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ADAMS, Gill <<http://orcid.org/0000-0003-2088-8708>> and POVEY, Hilary <<http://orcid.org/0000-0002-8524-0550>>

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Citation:

ADAMS, Gill and POVEY, Hilary (2018). “Now There’s Everything to Stop You”: Teacher autonomy then and now. In: JURDAK, Murad and VITHAL, Renuka, (eds.) Socio-political dimensions of mathematics education: Voices from margin to mainstream. ICME-13 Monographs . Springer, 209-230. [Book Section]

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“Now There’s Everything to Stop You”: Teacher Autonomy Then and Now

Gill Adams and Hilary Povey

G.Adams@shu.ac.uk H.Povey@shu.ac.uk

Sheffield Hallam University, United Kingdom

Globalisation and neoliberal political agendas currently dominate educational policies and practices in, amongst others, many Anglophone and northern European countries including England, with discourses of the market and performance circulating widely and having become established regimes of truth. This demands sustained critique of hegemonic, taken-for-granted understandings and an exploration of how the lived experience of neoliberalism can be disrupted. In this chapter, we utilise the tools of genealogy to develop a history of the present, focussing particularly on the variation in autonomy revealed through a study of mathematics curriculum development. Juxtaposing stories from teachers involved in the Smile mathematics curriculum development project in England in the 1970s and 1980s with responses from currently serving teachers to the experience of performativity we highlight differences in teacher autonomy over time. We conclude by discussing the possibilities for teachers to mobilise such stories in their resistance to dominant, neo-liberal discourses.

Keywords: socio-historical, neoliberalism, autonomy

1. Introduction

Globalisation and neoliberal political agendas currently dominate educational policies and practices in, amongst others, many Anglophone and northern European countries including England. Discourses of the market and performance circulate widely and have become established regimes of truth, undermining teachers' professional and personal identities and placing their sense of independence, autonomy and moral authority under threat (Day & Smethem 2009). The need to critique and disrupt this agenda has been argued extensively elsewhere (see, for example, Ball et al., 2012; Berry, 2012; Darragh et al., 2017; Llewellyn, 2017; Montecino & Valero, 2017) and we do not rehearse these arguments here. Rather, in this chapter, we begin to utilise a genealogical approach, to develop a “disordered and fragmentary” genealogy (Foucault 1976/1980, p. 85), or history, of mathematics teacher autonomy. Foucault defines genealogy as research that aims to activate ‘subjugated’ historical knowledge (O’Farrell 2005, p. 68). Here, we focus on a consideration of neoliberalism, developing a history of the present (Popkewitz 2013) illustrating teacher autonomy in different times. We begin by developing “systemic narratives” (Goodson 2014, p. 34) drawing on documentary evidence to identify historical periods of teacher autonomy and education policy in England before narrowing our focus to mathematics curriculum development. Juxtaposing stories from teachers involved in the *Smile* mathematics curriculum development project in the 1970s and 1980s with responses from currently serving teachers to the experience of performativity, we construct a conversation over time around teachers’ time and energy; a focus on students; collaborative teacher learning through curriculum development; professional autonomy; and personal autonomy.

Although based on the situation in England, aspects of the policies and practices described herein will resonate with readers in many other countries, for neoliberal policies are in evidence around the world (see, for example, Darragh 2017; Goodson 2014). Our moral purpose in this chapter is to expose “intolerable taken-for-granted exercises of power” (Ball 2013a, p. 145), using stories from the past to show alternatives. In drawing on the past, we seek to disrupt the present and provoke a search for an alternative future.

2. Teacher Autonomy

Autonomy, a key feature of the complex and contested concept of professionalism in teaching and teacher development, has varied over time. Four historical phases in the changing nature of teacher professionalism and professional learning are particularly evident in Anglophone countries (Hargreaves 2000). The first, the pre-professional age, lasts until the 1960s. This was a time when teaching was seen as straightforward, common-sense and was learned through apprenticeship. From the 1960s to the mid-1980s, Hargreaves details the “age of the autonomous professional” (p. 158). During this phase, teachers “enjoyed unprecedented autonomy over curriculum development and decision making” (p. 158), traditional pedagogical approaches were questioned and there were an increasing number of progressive initiatives. However, despite this autonomy, Hargreaves cites research findings that support for teachers was limited and many remained isolated. This perspective is challenged by our account of mathematics curriculum development at that time (see section 5.1).

From the 1980s to 2000, individual autonomy gave way to what Hargreaves describes as the age of the “collegial professional” (p. 162). The pace of reform accelerated and demands were made of teachers to teach in particular ways, to collaborate with colleagues and to develop new skills. However, collaboration was frequently limited to compliance with initiatives rather than any fundamental change or seen as an additional burden when working conditions did not facilitate such shared working. Looking back, Berry notes a shift from the turn of the century to autonomy “that is both directed and coercive” (Berry 2012, p. 399), autonomy that must be earned. Speculating on the fourth age, Hargreaves notes evidence of a post-professional era, where professionalism is “diminished or abandoned” (p. 167). A democratic alternative, the postmodern professional, requires teachers to build a social movement, one which by-passes governments and neoliberal policies (Hargreaves 2000, p. 175).

