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'Control must be maintained': exploring teachers' pedagogical practice outside the classroom

Abstract

Drawing on qualitative data, this paper presents an analysis of six secondary science teachers' expectations and practices related to teaching outdoors during a professional development programme. Using Foucault's and Bernstein's theories of 'space', routines and set practices, I argue that participant teachers' fear of losing control of their students when in contexts outside the classroom was constructed as place-specific in terms of boundaries (or lack of), familiarity, and disturbance. Teachers' 'fearful' expectations when outside triggered the initial use of regulatory technologies that were frequently more assertive and controlling than their usual classroom practice, resulting in increased authoritative teaching approaches. However, once technologies of power were developed for use outside, teachers were able to translate and apply their normal dialogic teaching approaches from the classroom. The paper concludes with a discussion of student self-regulation through collaborative group work as a step towards resolving the tensions between dialogic pedagogy and teaching in new contexts.

Encouraging teaching outside

Substantial effort has been directed towards encouraging and supporting teachers to take their students' learning outside the classroom. Despite offering multiple learning benefits to students (Rickinson et al. 2004), aside from Physical Education (PE), secondary school teachers in England were reported as rarely teaching outside the classroom (O'Donnell, Morris, and Wilson 2006). To challenge the scarcity in out-of-classroom practice, the English government launched the manifesto for Learning Outside the Classroom (Department of Education and Skills 2006), which resulted in a diverse range of strategies to increase outdoor learning, including the growth of teachers' professional development programmes. These programmes were planned to respond to the most frequently cited barriers preventing outdoor teaching including the lack of: explicit curriculum links, financial resources and knowledge of health and safety assessment (Lock 2010, DeWitt and Storksdieck 2008). However, a decade following the manifesto little has changed. Lloyd et al. (2012) report that in secondary schools school visits remain predominantly 'add-ons', frequently offered to a selected, often exclusive, group of students.

So, have measures to challenge the cited barriers missed their mark? Possibly, although teachers often report that professional development programmes are informative, supporting them in tasks such as risk assessments and curriculum design (Remmen and Frøyland 2014). Alternatively, are the barriers to teaching outside misunderstood and therefore the strategies to resolve them misplaced? Findings from previous studies I conducted (Glackin and Jones 2012), alongside Humberstone and Stan's (2011) exploratory study, suggest that this might be the

case, with teachers' concerns about managing student learning outside being a key factor that required further research attention. I discuss these concerns, particularly around the control of student learning, below.

Teachers' control of learning

In general terms, teachers' concerns about their ability to manage or control student behaviour are well documented. Reported as heightening teachers' stress, the feeling of not being able to maintain control is frequently cited as a reason teachers prematurely leave the profession (Aloe et al. 2014). For teachers, gaining and maintaining control is therefore high-stakes. In a recent study of UK primary school teachers involved in the Forest School programme, a common concern identified amongst teachers was the need to manage student risk. This concern was used to explain the change in teachers' practice described as 'defensive' and 'more risk-adverse' (Connolly and Haughton 2015). Similarly, my previous research with secondary science teachers suggests that teaching outside the classroom, in a less familiar teaching environment, presents a more challenging context to control students' behaviour (Glackin and Jones 2012).

Control is a form of power (Ball 2013). Hence, this article seeks to examine the role of power in the outside context. To date, control of learning outside the classroom is an under-explored construct and where considered the focus has often been on outdoor environmental educators rather than secondary 'classroom' teachers (for example, Bowdridge and Blenkinsop 2011, Zink 2013). Borrowing from the notion of Gore (1995), who examined power in the pedagogical activities of teachers, I seek to explore the functioning of power in teachers' outdoor pedagogy. In particular the paper asks, what mechanisms of power emerged when teachers attempted to implement science outside the classroom, and how did the teachers' practice change over the duration of the two year study? Following Gore's (1995) analytical framing, the theoretical insights of Michel Foucault on power relations are central to this paper. Further, to understand control in relation to particular pedagogical moves, Basil Bernstein's approaches to social order are employed.

Theoretical background

Michel Foucault set himself the task of understanding the invisible rules that generate regularities in social arrangements. He describes how 'technologies of the social' are used to bring about institutional regulatory acceptance (Foucault 1977, 143). That is, recognising discipline as a mechanism of power that regulates people's behaviours, Foucault identified several forms of regulatory technologies across a range of institutional settings including schools. Drawing on Foucault's work, Gore (1995) identified and described eight techniques of power in pedagogy. Discussed below, three of Gore's eight techniques central to this paper are: distribution, normalization and surveillance.

