Postcards from literacy classrooms: possibilities for teacher-generated data visualisation

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Abstract

Against the background of a data-driven education system that has detrimental effects on teachers' personal and professional lives, we report on an exploratory project in which seven primary teachers in England shared experiences of literacy teaching through generating 'small' data visualised on postcards. Thematic analysis of their data-sharing discussions identified three purposes for which they used data: demonstrating to others; reflection on practice; reviewing professional lives. We propose that the project worked – albeit temporarily – to recalibrate teachers' relations with data, foregrounding relational, embodied and ethical dimensions of teaching, and argue for the professional importance of open-ended, teacher-led data engagements.

Key words: data, visualisation, literacy, teacher, professional

Introduction

Over the past two decades, considerable energy has been devoted to developing data-driven education systems – most notably in England and the USA. Underpinned by a belief that school improvement can be effectively achieved through objective analysis of attainment data, it is easy to see its attraction to educational policy makers. This causal model of change is straightforward to grasp and by focusing school leaders on the relative attainment of different 'groups' of learners, it seems to offer a route to raising standards while also ostensibly addressing inequalities; a data-driven system, as Lawn (2011) explores, is attractive because it appears to make education visible. Data-driven approaches have attracted support not just from policy makers but from influential bodies such as the Education Endowment Foundation in the UK and the Gates and Stupski Foundations in the USA (Coburn and Turner 2012). Over time, models for applying data have proliferated (e.g. Farley-Ripple and Buttram 2014; Venables 2014) and the use of software (e.g. Analyse School Performance in England) has allowed analysis to become increasingly sophisticated.

While data-driven approaches may help focus activity in particular ways, the extent to which they generate positive change has been challenged from various standpoints. Concerns relate to: the desirability of involving private companies in data-flows and the development of data-driven applications (Lawn ibid., Selwyn 2015); the validity of data as a cipher for pupil learning; the impact on student wellbeing of linking data analysis to accountability; and the effects on the breadth of the curriculum and the wider work of schools (Bradbury and Roberts-Holmes 2017). Underpinning these concerns is an awareness of how data channels attention in particular ways, through measuring and quantifying certain things and not others as data flow between students, teachers, schools, parents and caregivers, policy makers and so on. Indeed Moss (2012) explores how data comparison lodges certain timescales as more

significant than others, such as the school year or intervals between tests. Developments that happen over other timescales may receive less attention – for example the moment-to-moment forging of relationships through ephemeral acts such as a hand placed on a shoulder (Ehret and MacDonald 2020), or continuities in the longer term such the life of a curriculum or school building or presence of particular members of staff.

In addition to these concerns about the channelling effects of data, others have questioned the objectivity of data analysis. Data can be interpreted in different ways, partly due to variance in teachers' confidence and competence in interpreting data, often referred to as data literacy (Cowie and Cooper 2017; Dunlap, and Piro 2016), but also due to school context, personal practices and beliefs (Datnow, Park, and Kennedy-Lewis 2012; Jacobs et al. 2009; Jimerson 2014). As Goren (2012) suggests teachers may focus on assumed attributes of learners rather than the educational context for their learning. For example, when analysing data on those described as having special educational needs or English as an additional language, lack of progress may be attributed to students' home background or innate lack of ability, reinforcing deficit discourses that construct students as belonging to 'sub-groups' or 'target populations' (Bertrand and Marsh 2015). Data, as Little (2012) argued, are always interpreted in context, and institutional practices – both formal and informal – embed data in different ways, with implications for interpretation (Spillane 2012). The 'datafication' of schooling (Bradbury and Roberts-Holmes ibid.) therefore constructs educational practice, curriculum and learners in certain ways. Of particular relevance to this article, however, are its implications for the experience of teachers.

The data-driven system has been critiqued for producing teaching as a technical activity, pressurising teachers to ensure that their pupils demonstrate measurable progress in a relatively narrow set of skills often undermining teachers' emotional wellbeing and sense of professional agency (Ball 2003; Bradbury and Roberts-Holmes, ibid.). If teachers are judged predominantly in relation to students' performance on tests, then other things by implication matter less, including professional commitments and values that escape measurement. This is problematic not just because it devalues aspects of teaching and can undermine teachers' sense of autonomy, but because it marginalises what Connelly, Clandinin and He (1997) described as teachers' 'personal practical knowledge', understandings developed through the everyday experience of being a teacher.

Such pressures have been strongly felt in relation to literacy teaching where the drive to raise attainment, coupled with narrow and prescriptive views of reading and writing, have led to a preoccupation with data at the expense of more expansive views of becoming literate. A wealth of literature points to social, cultural and affective dimensions of literacy pedagogy (e.g. Larson and Marsh 2013) and highlights the changing nature of literacy (Burnett and Merchant 2018). However, such dimensions may be missed by analyses of performance data which focus on narrowly conceived literacy curricula. Moreover, as is particularly pertinent to our argument, an emphasis on performance data may distract teachers' attention from broader professional concerns, their wider professional role or their beliefs and values as literacy educators. Redressing this imbalance requires a more holistic view of literacy teaching, one in which teachers' day-to-day experience counts. We suggest therefore that teachers experience provides an important, but very different source of data, particular if those data are generated by teachers themselves.