This reduction in autonomy is not restricted to England but part of a global trend and one which has a particular impact on mathematics teachers. Montecino and Valero (2017) analyse the ways that international agencies including the OECD and UNESCO have contributed to discourses which position the mathematics teacher as a policy product, key to improving the quality of mathematics education. In order to secure this improvement, teachers are required to engage in continuous professional development (CPD) and be subject to repeated testing: “‘quality control’ becomes a constant measurement that the teacher must face” (p. 144). In this environment, where “value replaces values” (Ball 2003 p. 217) teachers must attend to the enterprising self, in a quest for excellence. Any potential benefits of CPD are lost “when performativity reduces it to a set of compliance targets; points to be amassed” (Sugrue & Mertkan 2017, p. 16). In this way, the desirable attributes of the mathematics teacher are established and standardized internationally: “the teacher [is] controlled, produced and planned...subjected to the whims of the market, the

development of policies, and the response to social demands” (Montecino & Valero 2017, p. 144). This control is pervasive, enacted through “meticulous, often minute, techniques” (Foucault 1979, p. 139) dictating not only the curriculum, the structure of a lesson, the approach to teaching a particular concept, but also the focus of an individual teacher's learning and even the clothing they must wear.

3. TOWARDS A HISTORY OF THE PRESENT

The genesis for this chapter was our engagement with a socio-historical study of the *Smile mathematics* curriculum development project, a teacher-led project which began in London in the 1970s. The study was based on the conviction that “history is about the present” (Hodgkin & Radstone 2003, p. 1). We have argued elsewhere (Povey & Adams 2017a) that the looking backward which the study involved was not backward-looking but, rather, forward-looking. Our historical interest is “present-minded” (Samuel 1980, p. 168) seeking to develop

an understanding of subjective experience and everyday social relationships [that] can be used to pose major questions in politics and theory, and to transform our understanding of some of the leading phenomena of our time. (Samuel 1980, 173-174)

To gain purchase on that subjective experience and the associated everyday social relationships, we have collected vivid personal accounts using shared memory. In addition, we have collected a variety of materials that have enabled us to begin to build an archive detailing the *Smile* project, focussing on the period 1972-1990. Such documentary evidence forms a “particular, local, regional knowledge” (Foucault 1976/1980, p. 82).

In this chapter, we employ the tools of genealogy to better understand changes in teacher autonomy over time. Genealogy works with subjugated historical knowledges, both “historical contents that have been buried and disguised” (Foucault 1976/1980, p. 81) and “knowledges that have been disqualified as inadequate to their task or insufficiently elaborated” (p. 82). These latter, popular knowledges may take the form of teacher testimony of the kind collected in the *Smile* project. Popular knowledges are important, for “it is through the re-appearance of this knowledge, of these local popular knowledges, these disqualified knowledges, that criticism performs its work” (p. 82).

4. A Brief History of Education in England 1944-2017

4.1 “Optimism and trust”

In order to develop an understanding of the social and political conditions in which *Smile* was first conceived and later flourished, we need to go further back in time, beyond its beginnings in the 1970s. The 1944 Education Act established secondary education for all in a “school system that reflected the values of a democratic society” (Newsam 2016, p. 180). The Act was drafted “during a war against totalitarian governments in which institutions like schools, and what was taught inside them, were directly controlled by the government” (Newsam 2016, pp. 180-181). In an effort to ensure such central control was not possible in England, the Act required agreement between the Local Education Authority and national government before any publically funded school could be opened, closed or changed in character. In a period of post-war economic growth, this was a “national system, locally administered” (Chitty 2009, p. 115). Although the Act provided free schooling for all children of secondary age, they were to be separated at age 11 by so called measures of ability and aptitude and directed to either grammar, technical, or modern schools.

London was one of a few authorities choosing not to adopt a tri-partite secondary school system (in practice this was typically a bi-partite system of grammar and secondary modern schools), instead setting out a plan for the development of comprehensive schools. The bi-partite system perpetuated class divisions with around 80 per cent of children from mainly working class backgrounds educated in the more poorly resourced secondary modern schools. By 1958 there were 26 comprehensive schools in London (Ball 2013b, p. 77), a considerable number given that less than 5% of the secondary school population in England was educated in comprehensive schools at that time (Chitty 2009, p. 29).

It is important to note that the Act provided no guidance on curriculum content (Chitty 2009). Peter Newsam, Chief Education Officer of the Inner London Education Authority (ILEA) from 1975 to 1981, sees the omission of curriculum guidance as deliberate, for “[i]t was not seen as the role of local or central government in a democratic society to require schools to teach pupils particular things in any particular way” (Newsam 2016, p. 182). This understanding, that decisions concerning curriculum and teaching were the responsibility of individual school staff, continued until the late 1970s (Chitty 2009). Brighouse dubs the period from the 1944 Education Act up to the early 1970s, a time where teachers had considerable freedom, as one of “optimism and trust” (Brighouse 2016, p. 153). Although Local Education Authorities provided advice to schools, “control of the curriculum and how it was taught was regarded as sacrosanct” (Brighouse 2016, p. 154), the responsibility of individual schools and of teachers.

In the 1960s there were early indications that the situation regarding teachers' autonomy over the curriculum was about to change, as Sir David Eccles (Conservative Minister of Education) raised the prospect of entering “the secret garden of the curriculum” (Chitty 2009, p. 147). Eccles established the Curriculum Study Group in 1962, a group that was viewed with suspicion by the teaching unions and replaced two years later by the more democratic Schools Council (Chitty 2009; Pring 2016). This latter organisation had teachers at the centre, working in partnership with universities to “undertake research and development work in all aspects of curriculum and examinations in primary and secondary schools” (Chitty 2009, p. 148). The Humanities Curriculum Project exemplifies such partnerships; supported by the Schools Council and building on the research of Lawrence Stenhouse (Elliot & Norris 2012), the project informed the practice of action research in schools. A 1975 paper published by the Schools Council affirms and justifies support for teachers' role in curriculum development:

We believe the surest hope for the improvement of the secondary-school curriculum lies in the continuing professional growth of the teacher, which, in turn, implies that teachers take even greater responsibility for the development of schools curriculum policies. (Schools Council 1975, p. 30)

The active engagement of teachers was important for the success of mathematics curriculum development. During that period, there was a belief that for curriculum development to succeed it must be viewed as more than “merely the production of new syllabuses and texts” and must recognise the role, experience and understanding of the individual teacher and “encompass aims, content, methods and assessment procedures” (Howson et al. 1981, p. 2).