In terms of control, Gore's first technique observed in education settings is distribution, or what Foucault identified as *space*, the notion being that 'discipline proceeds from the distribution of individuals in space' (Foucault 1977, 143). Further, Foucault postulated that for discipline to be employed, a space, with clear boundaries, was required:

Discipline sometimes requires enclosure, the specification of a place heterogeneous to all others and closed in upon itself. It is the protected place of disciplinary monotony. (Foucault 1977, 143)

In the context of schooling the ubiquitous classroom can be considered as the heterogeneous enclosure. The second technique concerns the organisation of the enclosure. Gore (1995) expressed this technique as normalization, that is where a defined standard is articulated, invoked, required or set. Normalization, in the extract below, can be identified when Foucault asserts that individuals should be allocated their own place:

But the principle of 'enclosure' is neither constant, nor indispensable, nor sufficient in disciplinary machinery. This machinery works space in a much more flexible and detailed way. It does this first of all on the principles of elementary location or partitioning. Each individual has his own place; and each place its individual. Avoid distributions in groups; break up collective dispositions; analyse confused, massive or transient pluralities. Disciplinary space tends to be divided into as many sections as there are bodies or elements to be distributed. (Foucault 1977, 143)

Foucault uses Bentham's panopticon as a metaphor for modern 'disciplinary' methods. The panopticon was designed as an institutional building whereby those inside, for example, inmates, workers or in this study teachers and students, feel under continuous surveillance. In the extract above the mechanism of surveillance is enabled by the techniques of enclosure and normalization. Gore's third technique of power is surveillance. All three techniques discussed above – distribution, normalization, surveillance – can be identified in the following extract when Foucault (1977) expresses societal fear and the resulting requirement to control through the mechanism of 'panopticism':

One must eliminate the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation; it was a tactic of anti-desertion, anti-vagabondage, anti-concentration. Its aim was to establish presences and absences, to know where and how to locate individuals, to set up useful communications, to interrupt others, to be able at each moment to supervise the conduct of each individual, to assess it, to judge it, to calculate its qualities or merits. It was a procedure, therefore, aimed at knowing, mastering and using. Discipline organises an analytical space. (Foucault 1977, 143)

In schools, enclosure, normalization and surveillance may be recognized when students are controlled and made to feel visible through the organization of furniture, seating arrangements and lesson routines. In English secondary schools, for example, it is common practice for teachers to allocate students to specific seats and set up specific routines for entry and exit of the classroom. A further example might be where teachers stand in a particular place when they require attention (often at the front of the classroom), use an electronic register to account for student presence, and organise equipment and resources in a way such that their distribution is controlled.

Keeping in mind the purpose of being in the space – to learn – Foucault’s analysis offers an insight into the duality of what the space presents. That is, not only is the space organised for learning, it is simultaneously organized for control. In the control or ‘pedagogical regime’ set out above, three of Gore’s aspects of power were identified: distribution (space), normalization and surveillance. I suggest that for the majority of experienced science teachers, when teaching inside classrooms or laboratories, well-oiled and practised methods that monitor students’ behaviours are implicit in their repertoire. In the familiar ‘enclosure’ of the classroom, teachers and students share an understanding of the pedagogical regimes. From a Foucauldian perspective, Watkins (2012, 170) identifies an effective pedagogy as that which allows students to acquire ‘the requisite embodiment for scholarly labour’. Perhaps, the outdoor context, which this study explores, represents to science teachers the antithesis to the controlled classroom ‘enclosure’. In turn, the lack of an enclosure circumvents the techniques that enable embodiment and control described above. As a result, possibly teachers perceive things as more likely to go wrong?

A second sociological theory I borrow from is the work of Basil Bernstein. Bernstein was interested in how the structure of social relationships influenced the structure of communication (Bernstein 1990). To this end Bernstein distinguished between two approaches of social order: regulative discourse (RD), described as management to establish ‘order, relations, identity’, and instructional discourse (ID), described as transmitting specialised competencies which includes the teaching of school subjects. Bernstein conjectured that ‘the discourse of competence’ is embedded ‘into a discourse of social order in such a way that the latter always dominates the former’ (1990, 183). Therefore, regulative discourse must be enacted before instructional discourse. Bernstein, for example, might argue that a science teacher is required to set out general classroom expectations, such as how to enter the room and how to gain attention (RD), before they are able to develop more specific science related competencies, such as students answering in extended prose and using scientific terminology (ID).