In this article we consider teachers' responses to a project that aimed to provide teachers with an opportunity to share experiences of what mattered *to them* in literacy teaching through collecting and visualising their own data. It was designed to enable teachers' perspectives to be heard, and to explore the professional dialogue generated when alternative kinds of data are shared. Whilst we acknowledged their commitment to pupil attainment, in this project we encouraged teachers to gather data on other aspects of their

literacy teaching and to visualise these in creative ways in order to share their experiences with those outside teaching – as a counterpoint to the limited representations of literacy education produced through attainment data. As the project unfolded however it shifted a little in aims, prompting wider possibilities for data generation and sharing and, as this happened, it seemed that these teachers' relationships with data shifted too. These unexpected possibilities provide the focus for this article. Specifically we focus on how teachers used their data in diverse ways that were important to them. They did use data to demonstrate aspects of their experience as we had hoped – but did so in ways that exceeded our expectations – and also used data in other ways to support reflection on practice and professional review. We conclude by arguing that this opportunity to engage with data worked – albeit perhaps temporarily and on a small scale – to recalibrate participating teachers' relations with data in ways that they told us were valuable to them, and that this in turn signals some fruitful directions for future data practices in schools. We begin by outlining the project and research methodology.

Doing Data Differently: project and methodology

*Doing Data Different*ly, funded by the British Academy, was an open-ended exploratory project designed to enable primary teachers in England to share data about experiences of literacy teaching through visualising these on postcards. The project was inspired by Lupi and Posevec's (2016) *Dear Data*, a year-long postcard exchange by two information designers who sent one another hand-drawn visualisations of quantified data on their everyday personal lives – data for example on numbers of compliments made and received, doors opened, or smiles at strangers. Their work foregrounds the value of data which are *small* in that they focus on the ephemeral personal minutiae of everyday life, and *slow* because, rather than conveying simple comparisons or trends that are quick to read and assimilate, their visualisations – often relying on detailed keys – take time to interpret (Lupi 2016). Consequently, Lupi and Posavec argue, readers dwell longer and perhaps more thoughtfully on what is represented. The processes of visualising and interpreting slow, small data therefore promote a greater depth of engagement with the topic. As qualitative researchers, we wanted to explore the potential for quantifying aspects of teachers' experience that might – to us at least – seem to lend themselves more easily to qualitative methods. We were interested here in providing new foci for quantification and challenging assumptions about what is worthy of measurement. Our idea was that if teachers focused, like Lupi and Posavec, on quantifying the minutiae of their experience and played with creative ways of visualising their data, this might offer new possibilities for communicating aspects of their lives as teachers, which could be conveyed to an interested public of policy-makers, inspection agencies, prospective teachers and the community more widely.

The project's approach, we hoped, would achieve two things: the dissemination of teachers' postcards might complicate deficit or over-simplistic evaluations of literacy teaching (by individual teachers, across schools, localities or countries); and the sharing of postcards among participants might generate conversations about literacy education that would be beneficial to them. To be clear, our intention here was to focus on teachers' experience of literacy education *as teachers*, not the learning of their pupils. While there are many ways in which multiple forms of qualitative or quantitative data could be used creatively to illuminate children's learning – as a complement or alternative to attainment data (e.g. Doak 2019; Simpson et al. 2020) – our interest was in exploring how teachers might take charge of data collection in ways that were meaningful to them, and in the possibilities for learning more about teachers' experiences offered by alternative forms of quantification and visualisation. Our research questions were:

1. What can teacher-generated quantitative data tell us about teachers' perspectives on what matters in everyday classroom literacy provision?

2. How far can quantifications and their visual representations illuminate the complexity, context and humanity of everyday classroom literacy?
3. What kind of professional reflection and discussion is generated through producing and sharing data?

The methodology for this project built on three traditions: a) creative approaches to data visualisation; b) participatory approaches that foreground the priorities and interests of research participants (while the project design was framed by the project team, teachers decided what to investigate and how to record and represent this); and c) teacher communities of enquiry that provide opportunities for teachers to share and review data related to their classrooms with a view to informing future practice (Cochran-Smith and Lytle 2009). We therefore designed an open-ended, exploratory project to allow opportunities for teachers to engage differently with data, through generating 'small', 'slow' data on their everyday experiences of classroom literacy provision and represent these on postcards to be shared. Building on Lupi and Posavec's ideas about data visualisation (ibid.), participating teachers were invited to:

- generate data - specifically quantitative data - on what mattered to them in their literacy provision;
- experiment with different ways of visualising that data and present these using a postcard format;
- share their postcards with the other participants during half-termly meetings in which they: reviewed the postcards; discussed emerging themes and foci and their possible implications for classroom practice; and reflected on the challenges and possibilities of using quantitative data in these ways.