4.2 An era of reform

The year 1988 saw the introduction of the Education Reform Act for education in England and Wales and, to a lesser extent, the rest of the UK and it ushered in an era of constant reform. The Act

is widely regarded as one of the most significant UK education acts in modern times, introduced by a government which “sought to drive neo-liberal principles into the heart of public policy” (Jones 2003, p. 107, quoted in Gillard 2011). By neoliberalism we understand a wide-ranging ideology in which the market is regarded as supreme, ensuring efficiency and quality in all sectors of public and private life. The domain of the state should be shrunk as small as possible with public services run by the private sector. Further, since, as Margaret Thatcher, an early exponent of neoliberalism, is famously quoted as saying “there's no such thing as society” (Thatcher 1987), individualism is valorized and encouraged to run rife. In order that the market be operationalized and individuals appropriately rewarded or disciplined, quantification and comparison become universal. Each of these features can be seen to be at work, profoundly shaping current educational policies and practices in England.

Although ostensibly about the curriculum, for mathematics education, the Education Reform Act brought very little change in curriculum content, thus making its intended purpose clearer: it was about “a centrally imposed and nationally validated system of grading children, schools and teachers” (Noss 1990, p. 28). The Act introduced universal testing into both primary and secondary schooling and, in 1992, the inspection service the Office for Standards in Education (Ofsted) was created to police the consequences for teachers and schools. This monitoring and the high stakes of the judgements that are then made about school students, individual teachers and whole schools, have consequences for teachers' identities, subjecting them to increased surveillance and reducing their independence (Day & Smethem 2009).

The “audit ideology” (Groundwater-Smith & Mockler 2009, p. 5), evident in the school inspection system and the accompanying league tables, is a key instrument in establishing a neoliberal regime of truth in education. No longer conceived of as a public good (Macpherson et al. 2014), education becomes a consumer product subject to market forces with teachers and schools measured and ranked to enable customer choice. This “epidemic of reform” changes who teachers are as well as what they do (Ball 2003 p. 215), eroding teachers' autonomy and challenging their individual and collective professional and personal identities (Day & Smethem 2009, p. 142). Ball (2003) suggests teachers are subject to the terrors of performativity and that there is a current struggle over the teacher's soul. Teachers (alongside all neoliberal subjects) are expected to ‘perform’ an entrepreneurial self, organizing and presenting themselves in response to targets, quality indicators, measures, scores and evaluations, crafting their identity against these parameters of success (Keddie, 2016). Indeed,

it is impossible to over-estimate the significance of this in the life of the school, as a complex of surveillance, monitoring, tracking, coordinating, reporting, targeting, motivating. (Ball et al. 2012, p. 525)

Currently, in England, pupil performance in mathematics examinations at age sixteen usually operates as the single most important item of data in judging secondary schools, with mathematics teachers therefore routinely experiencing greater pressure and coming under more scrutiny than most, if not all of their colleagues.

5. Mathematics Curriculum Development

5.1 Teachers and curriculum development 1960-1975

Curriculum development between 1960 and 1975 in England was supported by both private and public funds with teachers involved in much of the development work. Teachers' centres provided a meeting place at a local level, with access to resources, advice and in-service courses. During this period, teachers remained active in curriculum development with subject specialists offering advice but teachers taking “decisions concerning goals, content and methods” (Howson et al.1981, p. 172). Two mathematics curriculum projects, the Fife Mathematics Project in Scotland and the School Mathematics Project (SMP) in England, illustrate variation in teachers' roles in curriculum initiatives of the time, further contextualising the subsequent discussion of the *Smile mathematics* project.

The first, the Fife Mathematics Project, developed in response to the introduction of comprehensive schools and mixed ability classes. Materials which aimed to encourage self-reliance in students and to provide opportunities for personal exploration of mathematical concepts were developed by Geoff Giles, then at Stirling University, and piloted in one secondary school prior to expansion to around 20 local schools. This project was supported by public funds, with teachers as important collaborators in developing the pedagogical approach rather than “creators of materials” (Howson et al. 1981, p. 45). Decisions around the use of the materials remained the province of individual teachers. A second project, the School Mathematics Project (SMP), was initially conceived as a research project based at the University of Southampton in the early 1960s. The SMP was funded by industry and charitable foundations, with the objective of introducing a new mathematics syllabus with materials for text-books, teachers' guides and examinations written by teachers (Cundy, 1963). During this same period, the *Smile mathematics* project began and it is to this we turn now.

5.2 *Smile mathematics* 1975-1990

The *Smile mathematics* project (originally the Secondary Mathematics Individualised Learning Experiment - although this description was later challenged, the name *Smile* remained in common use) has its roots in London in the 1970s. Heads of mathematics departments or their delegates met at a conference at the Ladbroke Mathematics Centre, one of several such centres supporting mathematics teaching in London. One of the original group, writing in 1975, recalled this event:

In the autumn of 1972 a week's conference was held at the Ladbroke Maths Centre for heads of mathematics departments. During that week John Stewart from Chelsea School, who had shown initiative in using a development of the Bertie Banks scheme, attracted enthusiastic attention. He felt his scheme had much to offer other schools and wanted a bigger team to work with. Several heads of department at the conference, including myself, had for a long time been anxious to run mixed ability schemes in their own schools but had been more easily daunted than John by the size of the task. We were very interested in working with him on a joint project and agreement was quickly reached by a group of schools to cooperate. (Gibbons 1975, p. 6)

A commitment to all-attainment teaching was one of the key drivers from the start of the project. Laurie Buxton, an ex-teacher and influential Mathematics Inspector in the Inner London Education Authority (ILEA), drew attention to the central role of teachers in creating and refining curriculum materials.