With Bernstein’s work in mind, I propose that for science teachers to assert regulative discourse rules and compartments in the outdoor context, such rules will need to be initially formulated, then shared and continually practised. Hence, I suggest, the nature in which a teacher constructs the enclosure (as being essential

for learning to occur and necessary for the maintenance of control) will influence pedagogical practice outside.

The study

The study was conducted alongside a two-year professional development programme – ‘Thinking beyond the classroom’ located in Greater London. One aim of the programme was to enhance in-service secondary science teachers’ outdoor pedagogy through the co-development of activities influenced by a social constructivist framework (Adey and Shayer 1994). The outdoors is broadly defined as *a space without a roof*, spaces that teachers could access quickly during a normal lesson, that included: school playgrounds, sports fields, local green squares and parks.

To enable an in-depth empirical understanding of teachers’ conceptions of teaching and managing student learning outside, this paper focuses on six science teacher participants who completed the two-year programme: Cara, Charlie, Claire, Megan, Michael and Tom (pseudonyms are used). As presented in Table 1, the teachers were all early-mid career professionals (3-8 years), hence had established classroom repertoires but the majority considered themselves to have limited experience of teaching science outside.

The study uses data collected from: (1) session questionnaires and written reflections; (2) lesson observations; (3) semi-structured interviews; and, (4) the programme’s internal evaluator’s session field notes and lesson observations. The session questionnaires were completed by participants at the end of each of the six professional development sessions. The questionnaire invited participants to rate their confidence to subsequently trial the newly learnt activity in school (on a 0-9 scale) with a space provided for an explanation of their rating. Extended written reflections were completed on two occasions inviting participants to explain the outcomes of the outdoor lessons taught. Between one to four lesson observations were conducted for each teacher over the programme’s duration to observe how the teachers taught and substantiate what was reported during the interviews.

The semi-structured interviews were regarded as an opportunity for the participants to discuss their views about teaching science outdoors. I conducted between two to four interviews with each participant over the programme’s duration. On average, the interviews lasted 30 minutes; they were audio-recorded and transcribed. Finally, the data collected by the programme’s internal evaluator, that included teacher and student interviews and lesson observations, was used in the analysis as offering more data, potentially a different perspective alongside an opportunity for increased trustworthiness (Denzin and Lincoln 2008). The importance of a different perspective was heightened due to the duality of my role as researcher and as a professional development programme tutor (British Education Research Association 2011).

The analysis took place in two stages. During the first stage data was grouped into categories and regrouped (or coded) as more data was collected. Teachers' pedagogy was analysed using the framework underpinning the programme (Adey and Shayer 1994) alongside Scott, Mortimer, and Aguiar (2006) teachers' role and action framework. Drawing on Lincoln and Guba's (1985) approach, the process was iterative. The assortments of data, as noted above, were analysed in relation to one another. So, if a particular code in one form of data was identified it would be looked for in a parallel form of data. For example, how teachers viewed teaching outside was compared to how they taught outside. The second stage of analysis involved examining the themes identified in the data working with conceptual tools from Foucault and Bernstein. That is, use of the technologies of the social and regulative and instructional discourse were sought in the data. Below, the findings of this analysis discuss teacher participants' views and experiences, as well as observations, of teaching outside across the duration of the professional development programme.

Fear of losing control outside

Regardless of the type of school, access to outdoor space or the teacher's previous outdoor teaching experiences, all six participant teachers discussed feeling uncomfortable about teaching outside and were concerned about managing student learning. These views, for the majority of the teachers, remained throughout the programme. (It is worth noting here that the majority of participant teachers' students were well behaved and maintained, what I consider, positive learning behaviours both inside and outside the classroom.) Tom, for example, described feeling out of his 'comfort zone' when he was teaching outside. He feared the outcome of not having resources – including equipment and support staff – at hand and perceived the outdoor context as 'risky' and as a place where things can go wrong, saying 'you've got less back-up and there are more things that can happen'. Similarly, Michael expressed a sense of inevitability and resignation that students will present challenging behaviour when outside saying, 'Well obviously just taking them out just has its own challenges; different people wandering off.'

Participant teachers' fear of losing control of students when outside was constructed as place-specific in terms of boundaries, familiarity, and disturbance. First, the notion of boundaries, or in this case lack of boundaries, can be identified above when Michael expressed an anxiety concerning students' freedom to wander off. It is further evident when Michael uses terms such as 'captive audience' when he compares teaching inside with outside:

I mean obviously it's in a different environment, so you haven't got the sort of captive audience so much if they are wandering around doing their own things.