We recruited participants by distributing invitations to primary teachers via teacher networks in the South Yorkshire region of England and invited all those who expressed an interest to a briefing meeting. Following this, seven primary teachers agreed to participate. They worked in six different schools (two in the same school) with six from state schools and one from a private school. They taught diverse age groups (age 5-6 to 10-11) and had different levels of responsibility for literacy. Given this small opportunity sample we cannot generalise from our findings or suggest that participants were representative of any particular professional constituency.

We held an introductory workshop with the seven participants in July 2018 to explore approaches to visualising data, looking at examples of creative visualisations (e.g. McCandless 2010) and experimenting with quantifying experience by generating 'small' data. Two participants were unable to attend but were briefed separately. All received a copy of *Dear Data* for inspiration, a postcard template and set of coloured pens. Over the course of an academic year, participants were invited to create six data postcards, collecting data on aspects of their experience that mattered to them and then visualising these (e.g. see Figures 1a and 1b which show a visualisation and its key). At the participants' request the group decided on a prompt for each data postcard (see Table 1). These provided starting points for collecting data but were open-ended enough to allow individuals to focus on topics that interested them.
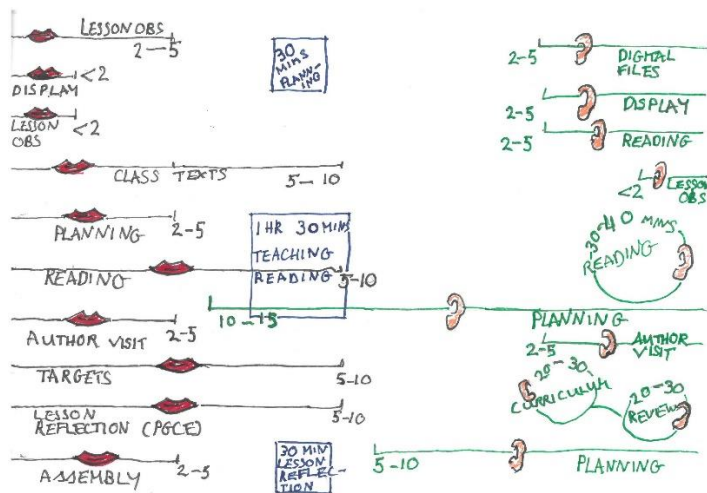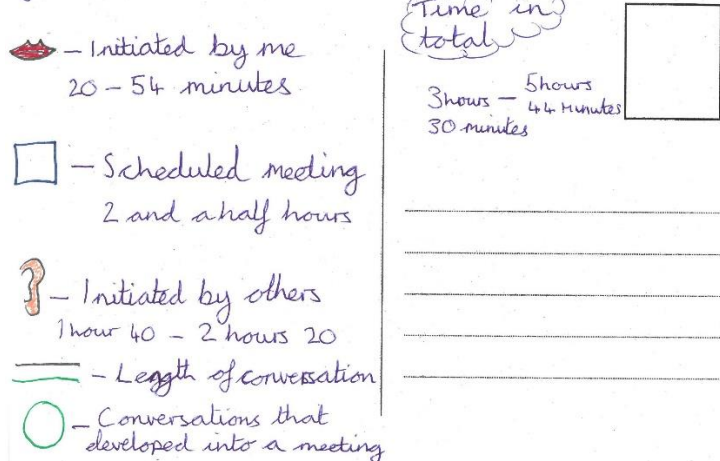
Figure 1a & b: Sample postcard of time spent on literacy conversation (visualisation and key)

At data-sharing meetings, teachers described what their postcards represented and each description was followed by open discussion. As researchers, we attended all meetings and joined in discussions, attempting not to lead these in specific directions. At times, as ex-teachers and literacy academics, we reflected with participants on practices or shared our experiences of teaching. It worth noting that our comments or questions may have influenced how participants framed their experience and what they chose to share at subsequent meetings and our findings need to be considered with this in mind. Any participants unable to attend meetings were invited to share postcards at other times, although this was not always possible. All meetings were transcribed and the transcriptions of these meetings, along with the postcards themselves, formed our dataset.