Smile was certainly a happening and I am still not quite clear how it crept up on us. Odd bits of memory piece together for me how it came about. Firstly, Bertie Banks ... his organisation sprang to life as he talked and I longed to visit his classroom.

Later, stirrings at Ladbroke and then a surge of personalities as the original smilers burst upon us, bubbling and arguing, the cut and thrust ...

What is *Smile* now then? At the management and production end still perhaps something of a Frankenstein monster, but where it matters, in the school, a genuine salvation in some difficult situations. *Smile* has, unlike so many attempts at change, a really solid basis. It sprang from needs in the classroom, was constantly tested back there and developed, as all schemes should be by the teacher in the classroom. This is your genuine article - curriculum development as it should be. (Buxton 1975, p. 6)

Initially established and fostered under the auspices of the supportive ILEA, the *Smile mathematics* project was created and sustained by teachers. One year after the initial conference, some twenty schools were working together on *Smile*. Teachers from these schools were released from their teaching and responsibilities in school for one day a week, forming a working collective to create, refine and publish imaginative and inspiring mathematics curriculum materials for use in their own classrooms and beyond. This group embraced an investigative, problem-solving pedagogy. *Smile mathematics* saw itself as learner centred, giving students' considerable responsibility for organising and shaping their own learning and that of their learning community. The authority ascribed to students is apparent in archive materials where there is evidence that students' contributions and responses to *Smile* activities are valued in various publications, as well as through their involvement in the process of testing out new materials in the classroom. *Smile* flourished in London from 1972 until the late eighties, supported both financially and philosophically by the ILEA. In 1990, the ILEA was abolished by Margaret Thatcher's administration; this and the beginnings of the neoliberal ascendancy led gradually and then increasingly rapidly to its demise. In the following section, we discuss curriculum changes after 1990.

5.3 Mathematics curriculum development in an era of reform: After 1990

As we saw above, in general, neoliberalism shrinks the size of the state. However, the goals of performativity through which the neoliberal subject is managed, also discussed above and below, require that the subject has an auditable framework against which she can be measured and against which she can measure herself. This has led, in the era of reform, to government involvement not just in a broad advisory outline for the curriculum but also in micro-specifying and micro-managing not only what is to be taught in schools but also how it is to be taught. This has been especially true for 'numeracy' and 'literacy' which for a time replaced the traditional mathematics and English.

In mathematics, the clearest example of this was the National Numeracy Strategy which primary (and later early secondary) teachers were required to follow from 1999. It claimed to be evidence based, instructing teachers on 'what works', in itself a radical reconceptualising of teaching as 'technicist' and de-personalised. However, its relationship to research was haphazard:

sometimes recommendations are quite strongly underpinned, sometimes the evidence is ambiguous, sometimes there is little relevant literature, and sometimes the research is at odds with the recommendations. (Brown et al. 1998)

There were detailed 'unit plans' covering every aspect of the primary mathematics curriculum; an imposed major programme of 'top-down' training for teachers; and strict guidance on how every lesson was to be structured (a starter, a main activity and a plenary summing up). Each lesson was

to address a single 'target' from the curriculum learning objectives and this was to appear on the board at the beginning of every lesson. All pupils should be able to recite the objective should visiting inspectors ask; and head teachers traversing the school on 'learning walks' came to police this, with teachers disciplined if the objective was not clearly visible throughout the lesson.

The contrast with the responsiveness to learners, the teacher and student authority and the teacher creativity and spontaneity of the earlier era could hardly be more extreme.

6. Methodology: Reconnecting with our Past and Exploring the Present

6.1 Participants and data collection

In this chapter we draw on data collected as part of the socio-historical study referred to earlier which focused on *Smile mathematics* during the period 1972-1990. A key aim of the study was to create a public archive recording the development of this mathematics curriculum initiative. This online archive (<https://smilemaths.wordpress.com/>) uses images, stories, newsletters and other media together with extracts from conversations with some of those involved in *Smile mathematics*, including those present during its inception. These conversations took the form of unstructured group interviews with participants recruited through formal and informal mathematics education networks, including the *Smile* action group (SAG), and by means of a snowball sampling process, with contacts proposing others who had a role in the project. In this way a total of 24 potential participants were contacted with information about the project, with 19 participating in four distinct group conversations. Some of those unable to join the group conversations have contributed to the archive in other ways, for example with stories sent by email, photographs and other artefacts. Of the 19 participants, two were teaching in secondary schools and five were working in universities, often as mathematics teacher educators. The remaining participants maintained an interest in mathematics education into retirement. In advance of the meeting, participants were offered several questions that asked them to reflect upon: how they became involved in *Smile*; how they understood their role and responsibilities; the nature of authority and autonomy within *Smile*; and the links to other events of the time. These discussions involved between two and eight participants each, including the authors of this chapter, and lasted around three hours. The conversations were audio recorded and transcribed. The process of checking and returning transcripts to participants for validation and narrative analysis continues. Participants have also been encouraged to provide further personal commentaries and archive material.

Many of the *Smile* teacher participants in the study were young teachers in the 1970s and 1980s; several were closely involved in the beginnings of *Smile*, others had been introduced to *Smile* during their initial teacher education, often beginning their teaching careers in ILEA schools. Generally, as well as knowing us, they also knew one another though most had not met for many years.