The anxiety, I suggest, stemmed from Michael's belief that 'discipline proceeds from the distribution of individuals in space' (Foucault 1977, 143). That is to say, borrowing further from Foucault (1977), the enclosure for Michael would 'eliminate

the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation' (143). Even teachers who had very positive experiences outside, such as Megan, highlighted the necessity for an 'enclosure' to maintain behaviour:

[...] behaviour is less of an issue with the girls, and therefore we are fairly comfortable with taking them outside, because they are good. And they are easy to take because it is in a contained area. It's a very different situation if you haven't got this sort of area, I imagine, and the calibre of kid. They are super.

Whilst this extract expressed Megan's potential requirement of the enclosure it also suggests that discipline resides in the individual students, in this case the 'super' kids. Thus, in terms of Foucauldian theory, discipline is more than the space, it is also produced through the social relations between the teacher and the students. Power is identified as continually shifting between the teacher and the students.

The second place-specific construct concerning control was familiarity. An enclosure has the ability to offer a familiar space. Familiarity, or as Tom described it 'a comfort zone', was an affordance that contexts outside did not offer participant teachers. Rather, in its absence, teachers expressed a fear of losing control or as Michael expresses above, no longer having the 'captive audience'. So, whilst many of the participant teachers described the school playgrounds and local parks as 'familiar', 'authentic' and 'real' places for students to learn and apply their understanding (Glackin 2016), the context as a place to teach continued to feel alien, challenging and uncomfortable.

The power that is employed by the 'familiar' is the opportunity for the teacher and students to conceptualise and share a standard expected for learning. Gore (1995) expressed it as normalization and Watkins (2012) described it as the potential capacitating properties of teachers' pedagogy. That is to say, discipline is arrived at through a set of standards, supported with rules and routines that (eventually) empower students. For the participant teachers, leaving the classroom meant leaving the familiar tools and resources that they believed facilitated student control. For example, for Charlie the lack of a whiteboard outside meant that there was no shared central focus that could be used as a control:

I'm more comfortable inside but it would help if we did do it outside, I think, as the examples are around us easily and we can look at them again, etc. I use the board a lot to focus them on ideas, and that isn't there. I think it is more me, and trusting them. Trying to gather their ideas might be difficult; there might be too many distractions. But saying that, they might get over this with practise.

Noteworthy is that Charlie did not consider these difficulties insurmountable, rather that time was needed for the students to learn new routines and for him to experience a positive outcome. However, Charlie, like many of the participant teachers, taught outside on numerous occasions, often trialling the same activities,

over the programme's duration. So, why did the outdoor space for teachers not become more familiar, and although fear did reduce for several teachers why did it persist over the programme's duration?

I propose that the perpetual unfamiliarity of the outdoor teaching context was a result of both the seasonal environmental changes alongside the daily local changes caused by sharing the space with different users (for example, sports classes, students studying outside and members of the public). The unpredictability left teachers feeling vulnerable. In the words of Cara who stopped teaching outside during Year 2:

I think it's the fact that you worry that they won't recognise that outside, [or it will not] be what you want it to be. [...] I am just a bit unsure of what they are going to find.

For Claire the ever-changing and therefore unfamiliar outdoor context held potential distractions for students:

The grass is too wet to sit down on, although a couple of sixth formers were, they [the Year 9 students] wouldn't have sat down properly on the grass – they would have made a fuss. They could have sat down on the benches as they are a small group but I know 5-10 minutes before the end of the lesson the PE department would have trooped the whole of that group back across the playground so what you are doing gets completely disrupted though with netball hoops etc.

With this group [the Year 9 students] they are very difficult to get quiet and I am just aware of the lessons going on around that they can impact. Whereas other groups I may feel more confident doing it, and if it is dry enough to sit on the grass I'll feel more confident doing it, so that they are in a space, that people aren't going to troop through to and from PE lessons and on their way to lunch going down early.. So I am not against it *per se*, it is just taking all the other things into consideration.

Claire's account suggests that when she attempts to establish routines and procedures, the unpredictable space means that developing techniques of normalization is a constant challenge. That is, where Claire is observed to try to create a routine by using a fixed space (such as the benches and small huts) to settle and talk to the students, unforeseeable interruptions hinder her attempts to control student learning. It is noteworthy that during Year 2 Claire schedules her 'outdoor' lessons so that she has access to classrooms that open directly onto the playground. She uses the classroom to gather and speak to the students intermittently throughout the lessons and allows students to complete group work in the classroom. Using a Foucauldian lens, Claire reinstates the 'enclosure' and by weaving in regular classroom time is able to assert control by using the established classroom techniques of normalization and surveillance.