Agreed prompts for data collection	Example of individual's postcard response produced in response to prompt
Reactions to…..	Children's reactions to independent reading
Where do people/things go to?	Where do children go to access writing resources
Creativity and literacy	How creativity flows from a good book
Teachers' experience of….	Discussing literacy with colleagues

Time spent mapped against feelings	Time the teacher spends on different literacy activities
Free choice	Inspirations in and out of the classroom

Table 1: Postcard prompts

The project was given ethical approval by Sheffield Hallam University. We were cognisant of the tension between maintaining professional anonymity and giving participants credit for their insights. We therefore provided options for participants to opt into various levels of consent, working with us as co-authors on an article for a professional magazine, for example, but remaining anonymous in articles such this one. We also invited participants to withdraw sections of the transcripts following meetings or specific postcards if they decided on reflection that they would rather these were not shared, and gave them opportunities to review and amend articles prior to publication. As a research team we also removed any postcards which could lead to breaches of confidentiality with respect to institutions, members of staff or pupils. In line with the project's original aim of communicating a nuanced picture of literacy teaching to that would be informative to prospective teachers, teacher trainees, teaching unions, the wider public and policy makers, the postcards were curated as a virtual exhibition (https://blogs.shu.ac.uk/doingdatadifferently).

In addressing our research questions, we drew on a dataset which consisted of 37 postcards and 12 hours 54 minutes of meetings (based on discussions during six data sharing meetings between October 2018 and July 2019 and a final review meeting held to reflect on the project and explore participants' thoughts on the value - if any - of visualising and sharing data in this way. At the analysis stage – as throughout the project- we aimed to stand with our participants and prioritise the sharing of their experience as they shared it with us. We therefore resisted approaches, such as critical discourse analysis, that work to attribute certain positions to research participants. Our approaches included: mapping of the flow of dialogue (i.e. the sequence of topics discussed) that occurred around eight of the postcards; visual categorisation of the postcards; and a thematic analysis (Braun and Clarke 2006) of the postcards and transcripts which focused on: a) aspects of classroom literacy provision foregrounded; b) participants' perspectives on their experience of generating and sharing data in this way. As the project unfolded it became apparent that participants were not simply using their postcards to share experiences (as we had anticipated) but for other purposes too, and consequently we also used our analysis to identify these different purposes. This process began with independent reading and re-reading of postcards and transcripts as a process of data familiarisation, followed by coding and re-coding of data.

Elsewhere we have explored what participants told us about what mattered to them in teaching (Burnett, Merchant and Guest under review), and argued that the instability and subjectivity of data in this project seemed to be associated with productive spaces for teacher dialogue (Burnett, Merchant and Guest in press). In this article, we focus on the purposes to which they put their data, and the possibilities generated as they did so.

Findings: Purposes for using data and possibilities generated

In this section we describe teachers' different responses to the invitation to generate data, organising these in relation to three broad categories of purposes:

1. demonstrating aspects of professional experience to others;
2. supporting reflection on practice;
3. reviewing aspects of their professional life.

In contextualising these findings it is worth noting that participants found aspects of the

projects challenging. They commented on the difficulty of deciding how to visualise their data and of quantifying experience; they found it hard to quantify aspects of experience that they wanted to capture, such as attitudes or feelings. Furthermore, while we asked them to focus on their experience *as teachers* rather than the *experience of their pupils*, many postcards represented what children did rather than what they did as teachers. It would be easy to dismiss these problems with visualising, with quantifying and with the focus for data generation as inadequacies of the project. It may well be that our guidance was unclear or that we gave insufficient training on data generation and visualisation. However, as we reflected on the uses they made of the data, we became increasingly interested in their interpretation of the brief and in what we came to see as improvisations with the task – hence our focus in this article on the different purposes to which they put data (which exceeded what we had anticipated) – and the possibilities these generated.

In what follows we consider these three broad categories of purposes in turn in order to explore different ways that participating teachers put their postcards to use. The three categories are illustrated with extracts from the meeting transcripts – it is worth noting here that some postcards addressed more than one purpose and the boundaries between the three categories are rather blurred. In each case, we also consider what participants valued (or not) about sharing and visualising data, drawing primarily on what they told us during the review meeting. It is worth noting that during meetings teachers often contrasted their experiences of this project with their more usual experiences of working with data. While this was not something we specifically asked them to do, we include some of these comments in what follows as such comments throw their responses to this project into relief.

1 Demonstrating aspects of teaching literacy

As already stated, one of the project's aims was to provide insights into teaching literacy for an external audience. The postcards that aligned most closely with those original intentions did just that. Participants told us that they valued this opportunity to present data on aspects of their work that were missed when attainment data were used as the main way of judging performance:

> 6 Are we ever measured for how happy are the children in your class? How far have they come from the transition day when they just hit us with so much negativity to, you know, that's never getting measured – Well, that's a pessimistic view on things isn't it but at the moment it feels like –
>
> 2 But it feels like it's never going to be measured and I think that's the point whereas coming to something like this there's an opportunity that's been missed potentially because it could be measured and there are obviously ways of presenting things that could measure that impact and that enjoyment factor.