Because it is important that the socio-historical study acts upon the contemporary world, alongside the collection of this historical material, we simultaneously began exploring these issues with four recently qualified teachers. The recently qualified teachers (RQTs) were just beginning their teaching careers. They were also known to us before this research began through their engagement with Masters level study as part of which they produced the writing which, with their consent, is reported here. They were asked to read a research article on performativity (Ball 2003) and then to

write a personal account of what performativity meant to them in their daily working lives. Some two years later, two of these teachers responded to email prompts exploring their experience of *Smile*. In an earlier paper (Povey et al. 2016) we worked with reflections from just one of them, Rosie; here we draw in addition on data from James, Ruth and May (pseudonyms). In the data extracts below, the contributions of these recently qualified teachers (RQTs) are indicated by the acronym RQT to distinguish them from the contributions of the *Smile* teacher participants i.e. those who had been involved in *Smile* during the earlier period. The study was ethically approved through our University Ethics Committee.

6.2 Analytical approach

In the earlier paper (Povey et al. 2016) we worked with reflections from Rosie, first, to offer phenomenological insights into her experience of performativity, that is, her first person accounts, and then to illustrate how she has been able to use the past, in this case *Smile* stories, to resist dominant, neo-liberal discourses and to assert an alternative identity and set of practices in her classroom. Her account foregrounded the current context within which teachers work and enabled us to glimpse the potential of our study.

In this chapter we juxtapose the *Smile* teachers' shared memory stories with the new teachers' writing on how performativity affects their everyday experiences of school life, with a view to highlighting changes in teachers' sense of autonomy over this historical period. Our analytic approach is influenced by the form of "layered stories" (Ely et al. 1997, p. 84). These stories might contain "fragments of information, splintered remembrances of many people, and ruptures of logic" that "braid together the layers of story that reveal the larger narrative" (Ely et al. 1997, p. 79). Layered stories may serve to illuminate the same event from the perspective of different individuals or over time. Here the multiple voices contribute to our genealogical work as data fragments illustrating aspects of mathematics teachers' work across time, bringing both depth and diversity to teachers' recollected experiences.

A risk facing any study working with teachers' memories is that "researchers will attach nostalgic projections of their own onto the teachers they study and falsely universalize their own preferred memories and nostalgias" (Hargreaves & Moore 2005, p. 137). As both authors are at once researchers and, as past *Smile* teachers, researched, this risk is one we work actively to reduce. It helps that the two authors experienced *Smile* at different times and in different ways, and hence have "different nostalgias" (Hargreaves & Moore 2005, p. 138). One important resource in countering this risk of nostalgic projection is the documentary archive of *Smile* publications, a resource that allows us to test out nostalgic recollections against contemporaneous accounts of events. Setting these accounts in the context of wider socio-historical evidence further helps to guard against distorting the past. Although we deliberately began our study with a focus on *Smile mathematics*, our subsequent exploration of other mathematics curriculum initiatives of the time provides us with an alternative perspective from which to gain some critical distance from *Smile*. One further way in which we work to guard against nostalgic accounts is through a commitment to sharing work in progress, our proposals for working with data, and our early writing from the project to a critical audience.

7. A Conversation about Autonomy Across Time

In this section we present fragments of stories illustrative of key themes that emerged during analysis: teachers' time and energy; a focus on students; collaborative teacher learning through curriculum development; professional autonomy; and personal autonomy. Frequently these themes were initially identified by the *Smile* teachers as they reflected on differences between their work with *Smile* materials in schools and their knowledge of mathematics teaching and learning today. The significance of these themes was confirmed through our analysis as we worked between the stories of different eras and sought additional historical accounts to deepen our understanding.

7.1 Teachers' time and energy

Time emerged as a significant theme in our early work with the recently qualified teachers, apparent for two teachers, Rosie and May, teaching in very different schools. At the time of our work with Rosie she was teaching in a school with a relatively privileged intake, one which was perceived (and perceives itself) as high-performing and as manifesting high 'standards'. Rosie highlighted the way in which demands of performativity absorb huge amounts of teacher time and energy.

The sheer amount of work involved causes a significant dilemma ... I have to sacrifice a huge amount of my time in order to do my job, [but] much of this is dedicated to monitoring performance and meeting targets, not improving the learning experience of my students. (Rosie, RQT)

May teaches at a school operating in more challenging circumstances. Most of the children she teaches come from backgrounds where disadvantage is experienced in one way or another. She sees the professional value of record keeping and the way in which this can provide a reflective space in which to consider the learning trajectories of individual students. However, she is also all too aware of the way that the current data-demands drain teachers' time and energy:

Whilst writing this I have been thinking a lot about opportunity costs ... I cannot help thinking that the opportunity cost of the time spent entering data into various software is time lost on planning engaging lessons ... the mindless typing of one set of data into two programmes in order to send one off to be analysed by the higher ups is a waste of an hour. An hour that could have been spent on modifying a lesson. (May, RQT)

For the teachers who had been involved in the *Smile* project, time was perceived differently. Energy was invested in meaningful and productive work, in activity that the teachers valued.

...when we worked, when we were generating ideas and revising *Smile* cards. We were saying this is what kids do. We were anticipating what kids can do. The teachers we work with now, this is a revelation for them. Often they don't have much time for planning, but the time they have is, 'well this activity should be okay, this one should be okay and I've got a lesson and a series of activities'. Actually, they've never really thought through, they haven't got the time. Time is so precious; it's taken up with so many other things that they haven't got time to think through, to anticipate kids' responses. But that is exactly what we did when we were doing *Smile*. (fragment from group conversation, *Smile* teachers, 2016)

These *Smile* teachers talk enthusiastically of after school meetings, working weekends and conferences, noting the hard work, the challenge and the enjoyment. In contrast, the new teachers talk of time lost to 'mindless' tasks. One of the *Smile* teachers described this change. Departmental meetings had been seen as a time for "doing mathematics...creating units...working collaboratively as a department" under the guidance of a subject leader. Now they had gradually become taken over by "ticking boxes to fill in parts of the SEF [Self-Evaluation Form - a requirement of Ofsted]. You

were supposed to talk about something that somebody else already knew the answer to” (fragments from group conversation, *Smile* teachers, 2016).

