keeping with our methodological approach, we consider the implications of our conversations in order that we can continue to develop the 'educational thought and expertise [of] those directly involved'

(Bojensen 2019, 654). We have acknowledged and problematised the construct of the datafied student subject and the complex ways in which datafication results in a particularly troublesome experience for EBM students. We have recognised that particularities of the teaching and learning event has potential and significant affects, of the kind that might, for example, involve our students questioning or rethinking ideas about themselves and their work as we 'unteach' datafied practices and values. This has led us, as HE practitioners, to consider it a moral imperative that we understand our students' subjectivities, in what ways they are constituted through data, and the implications of this for their masters study. How we respond is not just a matter of structural or practical actions of the kind that might see us adjust programme specifications or teach a lesson on datafication. It requires a more wide-ranging pedagogic response; one that necessitates a shift in how we think about our students' learning without compromising our own educational values. Importantly, it is about recognising and engaging in the struggle with our students. These tensions need to be grappled with in the teaching and learning exchange. We need to recognise and understand the troubling nature of masters level learning and the affects and effects of the rise and rise of datafication on us all.

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