However while the external audience we had in mind was an audience of unknown others drawn from professional, political or public life (reached through the virtual exhibition), participants' audiences were more local and familiar. They told us of instances when they shared postcards with others at school to make a point or stimulate discussion. Participant 7, for example, showed a postcard on children's use of resources to their head teacher to highlight the impact of limited access to iPads, and Participant 4 shared a postcard with their head teacher which juxtaposed the amount of marking associated with literacy lessons with time spent teaching literacy. Depicting amounts of time as fungi of various sizes grouped around a tree, the postcard provided a compelling visual metaphor for how marking can proliferate, demanding a disproportionate amount of teachers' time. While head teachers will likely have been aware of such concerns about resources and marking, the postcards provided visual prompts that brought them to the fore – accruing perhaps some of the authority associated with more usual data visualisations (an authority possibly further underlined as the postcards were generated through a university-led project).

Other postcards were shared to shift perspectives on approaches to organising or teaching literacy. After Participant 7 had shared a postcard on the places children go to read when given the choice, a colleague in school was prompted to create 'cosy places' in their classroom for their children to read alone. Participant 2 created a postcard capturing children's reactions to a class novel and showed it to their head teacher who suggested it was also shared with school governors because the postcard demonstrated the positive nature of children's engagement with the school's approach to teaching reading. When asked how governors responded, Participant 2 told the group:

> They liked it. They liked the fact that it was very visual and they could see straightaway and the head teacher, because I showed [name] just as a, oh, this is what I'm doing kind of thing. That's more evidence that the power of reading is working for us because historically, like I said, in Year 6 our reading scores aren't great and children just don't want to read.

Sharing these two postcards provoked responses – a practical response by a colleague to try organising differently for reading, and validation by a governing body of a new initiative that could be beneficial to the children. Participant 2 noted how such insights complemented those gained from attainment data and illuminated aspects of experience that would otherwise be missed. Data on ephemeral activities – such as children's movements in class or responses to a novel – could provide a valuable counterpoint to test (SATs) data:

> Well, I think we as teachers in education we have to collect certain data, like you've just said in terms of what is it about this child? Why can't this child read? What are we doing for this child to make them a better reader? But actually by showing data that measures something else it actually allows people to think there is more to teaching than just a child being a percentage and a SATs score at the end of the year. And actually if we have lots of enjoyment, like I think that this shows, that actually these children would be much better educated rather than unpicking every text and feeling like they have to use the skills that they have in – They all were using the skills for the SATs but actually because we were talking about it the pressure was off the children and I think the governors realise that the way we teach reading is the right way to teach reading regardless of the fact that our reading scores were low this time.

The SATs data, for Participant 2, were problematic partly because they were retrospective. The data on the postcard, however – albeit subjective – captured observations of what happened at the point of teaching and, as such, allowed the governing body insights into why the teaching team were adopting particular approaches. This process, in her view, expanded their ideas about what effective literacy teaching might look like for children at their school. Rather than conveying what it was like to teach – as we had intended – this postcard conveyed what this teacher felt was important in literacy pedagogy.

These examples show how teachers shared their data with those around them, thus achieving local effects, sometimes because it was planned but sometimes through an incidental discussion with a colleague about a postcard that led to other conversations that in turn led, in some cases, to changes in attitude or practice.

2 Reflection on practice

In our initial briefing we asked participants not to focus their postcards on the actions of individual children. This was partly for ethical reasons but also because of our focus on communicating *teachers'* experiences and perspectives to an external audience. However, in many cases, participants generated data about what they or their children did in ways that supported reflection on their own practice. The audience – in these cases – was effectively themselves. They commented on how measuring 'different things' had opened up new spaces for reflection. As Participant 6, stated 'It's good to have things to measure that we wouldn't easily notice without – It's nice to go, oh, that's interesting', or as Participant 5 noted:

> I think doing the postcards, it was like looking at literacy through a different window. Normally you have all the things you've got to tick off and it was like, well, I'm looking at it through a different window completely and by doing that it just put a different focus on it rather than normal criteria by which you're judged in a literacy lesson.

The idea of generating data on practice is certainly not new and many have advocated for finding new ways of noticing and reflecting on classroom practice to support practitioner enquiry (e.g. Mason, 2001; Simpson et al., 2017). However, using data for reflection may have particular purchase in a national context – such as England – in which data for accountability has become so central to professional practice. Importantly, the postcards seemed to prompt dialogue that navigated away from attainment to what was happening in classrooms, and to children's engagement in learning activities. Participants' explanation of their postcards often began with comments like, 'what I thought was interesting was…' or 'it made me think…'

Sometimes participants were surprised by what they found and this challenged their perceptions of what children could do and/or provided reassurance that their approaches were worthwhile. Participant 1, for example, was surprised by how little they had needed to support children engaged in a storytelling activity and reflected: 'I don't think I would have realised how far they'd come on from the last time we'd done it.' Similarly, Participant 2 found that the children supported one another to a surprising extent, and this provided welcome validation for time spent encouraging peer support and collaboration.