7.2 A focus on students

From the outset of *Smile* students were firmly at the centre. The scheme offered the flexibility for students to take responsibility for their learning, working with their teachers to select activities and extending these activities to develop understanding, reflecting their own interests. In our research conversations, the *Smile* teachers reflected on the pleasure of planning, “thinking about individual kids and how excited they might get from [a particular] card”, recognising this process as “a very special thing, because you have to hold that child in your head to do it”. This planning for individuals was part of a pedagogical approach centred on supporting children to engage meaningfully with mathematics, develop understanding and take “responsibility for all sorts of aspects of their learning” (extracts from group conversation, *Smile* teachers, 2016).

The recently qualified teachers had varying degrees of exposure to *Smile* through their initial teacher education and their Masters study, often exploring mathematics from the starting point of a *Smile* resource and supported by ex-*Smile* teachers, including ourselves. This provided an alternative to their own experience of learning mathematics at school and helped them to consider what learning might look like from the perspective of their own students.

The lessons we experienced at university really inspired me ... they showed me the excitement of discovery and how that can be incorporated into teaching ... They also showed me a new approach to teaching mathematics, one that is more involved and engaging than I had experienced as a learner before ... It is something that I keep in mind now as I plan for my own classes ... I know that when I look through the activities I will find activities that will suit how I want to teach my students. (Rosie, RQT)

Rosie is able to make connections with the past, the resources tangible remnants of alternative practice, refocussing attention on students' meaning making.

A lot of the tasks are investigative and allow the students to discover relationships themselves, but all of them help foster deeper understanding of why things are happening ... I have a deep affection for [the *Smile* resources] because their complete focus on teaching for understanding is something that is really important to me ... I can get [the students] to explore an area of mathematics themselves and discover something. (Rosie, RQT)

May, in common with many (most?) teachers retains a commitment to the centrality of her students and of her relationship with them, seeing it as the most important aspect of the job. However, this is constructed rather differently from students being at the centre of the mathematics itself.

Especially with the students that I work with, mainly from deprived backgrounds, even if the task was amazing, they would not do it without it being proposed/set up in an engaging way with a teacher that they had some measure of like and respect for. (May, RQT)

In addition, when she tries to see this commitment through, she is sometimes thwarted:

...it was decided that I would organise some form of maths trip ... I wanted to take/offer it to all of the ... lower sets ... but this idea was rejected. I had to offer it only to [designated low-SES] students because they were identified by Ofsted last year as not making enough progress and not having enough provided for them and this trip ticks the maths intervention box. (May, RQT)

And James, one of the recently qualified teachers, finds that his students have now become understood as the bearers of targets against which he is measured and his pay is determined.

Drawing on a story from the archive (Adams & Povey 2016, pp. 85-86), we contrast this with the freedom and willingness to respond to students as individuals experienced by the *Smile* teachers.

The other thing is a lot of the theory that's being forced out now is this idea that children progress like this. If you've taught any length of time you get a kid who's sat there like this and you think for goodness' sake make some progress. It can be for ages, and then suddenly things seem to fall into place and they go shooting up. ... one of the things I came across not long ago reminded me, it's called Maths Mag, and this was a boy ... who said I don't like maths. I'm artistic, I'm arty. I don't like maths. He used to come back after school in Year 8 and he produced Maths Mag. This was all his work and they were little maths problems, sequencing problems and he'd do the diagrams and this, that and the other. I don't know, I suppose it would be a stencil on a Banda machine or something, would run it off and it would go out to the students ...

It was maths and yes, you made sure he was still doing some sort of other work, but this is what he enjoyed doing, he wanted to publish Maths Mag. I think he did something like three versions of it, although I've only found one of them. But for him to come back after school and doing something that, as he said, "I hate maths." He didn't see that as maths. (Eades, 2017)

We pick up this story again in later section.

7.3 Collaborative teacher learning through curriculum development

Smile mathematics resources were created and revised by teachers working collaboratively, typically at writing weekends, often working in "groups of five or six preparing packages of materials" (*Splash* 1978). This collaboration, whether at the *Smile* Centre, at working weekends or conferences, naturally influenced the way that mathematics departments worked together in their schools:

...we were constantly being involved in things to the extent that we would take that as a model when we were doing our own in-house things. We would work together to create resources for **our** classrooms, rather than for **my** classroom. It became a model that we were using that gradually faded as time went by, which I thought was a shame. (extract from group conversation, *Smile* teachers, 2016)

Collaboration, both within subject departments and between schools, was a feature of mathematics curriculum development at the time, particularly in the ILEA.

It's one of the differences between now and then that within schools subject development was much stronger then. It was a period when teachers could get out on subject development, could get involved in *Smile* and then there was a period when it seemed to me that schools closed in on themselves and development was very much about the school and not about the individual departments within the school. ...Departments became less important in terms of development and therefore teachers more and more worked as individuals rather than as a whole department. (extract from group conversation, *Smile* teachers, 2016)

The *Smile* teachers talked about curriculum development as a collective endeavor. *Smile* activities were trialled in the classroom at various stages of development and students encouraged to provide feedback. Their feedback was frequently reported in the newsletter *Splash* and contributed to the confidence that teachers had in the resources.