The third place-specific construct concerning teachers' fear of losing control of their students outside was the likelihood of disturbance. Disturbance was discussed in terms of the participant teachers' students bothering other teachers' classes or conversely other teachers' classes bothering the participant teachers' students. The former sentiment is suggested in the extract above, when Claire expressed the potential consequence of not being able to get her students quiet. Cara has similar concerns acknowledging the influence on her pedagogical decision-making:

I'm somebody who probably shied away quite a bit from taking kids outside because I'd be worried about disrupting other people's lessons and just the management of it all. It's given me confidence to do that now.

The teachers' fear of disturbance acts as a form of control. Outside the classroom the teachers talk about feeling more visible, exposed and under surveillance. That is, for the majority of participant teachers their outdoor spaces used for teaching during the programme were overlooked by classrooms stacked several stories high.

I suggest that panopticism and fear of disturbance resulted in participant teachers inhibiting their practice and conforming to expected teaching 'norms'. Connolly and Haughton (2015) similarly identified a change in teachers' practice outside and suggested that the teachers felt they needed to be observed by senior staff and parents performing risk management outside. Hence, in Connelly and Houghton's study and this current study external instruments might be suggested as controlling behaviour. Under these conditions teachers are less likely to want to be observed using strategies that are perceived as potentially risky and not the norm.

Teachers outside use more assertive and controlling practices

For four of the participant teachers a shift in their pedagogical approach was initially observed when they moved from inside to outside the classroom. That is, during Year 1 Claire, Megan, Charlie and Cara's pedagogy outside was predominantly *authoritative* (Scott, Mortimer, and Aguiar 2006). For example, teachers' directions were prescribed in advance, their authority was clear and they acted as gatekeepers to a single view point. This dominant authoritative approach contrasted with their practice inside which shifted between authoritative and dialogic. That is, for example, during the lesson there were episodes when teachers changed the lesson direction as ideas were explored, they avoided evaluative comments and were open to different points of view (Scott, Mortimer, and Aguiar 2006). Furthermore, the dominant authoritative teaching approach outside contrasted to that being promoted through the professional development programme, whereby a social constructivist framework underpinned the activities developed (Adey and Shayer 1994).

During the first year of the programme, when inside the classroom Claire, for example, used open questioning, encouraged collaborative group work and incorporated activities promoting cognitive conflict. Her approach was both

authoritative and dialogic. Examples of such strategies are in the extract below. Here, Claire has just returned to the classroom after being outside with the students where they were looking at objects through green and red tinted lenses:

Claire: 'We need to think about why that's happening (seeing colours differently through different colour lenses)'.
Students discuss ideas in their groups.

Claire asked students to share their group discussions and observations with the whole class collecting the ideas on the whiteboard.

This classroom approach was in contrast with the predominant authoritative teaching approach that Claire used outside the classroom during Year 1. For example, when circulating outside Claire's questions were often used to refine and regulate behaviour ('who is doing the writing?' 'what was the purpose of the task?').

Furthermore, Claire expressed a discomfort about students working in groups outside saying that 'being in a four... seems quite a nice idea when you are in the classroom, but walking around as four or five is quite difficult'. She was concerned that there were 'a lot of people traipsing around saying 'oh look let's go over there'' leaving 'one straggler' and proposed directed pair work as a solution. Finally, as was observed across the majority of participant teachers during Year 1, Claire spent a limited amount of lesson time outside (between 5-15 minutes of a 1-1.5 hour lesson) that focused on collecting data rather than collectively exploring ideas.

Claire's shift to using more authoritative strategies when outside supports the assertion that participant teachers were concerned about losing control when outside. Claire's decision to reduce group sizes, and her comment concerning the 'straggler' ally with Foucault's (1977, 143) suggestion for the need to eliminate 'the uncontrolled disappearance of individuals, their diffuse circulation' and can be interpreted as her understanding that 'discipline proceeds from the distribution of individuals in space' (Foucault 1977, 143). Further, by reducing the amount of time outside, Claire was not only reducing time required for surveillance of student behaviour, achieved through methods such as regulatory questioning, but also reduced the time she herself felt under surveillance, as discussed earlier.