At other times, the data generation prompted new realisations. Participant 7 for example commented on what happened when children were given a choice about where to go to read in the library:

> Yeah. It was just really interesting because so often I think as teachers you're hands on, you're constantly doing things, spinning plates. I took the conscious decision to just sit back and just watch and not intervene, not interfere and just let them make the choices, and particularly with the ones where I think I'd underlined a few where they were the children that took three, four, maybe five minutes to find a book because normally I'd be like, come on, get a move on, you need to begin reading but they did, they settled in their own time and still had ten minutes reading time afterwards. It was that social aspect that really struck me, especially with the Guinness Book of Records and how those do just naturally draw people together to compare them together and how valuable they are. As a school we've not spent any money on those kind of books. The books that we've got in are ones that people have donated, my kids ones that I've cleared out, other people's but we don't really value those I don't think. It wouldn't be a choice if you were given money to spend on books.

In this case, noticing how children clustered around the Guinness Book of Records led Participant 7 to question the kinds of resources made available and the need to make time for children to talk with others about books. Other postcards raised questions about the level of challenge provided for children, about classroom layout, and how to encourage independence. As Participant 2 explained, this kind of reflection allowed them to focus on the everyday workings of their classrooms, an aspect of teaching often missed when the focus is on achieving demonstrable outcomes:

> I think it's something that as teachers we always come back to because you can have all your Ofsteds and all your testing and everything but actually those 30 children that are sitting in front of you on a day-to-day basis, are you meeting their needs and are you doing the right thing for them? […] it just evoked so much conversation which, again, as professionals it's not something we often get a chance to do, just to reflect and have that time to sit back and think am I doing the right thing? Am I doing the best thing for the children? Is there another way to do it? I think we've already alluded to the fact that

actually I think most of us will have probably come and then gone home and tried something different in our practice ready for the next meeting.

Occasional comments included some concern that the process of generating data would influence practice and this would undermine its validity. However, Participant 1 reflected that this close relationship between data generation and practice could itself be beneficial:

> Um…I think so, yeah. I'd expected that I'd be doing a lot of the pointing towards things and asking. My children are really good because if I say to them will you go and have a look at that, they diligently go and have a look at that so that wasn't too much of a battle which was very nice. I was kind of aware that I was doing it more because I was recording it and I was having this massive thing of is that okay because I've influenced the data, but then I thought, actually, when I do book journey at home I'm recording things because I want to do them so that's okay?

Other concerns arose because they felt their data generation had not been rigorous. However, the very process of reflecting on its imperfections sometimes prompted reflections on practice. Participant 3 for example noted that it was not possible to track all children and this absent data raised questions about why certain children were noticed and not others:

> 3 It was useful but then I was like, it's probably similar to what you were saying about not being able to get everybody in there, so there aren't 29 circles or whatever on there.
> 1 It's not a complete data then is it.
> 3 Yeah, and then there's that guilt about not tracking everybody and who am I missing and why have I missed them?
> 7 And are they the children that fly under the radar in other lessons?
> 3 Exactly, yeah, are they the middles that I really need to pay more attention to? Why have these stood out?

This led to discussion about how else data could be used, such as repeating data generation over consecutive weeks to see if children become more independent in accessing support, or involving children in generating data. Participant 7, for example, created a postcard of a burger with different elements representing different aspects of literacy – and was considering asking the children to do the same, or for children to use postcards to keep a log of their year to provide insights into personal experiences in and out of school which may otherwise go unnoticed. These examples seemed to reflect an interest in using data to illuminate personalised situated experience rather than more general trends.

Participants suggested that this process generated space for discussion about school practices that were not highlighted by other data practices. Elsewhere we have explored what happened as postcards were shared – and how this process itself led to further reflection as the teachers commented on one another's postcards, and how the meanings of data shifted during the sharing (Burnett, Merchant and Guest in press). Suffice it to say here that the postcard sharing meetings were seen as valuable opportunities to discuss practice and learn from one another:

> 7 I wish that the rest of the teachers in school could take part in something like this just to open up that dialogue because, again, I think we massively expect to be judged but I know walking in to this room anything I've said I've never thought, oh my goodness, I daren't say that and I've never looked through the transcript and thought can I take that out? Because actually it's about being open and honest and it's just being the vehicle that's allowed us to do that I think.
> 3 Yeah. Again, it goes back to those professional discussions doesn't it of non-judgemental and just opening it up for it to be picked apart and something we discussed

as well isn't it how great it would be if you had a little buddy in school that you could
have these conversations with all the time.

The examples explored in this section illustrate how participants focused their data generation
and visualisation not just on what they wanted to communicate to others, but on what
interested them about what happened in their classrooms. Their micro-analyses of classroom
activity provided food for personal reflection and professional dialogue.