That's the thing, isn't it? I think that was the great thing. When you had a *Smile* card that worked, you knew that lots of people had put a lot of energy into making sure that happened and were going to review it at some point. Things constantly were recycled and that's what I really liked, and that's what I miss enormously. (extract from group conversation, *Smile* teachers, 2016)

The problem solving approach to teaching mathematics, although new to Rosie (and, we argue, to her peers), is not new at all. Rather, it is the product of iterations of teacher-designed resources together with a broad, collaboratively developed pedagogy.

The *Smile* teachers recognise that when they discuss *Smile* they are also talking about their own development and that collaboration was a vital part of this “It was about people working together. That’s what made it special, for me anyway, and inspired me and enthused me and made me think differently about teaching and learning” (extract from group conversation, *Smile* teachers 2016). It is difficult to find spaces for such collaboration today. May refers to her experience of “this every man for himself mentality” and Ruth writes that,

as a teacher you need to be aware that judgments are being made by not only known observers but by colleagues on a daily basis.

It is very difficult to find the space for collaboration, mutual support and joint teacher learning in such a climate.

7.4 Professional autonomy

Many of those interviewed as part of the study remain engaged in mathematics education, some working in schools or universities, some as independent advisors, others recently retired. These roles provide them with experience of mathematics teaching in England today; during our conversations they reflect on the changes, comparing their experiences as *Smile* teachers with teaching conditions today. Here we offer three fragments from these conversations.

I was in my enthusiasm bouncing back from a *Smile* conference and having the metre cube, do you remember the framework you had that made a metre cube? I have a series of photographs... you see [the students] working at their cards and then looking up and then putting everything away, picking the tables up, stacking them, putting the chairs away, constructing them into metre cubes and then all doing the piling in, bundling into the metre cube and all the rest of it, standing around discussing it, doing it, the metre cube collapsing and kids all over the floor and then putting it all away and putting the chairs and tables back and so on and sitting back down again. To me that sums up what *Smile* was, that you could have that flexibility. ...You had that flexibility if you needed to, switching from class activity to individual activity or group activity. You had complete flexibility...(extract from group conversation, *Smile* teachers, 2016)

The photographs described above (and included in the archive <https://smilemaths.wordpress.com/in-the-classroom/cuboids/>) illustrate the investigative approach that came to characterize *Smile*, providing evidence of classroom experimentation and risk-taking.

...you can compare what was happening in *Smile* classrooms then ... and it’s quite a different comparison with now, where the amount of stuff that comes down from above, the senior management thing, every lesson must start with a hook, every lesson must start with a question, every lesson must have three cross-curricular themes and two bits of literacy...[Back then] you had autonomy within your classroom. You had expectations within the department, but I don’t remember much from above that. (extract from group conversation, *Smile* teachers, 2016)

Later in the same conversation, another teacher continues this theme:

I think a lot of the people teaching now don’t remember how incredibly autonomous we were when we were teaching. ... [the standard three part lesson] became part of just the furniture so fast, and I think an awful lot of stuff that we would think is non-autonomous is so part of the furniture that people feel autonomous. ...So I think they do have less autonomy, but they haven’t noticed because it’s been a bit

drip, drip, drip, a bit like when you put a crab into water and heat it up gradually and eventually they boil to death. (fragment from group conversation, *Smile* teachers, 2016)

Whilst it may be true that many teachers are unaware of the reduction in teacher autonomy, sharing stories from the past can draw teachers' attention to it. As we explored how we might work with the *Smile* data, we shared at a conference the Maths Mag story told above. The author of the story had reflected: "This was something again with the flexibility. There was nothing to stop you ..." (Eades, 2017). The notion that "there was nothing to stop" teachers from responding flexibly to an individual student's needs provoked one participant at the conference to respond "now there's everything to stop you" (Adams & Povey 2016, p. 86). May refers to the "*we know best* control" she experiences and Ruth, one of the recently qualified teachers, struggled in making decisions about her teaching as the knowledge that she was constantly judged by some unintelligible system left her in a state of semi-paralysis:

I have found that it is often hard to prioritize teaching tasks, never being confident as to which aspects are valued most and upon which the greatest judgements will be made, or which judgements will even be evidenced for that matter. (Ruth, RQT)

In this climate of suspicion and lack of trust teachers are unable to experiment, adopting instead the language of accountability and associated targets. Sugrue and Mertkan note how such language "gains currency through its pervasive presence; legitimacy through use" (2017, p. 15).

7.5 Personal autonomy

It is evident from the *Smile* fragments in the sections above that, as well as professional autonomy, the *Smile* teachers experienced a high level of personal involvement, pleasure and satisfaction from their work. A strong sense of an engaged self comes across binding together the personal, the political (for which see the web archive) and the professional.

What a wonderful time we had, we really did. Didn't we enjoy ourselves ... Nobody thinks about making teachers' jobs enjoyable these days. (fragment from group conversation, *Smile* teachers, 2016)

One *Smile* teacher talked of voluntarily attending working weekends, noting the pleasure in curriculum development work.

It was really exciting to be working with other teachers trying to do something different in classrooms. (Paechter, 2017)

In contrast, the new teachers talk of sacrifice and pressure, of constant comparison and judgment and of the struggle to have "a healthy life" (Rosie, RQT). Any pleasure or satisfaction these teachers may gain from their work is difficult to discern, as the following extract illustrates.