Cara also shifted her teaching practice from predominantly dialogic teaching strategies when inside the classroom to what she describes as 'practices that facilitate behaviour' when outside. Explained further, Cara saw her role outside as one of needing to explicitly manage student behaviour, suggesting that with this in place learning would follow. Viewed from a Foucauldian perspective the essentiality for control is clear when Cara explains her role outside as, 'Keeping them concentrating, keeping them on task... like a policewoman'.

Gore (1995) highlighted that power might be found in pedagogies that defined the anticipated norms. Both Claire and Cara expressed concern about the absence of normalization. Claire said that even though students had been out three times they

'behave like "we don't know how to do lessons outside"'. It is therefore interesting to note that, free of rules and regulations, participant teachers initially take an authoritative approach to establish normalization and do not automatically transfer their classroom approach that shifted between authoritative and dialogic strategies.

Using Bernstein's work on regulative and instructional discourse the teachers' choice of approach which is more synonymous with an authoritative approach might be explained. Bernstein conjectures that 'the discourse of competence' is embedded 'into a discourse of social order in such a way that the latter always dominates the former' (1990, 183). Therefore regulatory discourse must be enacted first. Hence, rules and compartments for the outside need to be formulated, shared and practised. For this reason, directions, such as where students work, how they work and how they gain the teacher's attention that are implicit in teachers' practice inside the classroom need to become the initial focus of their practice when outside. Unlike the classroom, the rules and routines are not set. To this end, once the regulative discourse has been made clear in the new context, and only then, the instructional discourse can follow. Regulative discourse has the greatest sympathy with an authoritative approach – where students are told what, when and how. Consequently, Bernstein's theory could explain why a teacher such as Claire defaults to using predominantly authoritative aligned strategies before utilising her dialogic /social constructivist skills. Below I discuss how several participant teachers' practice eventually changed during Year 2.

Teachers' outdoor practice gradually reflects indoor practice

So far, I have discussed the fears of participant teachers to teach science outside and the resulting teaching strategies observed that were more aligned with authoritative teaching approaches. These strategies were counter to several of the teachers' practices inside the classroom and with the underpinning theory of the professional development programme. However, during Year 2 three of the participant teachers' (Megan, Claire and Charlie) pedagogical practice outside became more aligned with their 'normal' classroom practice. For example, outside the teachers were observed: seating students to enable group and whole class discussions, adding additional activities when appropriate, using examples in-situ to discuss and question students' understanding and organising group work so that students had more responsibility. Hence, compared to Year 1 the three participant teachers used the outdoors for a greater variety of teaching than simply data collection, and subsequently spent more time there.

The three teachers who gradually changed their outdoor practice also changed their view of outdoor learning. For example, Claire, at the end of Year 2, suggested that teaching outside the classroom was more amenable to her open-ended 'inquiry' style. She gave two reasons for why she thought this. First, premised on the understanding that social constructivism necessitates group work (Adey and Shayer 1994), Claire noted the outdoors presented a less restrictive space compared to the classroom: being 'outside in one of the little huts', she explained, resulted in a richer

discussion to develop than when in the classroom. I suggest that the view of the outdoors as a less restrictive space might be considered both in terms of physical and mental space. That is to say, physically, taking Foucault's (1977) principle of 'enclosure', the classroom generally prioritises the need to 'break up collective dispositions' (143) over collaborative learning. The arrangement of seating facilitates this break-up. Whereas the outdoors, it could be argued, without fixed tables, chairs and seating plans, is more encouraging of student interaction and talk. Mentally, taking Bernstein's (1990) idea of regulative discourse, described as management to establish order, relations and identity, the outdoors offers students an opportunity to acquire a different identity, or a new role as a learner. Explained further, many of the learnt routines of being in the classroom are no longer appropriate and new ones are underdeveloped; for example, teacher-student hierarchy, to an extent, is initially removed, due to the omission of classroom artifacts such as the teacher's desk and the 'front of the classroom'. Hence students are challenged to adopt 'new' roles. From this perspective the lack of boundaries and routines are considered as positive.

However, the teachers' fears that they might lose control had not fully dissipated. Rather, I suggest that Megan, Charlie and Claire had developed technologies of power in the new teaching setting to enable their authority to translate from the classroom in congruence with their social constructivist aligned teaching strategies. Furthermore, and in comparison to other participants during Year 2 Megan, Charlie and Claire frequently included lessons outside the classroom. This resulted in them and their students becoming familiar with the routines and expectations within the new context. To borrow from Bernstein, by establishing the regulative discourse outside over an extended period, the teachers were able to focus on developing the instructional discourse. As I have suggested earlier, the former discourse is more aligned with authoritative approaches and the latter with dialogic approaches.