3 Reviewing professional lives

The third way that participants responded to the invitation to create postcards was to review
their professional lives more generally. For instance Participant 2 focused on 'working
smarter not harder' in a postcard used to review priorities in maintaining a healthy work/life
balance, while Participant 4 depicted a week of 'catastrophe' via a postcard which logged
time allocated to different tasks during a week when their partner fell ill. Their reflection on
the impact of this unexpected event led to further reflections about the unremitting nature of
teaching, and the challenges of taking time off work.

In some cases, postcards that began with logging activities over a short period of time –
for the purpose of demonstration or reflective practice – led to broader reflections on the
nature of teaching once data were generated. Another of Participant 4's postcards depicted
the amount of time spent in informal conversations with colleagues. This postcard began as
an image designed to demonstrate that being a teacher involves so much more than teaching,
prompted by the many interruptions that happen on a daily basis as colleagues at school ask
for support or guidance. However, the process of creating the postcard and reflecting on what
happened seemed to highlight the value of such activities. Again these are interactions that
are not formulaic or planned and for which there is no tangible record, but which play a
central role in supporting colleagues:

> 5 Did you find the conversations valuable?
> 4 I think in the most part they are. What I perhaps would say is that the conversations
> are far more valuable feeling, they felt more valuable than the scheduled meetings that I
> had.
> GM I wondered about that.
> 4 So the majority of the time was given over to scheduled meetings about stuff and
> actually I think I got more and probably achieved more through the two to five minute
> and the five to ten minute conversations that I've had with people over those three days.
> CB So what sort of things were happening in those conversations?
> 4 I think it's people bringing real concerns to you that then makes you think about
> what's going on in the school so I guess you start to address issues that are current and
> real and are issues from the classroom whereas I suppose quite often a scheduled
> meeting is what someone has perceived everyone needs to hear and talk about.

For Participant 4, these conversations had a 'valuable feeling' as they focused on 'real
concerns' and what was 'real and current', highlighting that, 'there's something worthwhile
happening and, just because we can't measure the impact of it, it sort of goes relatively under-
appreciated maybe.' This was contrasted with descriptions of interactions around
performance data in school in which data were presented as something for which they were
held to account:

> 6 […] I'm thinking, well, obviously it measures but it also provides limiting factors, it
> pressurises us or adds pressure to our job, it encourages competition and comparison
> which is what you're talking about and it's all the negative things. I mean I can see data
> has its place and it is important but then I put is it supportive?

As explored earlier, one of the effects of a data-driven system is to channel what teachers are
expected to prioritise and this manifests in how that teachers are held to account for their

pupils' attainment (Bradbury and Roberts-Holmes 2018). The opportunity to use data to review practice more broadly however seemed to be valuable:

> 7 One of the things that was really valuable for me I think was having the time to stand back and take a more holistic view of some of the things that I do. […]That's not something you always get the time to do, to look holistically at something, see the bigger picture.

Teacher-generated data seemed to open a space to review practice and values over the long term. Participant 7 for example, considered the relative value placed on certain aspects of practice:

> I think for me it's helped me to value some things that I maybe wouldn't have valued and maybe see that there's not value in some things as well, so just looking. […] When I look at my SATs week when we did the time one and I see the amount of time I was on social media fretting about SATs and how other schools had done and actually when I added that up the hours that I was on social media in a very tiring week anyway with SATs probably wasn't a very good use of my time really! So it's helped me. Some things I value more that would have just completely passed me by and others that, again, maybe a bit less time on that, maybe not as much value as I thought there was in it.

The teachers argued that this kind of professional review might be beneficial to professional wellbeing by shifting the focus to positive things that happened in classrooms. As Participant 6 commented:

> At the moment obviously mental health is a massive thing for adults and children, everybody, and if you're going down the route of the comparison thing that's not necessarily healthy is it, just because your children have got x, y, or z but then you can share all the wonderful things and it's like maybe this kind of data can help us to count the wins each day rather than the fails. Maybe. It could just help people because teachers struggle don't they. It's a hard job. Especially new people coming in to the profession.

As we have explored elsewhere (Burnett, Merchant and Guest under review), a number of themes recurred repeatedly across the meetings, linked to ideas about spontaneity and responsiveness in planning and the importance of providing meaningful experiences in reading and writing. These themes seemed to emerge as a shared set of values, values that were sometimes at odds with or at least absent from national policy and curriculum. This was one reason why participants seemed to value the meetings as an opportunity to share thoughts, experiences and practices through what Participant 3 referred to as 'professional chat':

> Yeah. I think for me it's similar, so acts as a bit of CPD of what we wanted to do, how we can improve our own work, but also it was really good to have that professional chat that, you know, we're all likeminded otherwise we wouldn't have come together to do this in the first place but I think it's nice to know that your choices are validated. Yeah. It's not all about postcards.