Teachers now are responsible for making sure they are meeting the myriad of criteria to prove to others – and themselves – that they are a good teacher. Having to constantly prove themselves drives teachers to invest huge amounts of time and energy into their job. The feeling of being constantly judged by uncertain criteria heightens the stress levels. All together it leads to a teacher who constantly questions their own ability to do their job and faces a daily personal battle over doing a good job and getting swallowed up by their work. ... Teachers may have responsibility for their own performance but they have very little control over it and, if they are anything like me, feeling that you are constantly chasing a moving target and coming up short. (Rosie, RQT)

Changes in personal autonomy were also highlighted by some of the photographs included in the *Smile* archive. One striking and unexpected feature that those viewing the archive have responded

to is the manner in which these teachers of the 1970s and 1980s are dressed. One is pictured wearing a t-shirt. Today, it is common in England for teachers to be expected, sometimes required, to wear 'business dress', and not unknown for them to be forbidden to cross the corridor without wearing a jacket, the individual teacher “carefully fabricated” (Foucault 1979, p. 217) in a new social order.

8. Discussion

In the socio-historical study upon which this chapter draws, we have begun to re-create a rich picture, not only of a particular curriculum development project but also of the working lives of mathematics teachers, past and present. These narratives of individuals' experiences of teaching are complemented by “systemic narratives” (Goodson 2014, p. 34), bringing together a collection of materials documenting the story of *Smile*, relating this to national developments in mathematics. Each story, fragment or extract from the archive may serve as a prompt to question existing understandings of policy and practice; by considering these alongside the reflections of recently qualified teachers we deliberately draw attention to the differences. Our moral purpose in this chapter in disrupting these taken-for-granted understandings is to unsettle. For those involved in *Smile* from the beginning, the autonomy they enjoyed was perhaps unnoticed, simply 'the way things were'. Now, as the *Smile* teachers reflect on changing conditions there is evidence of how “the space for inventiveness, experimentation and, indeed, autonomous decision making by teachers, becomes increasingly closed down” (Berry 2012 p. 400). Their stories provide all teachers with possibilities, opening up spaces for them to imagine (and begin to work towards) alternative teacher selves.

Precariousness, “a fundamental condition of the neo-liberal society” (Ball 2013a, p. 134) is evident in the comments of the new teachers in our study, the shifting values making it difficult to know to what they need to attend. Their stories highlight changes in teacher autonomy over time, standing in contrast to those of the *Smile* teachers of earlier times. Meticulous interaction with trifling data requirements act to discipline teachers (Ball et al. 2012, p. 523) through demanding their attention to minutiae, “a political anatomy of detail” (Foucault 1979, p. 139). Such Foucauldian disciplining leaves teachers with less personal resource with which to engage in a creative and moral way with the fundamental purposes of education.

The focus on 'quality' judgements diverts teachers' attention from the moral purpose of teaching. Trapped in an endless quest for progress, teachers compete with themselves and against others, leaving little time or energy to engage critically or meaningfully with each other or with their wider role. “Collective interests are replaced by competitive relations and it becomes increasingly difficult to mobilize workers around issues of general significance” (Ball 2013a, p. 135).

9. Concluding Comments

Our purpose in the socio-historical project was not merely to set past practice from the *Smile mathematics* project against present, through the use of narrative fragments and stories, but rather to offer an opportunity for the mathematics teacher today to re-appraise who she is becoming. Like Sachs (2001), we see the potential in supporting teachers to develop an activist identity through the construction of self-narratives. Such work is an important step towards “re-story[ing] themselves in and against the audit culture” (Stronach et al. 2002, p. 130). Sharing these narratives may be a first

step in reclaiming social spaces where teachers might come together to reflect critically on the policy environment, in the context of this chapter an environment in which there is everything to stop independent and autonomous behaviour by teachers.

Educational research is increasingly colonised by accountability measures (Llewellyn 2017; Ball 2013), now, more than ever there is a need to ensure that teachers' voices are heard. It is not our intention to present '*the teacher's voice*', an idealised, representative voice and we acknowledge that the teachers' voices in this study are "selectively appropriated ones" (Hargreaves & Moore 2005, p. 131). Nonetheless, such voices have a story to tell, one that has, until now been silent. Thus they contribute to the theme of this volume, the aim of bringing these "voices from the margin into the mainstream". As discussed above, knowledge from teachers' testimonies is hidden from history, visible at the margins if at all. By foregrounding the voices of teachers from the past we seek to (re)create spaces for teachers of today.

Working on the socio-historical study brought many surprises, resurfacing lost memories and prompting a reappraisal of past and present, a sense of nostalgia. Frequently viewed negatively, nostalgia was originally used to describe a psychological disorder, but is now considered to have multiple definitions (Sedikides et al. 2008; Zembylas 2011). A critically reflective nostalgia, one which "cherishes shattered fragments of memory and temporalizes space" (Boym 2001, p.49 quoted in Zembylas 2011, p. 643) may, as Zembylas argues, offer opportunities for transformation. In this chapter, we see how nostalgia may also provide a reminder of what is possible, thus providing teachers with a chance to see beyond the present.

We have written elsewhere (Povey & Adams 2017b) of our hope that the socio-historical study of *Smile mathematics* will, in some small way, work to alleviate the sense of "historic loneliness" (Berger 2016a, p. 17) that is part of the neo-liberal project and that acts to disconnect us from our individual and collective pasts. There is some evidence to support this hope, both in the connections that were rekindled between the original *Smile* teachers and the optimism that the new teachers drew from the stories. The reflections on teacher autonomy presented in this chapter are intended to contribute to that wider purpose. Our intention is to work with this history to challenge the discourses of neo-liberalism, even as they work to peel us apart, increasing loneliness (Monbiot 2016). History, a meeting place and provider of company (Berger 2016b), is also a provocation to swim against "the tides of compliance, instrumentalism, fundamentalism and neo-liberalism which so categorise the contemporary age" (Groundwater-Smith & Mockler 2009, p. 139).

Acknowledgements

We are grateful to the British Academy / Leverhulme for financial support for the project (Grant SG150824), to all those who have contributed so generously to the archive and to those new teachers, particularly Rosie Everley, who have given freely of their time to help us in this project.

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