So, with Gore's three techniques of power in mind what technologies do these teachers instil to enable their authority to translate into the outdoors? First, the teachers establish a routine to go outside that fosters normalization. For example, Megan's routine was that whilst 'outdoor' lessons commence inside the classroom they always end with the plenary outside. For Charlie the routine was that 'outdoor' lessons start and end inside whilst data collection, with a short whole class questioning, was completed outside. Teachers and students begin to know what is expected and gradually 'expectations' become formalised and articulated ('you remember how we walk down the stairs?' 'You are in the same groups as last week.' 'We will work in the same area'.)

Second, all the teachers developed techniques to control the distribution of the students whilst outside. To this end, Megan, Charlie and Claire during Year 2 all paid particular attention to developing collaborative group work. That is, all the teachers spent time encouraging students to establish their own rules and use the rules to manage and evaluate their learning. It was only at the end of the programme when

Megan was sharing the activities with colleagues that she realised the importance of group work for success,

So I went through with colleagues how I'd set up a group, and all the different options, and setting the rules, and I stressed the fact that some of the most important bits [part of the lesson] that I found was actually going through the evaluation [with the students] of what worked and what didn't, so they [the teachers] know that when they [the students] do get on to the main activities outside they know the rules of the groups.

With the usual technologies to control student distribution absent, with space diffuse and familiar teaching resources not at hand, the participant teachers evolved new techniques outside. For example, teachers established 'invisible' boundaries which students were permitted to work within, stopwatches were distributed with an alarm set indicating when students were to return, 'gathering' points were designated which routinely became the spaces where teachers would set up activities and question the students, and a whistle was used to get attention.

Third, all the teachers chose 'gathering' points that offered better opportunities for surveillance. Megan, for example, stood on a bench or at the top of steps when speaking to groups of students and Charlie sat students down on benches whilst standing above them.. Claire, however, developed a different technique in that she organised her lessons so that she had access to a classroom that opened directly into the school grounds. She used this to give whole class instructions and collect ideas on the board. As discussed earlier, a further advantage of having access to the classroom was that students would not disturb or be disturbed by others. Disturbance was a concern of Claire's and by using the classroom she maintained classroom normalization whilst managing the amount of surveillance of herself and her classes.

Zink (2013) similarly identified group work or the 'group contract' (105) as a mechanism of control in an outdoor learning context. However, rather than a technique to control distribution, Zink (2013), reflecting on the architecture of the panopticon, suggested that the effectiveness of the group contract was arrived from how the students monitor their own behaviour. Power is shifted from the teacher to the students. In Foucauldian terms, surveillance is used here to strengthen social forces, rather than repress or dominate.

Discussion and Conclusion

This paper has considered secondary science teachers' views of managing student behaviour and how such views influence their pedagogical practice outside the classroom. The analysis from this exploratory study suggests all teachers feared losing control and this control was constructed as place-specific in terms of boundaries (or lack of them), familiarisation and disturbance, whilst residing in both teachers and students. This study used theories drawn from Foucault (1977) and Bernstein (1990) to explore how teachers teaching outside attempted to gain

and retain power through their pedagogical practice. The analysis suggests that for teachers to gain and maintain control they predominantly used teaching strategies synonymous with an authoritative approach (Scott, Mortimer, and Aguiar 2006). For four participant teachers this approach was in opposition to their usual classroom practice which involved a fluid movement between authoritative and dialogic pedagogy. I have suggested that Bernstein's theory of regulative and instructional discourse is helpful to explain this 'choice' in approach. That is, regulatory discourse within the new context needed to be established before instrumental discourse could commence. Strategies used to achieve regulatory discourse were noted as comparable with an authoritative approach.

In this paper, I explored how three participant teachers, to differing extents, managed to instil technologies that enable their authority to translate into the outdoor setting. Gore's (1995) three techniques of power in pedagogy were identified in the teachers' practice outside the classroom. In other words, when teachers were attempting to gain control they were observed organising the *distribution* of students, establishing rules and routines that fostered *normalization* and created strategies that maximised the *surveillance* of students.

Furthermore, the study found that technologies of surveillance also controlled teachers' behaviours whilst outside resulting in pedagogical practice change due to the perception of being observed and, as a consequence, judged. Connolly and Haughton (2015), identifying a similar concern in primary school teachers outside, suggesting teachers 'perform' risk management. The authors postulate that the performance is a result of social accounting. Their analysis, alongside my findings, resonate with Ball's (2003) concept of the 'performative worker' which he warns 'produces opacity rather than transparency' as teachers take 'ever greater care in the construction and maintenance of fabrications' (215).