They thanked one another for giving them ideas and, as they discussed one another's postcards, teased out how and why they were significant, making links with one another's experiences. The opportunity to share postcards in a non-judgmental group enabled them, it seemed, to engage in wide ranging discussion about their professional lives, and consider not just what they did, but what they believed. Indeed as Participant 2 suggested,

> How wonderful would it be though if that was our appraisal process, that we said write a postcard and bring it and talk about a postcard for your appraisal. So it's not necessarily about data, it's about your working life as it were, your role in school. Draw me a postcard on what you believe your life in school to be.

These examples illustrate how participants used the postcards to support generalised professional review across a week, a year or even a career. They foregrounded aspects that are hard to quantify, such as their values, approaches developed over time, and their perspectives on the challenges and rewards of supporting young learners. Much of this professional review built on postcards that had initially been used for other purposes – reflecting on everyday practice, for example, often led to statements of longstanding commitments. It was perhaps for this reason that they saw the potential for using similar approaches to support professional development discussions, discussions that might explore not just what they did, but what they believed.

Discussion

Our participants, through their improvisations with the brief, challenged our ambitions for the project and together produced a supportive space in which experiences of literacy teaching were shared, discussed, evaluated and affirmed. The range of purposes was wider than anticipated, their quantifications less systematic, and their visualisations less confident. Their responses, in sum, were less performative than we had expected, and perhaps as such might be viewed as more ordinary. However we suggest that this very ordinariness challenges the discourses of educational improvement that have become normalised in our data-driven context.

Teachers' responses to the project and what they chose to represent and discuss opened up a variety of promising directions for doing data differently and this diversity of response suggested much about what mattered to them in literacy provision. Firstly, they highlighted relational dimensions of teaching. By deciding to produce postcards that could be shared with colleagues and other members of the school community – sometimes with what they told us were demonstrable effects – participants foregrounded how their work spilled out from classrooms, and how others such as colleagues, head teachers and governors helped frame what was possible. Their decisions to share postcards with these local and familiar audiences served to underline how contingent their practice is on the decisions and approval of others. The visual depictions they made were significant in mediating this communication, helping the teachers to convey aspects of literacy that matter just as much as measures of pupil achievement. Secondly, by choosing to focus on what children did in the school environment teachers engaged in reflection on their own practice, and foregrounded the embodied nature of doing things in classrooms as a central feature of teaching literacy (and indeed the rest of the curriculum). This arose out of the teachers' immediate concerns and experience as well as through their chance encounters with different ideas (such as those that circulate on social media). Their reluctance to quantify their experience sometimes reflected a desire to foreground aspects of their embodied experience that they felt defied measurement. And finally, their use of postcards to review aspects of their professional lives more broadly highlighted an interest in their own professional trajectories and in ethical dimensions of their professional role, an interest that exceeded the kinds of performance reviews that are typically linked to analysis of performance data, anchored instead to beliefs, values and personal aims.

While we made less progress than we had anticipated in exploring the affordances of creative visualisations or indeed new applications of quantification, we do suggest that this project's novel approach – with its particular combination of counting, visualising and sharing – produced a rich context for discussion and reflection. The postcards were not data performances ultimately aimed at external evaluators such as inspection authorities, policy makers or educational leaders. Rather, whether designed to influence others or to support personal reflection, the postcards were made primarily to be shared in local sites and inform ongoing practice. As such, what happened perhaps produced a temporary disruption in the relationship these teachers had with data, the children they taught and the subject of literacy,

and one which rippled through the conversations they had with one another and with colleagues in their schools. We do not know if this small-scale project had any lasting impact on participants and indeed it is not appropriate to extrapolate that similar projects would generate similar possibilities with other groups of teachers. However, we do suggest that attempts to recalibrate relations between teachers, data and visualisation using open-ended approaches such as this one may open out professional dialogue in ways that make space for teachers to voice what matters to them, and that through doing so, they may orientate differently to some of the fixed truths that are trafficked through neoliberal educational systems.

Conclusion

Through this small-scale project we hoped to explore new possibilities for quantification and visualisation through inviting teachers to generate, visualise and share their own data linked to their own experience of teaching literacy. In this article, we have explored what participating teachers chose to *do* in response to our invitation. We have described various ways in which participating teachers took up this opportunity, grouped loosely in terms of three purposes: demonstrating aspects of professional experience to others; supporting reflection on practice; reviewing aspects of their professional life. None of these applications of data for professional purposes are necessarily new. However, against the background of a data-driven system, they demonstrate how data can be used by teachers in multiple ways that connect with individuals' professional imperatives and interests. Moreover, they illustrate how teacher-generated data – by highlighting relational, embodied and ethical dimensions of professional lives – may challenge discourses of individualisation produced through performative cultures. We suggest therefore that more research is needed to explore teachers' responses to projects that encourage open-ended uses of 'small', 'slow' data, and to consider the significance of such endeavours not just on their professional practice – or the impact on learners- but on their professional experience and orientations.

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