The study has highlighted the tension between teaching outside the classroom, in an unfamiliar context, and using a dialogic approach. It is often argued that learning outside the classroom offers opportunities for real world, independent and challenging learning (Braund and Reiss 2006); types of learning synonymous with a dialogic approach (Scott, Mortimer, and Aguiar 2006). That is, a dialogic approach values giving students more autonomy, such as agency to engage in discussions and to follow and develop personal ideas. This runs counter to the maintenance of tight control that teachers in this study felt was required, at least initially, in the new teaching contexts. Hence, the findings of this study led to a question of how a balance can be found between teachers' control and student autonomy to maximise the benefits of learning in, and from, different contexts.

An approach to answering this question is to consider the strategies used by teachers outside that are aligned with a dialogic/ social constructivist approach and consider the technology of power they afforded. One strategy noted was when participant teachers and their students developed rules and routines outside, which were frequently and consistently used, but resulted in an unspoken but shared

agreement of the required behaviour becoming established. These rules and routines, that is the technology of normalization, reflected both new context specific strategies and those already established in the classroom.

The second, and what I consider the most important, strategy was the use of collaborative group work. This strategy, which has roots in social constructivist theory, was used by teachers to enable students to establish, maintain and evaluate their group's learning. Building on Zink's (2013) work I have proposed that collaborative group work offers both the technology of normalization and the technology of surveillance. The combined influence of the two technologies, I suggest, is what makes this strategy particularly effective. Explained further, by internalising the teacher's authority, doing it frequently and routinely, the students have acquired the agency to manage their collective and individual behaviour. Going further, Watkins (2012, 196) asserts, that through the habituated regimen student agency eventually fuels 'a desire to creatively manipulate the embodied technology'. Through a Foucauldian lens, Rose (1990) described such internalisation as self-regulation, and rather than being separate, or a departure from a technology of power, Rose suggests that the student's self-governance is born out of the teacher educating them into a self-critical and self-regulatory mode of being. The importance to this study of student self-governance is that it is not context dependent and can be transferred across settings and spaces.

Implications

This paper represents a move away from a simple 'barriers' response to why so few secondary school teachers teach outside and offers instead a more theoretically driven understanding of teachers' concerns and their practice. As such I set out both conceptual and practical implications.

As argued earlier, to date policy and professional development programmes have taken a barrier response to increasing learning outside the classroom. My findings show that such an approach does not sufficiently explain the concerns and practices of secondary school teachers and whilst barriers do exist and have an impact, I argue the problem goes deeper than for example, resources, curriculum links and health and safety (Lock 2010). By using a sociological approach, I have raised important questions about the relationship between teachers' fear of losing control and space-based authority and how these influence their practice outside the classroom in relation to technologies of power and instructional discourses. Echoing Donnelly, McGarr, and O'Reilly (2014), this study does not imply that power is a negative feature, or that it is simply place-based, rather that power relations in settings other than the classroom need to be more greatly understood if change toward new practices are to be supported.

My analysis suggests two key implications for teacher education, programme development and programme evaluation. First, as many researchers have suggested (for example, Blank, de las Alas, and Smith (2008)), practice change takes time and

outdoor focused professional development programmes should initially anticipate having a limited or even a negative influence on teachers' practice. New techniques develop slowly and the transfer of pedagogical practice across settings is not automatic. Second, for the potentially rich benefits of learning outside to become accessible to students the tensions between dialogic/social constructivist approaches and the teachers' need to control require further consideration. In agreement with Scott, Mortimer, and Aguiar (2006, 623) rather than authoritative and dialogic approaches being polarised and separate, teaching for meaningful learning requires 'a progressive shifting between authoritative and dialogic passages'. I have suggested that collaborative group work strategies might address the tension by offering an opportunity for the ceding of power to students through a controlled medium.

The final implication concerns the change of structural ethos required within schools from one of competition, for example, where teachers feel continually judged, to one of collaboration, where teachers are able to share resources, teaching practice and lesson reflections. Whilst teachers hold the view that their teaching practice is continually under surveillance they are unlikely to take, maintain and practise the pedagogical risks required to change their practice. For change to happen school leaders need to trust and support teachers to be innovative and to trial new strategies outside the classroom that are aligned with articulated theories of learning.

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