

**Shifting and Multiple Spaces in Classrooms: An Argument for Investigating  
Learners' Boundary-Making around Digital Networked Texts**

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***Abstract***

This paper argues that a spatial perspective makes a valuable contribution to understanding the challenges and opportunities associated with integrating digital networked texts in educational contexts. It considers what we can learn by looking at how spaces are constructed within and around such texts in classrooms. In particular, it highlights how a focus on boundaries and boundary-making during classroom literacy events can help us to understand how online activity is connected to and embedded within activity mediated in other ways. This highlights how actions and interactions around texts bound different kinds of spaces and how shifts in spaces may be significant to interactions with texts. Commentaries on two classroom incidents are used to illustrate six propositions which help to describe the fluidity and complexity of spaces produced by learners' actions and interactions around online networked texts. This leads to an argument that, in conceptualising classroom space, we need to both recognise new literacies as 'placed resources' (Prinsloo, 2005) but also see space as continually and multiply rebounded by what happens. This I suggest is important in recognising new pedagogical possibilities and considering the implications of these for classroom practice.

**Key words:** digital literacy, new technology, classrooms, space, online, Internet, literacy

## **Introduction**

Notions of space and place inflect the way we think about literacy in schools in various ways. In the United Kingdom, for example, children in many primary (elementary) classrooms are regularly gathered together to sit on carpeted areas of the floor for whole class literacy teaching. Such episodes, frequently centred around the teaching of a specific skill or the analysis or composition of a shared text, are often referred to as ‘carpet-time’. Areas of classrooms, therefore, can become associated with certain kinds of literacy practice and both reflect and help construct ways of seeing literacy and literacy users (Comber and Cormack, 1997). Rowe’s analysis of a ‘writing table’ in an early years classroom illustrates this (Rowe, 2008). She notes how the location of the table encouraged children to associate writing with pencil and paper activities, separate from more playful and physical activities situated elsewhere. At the same time, classrooms can be complex sites for literacy. Dyson’s seminal research, for example, demonstrates how children re-work classroom literacy tasks to suit their own purposes (Dyson, 2002; 2008) whilst Wohlwend’s description of one early years setting explores how children ‘reinscribed’ classroom discourses creating new spaces for experimentation linked to their own literacy experience and preferences (Wohlwend, 2009). Such work highlights learners’ agency in re-interpreting and re-configuring teacher-led activities and classroom resources.

In this paper, I argue that further work exploring the relationship between literacy provision and learners’ use of classroom spaces is needed. This, I suggest, is particularly important to debates about how what I call ‘networked texts’ can be integrated in classroom contexts. By ‘networked’ I mean texts that are digitally connected. This includes a variety of online texts through which individuals may connect to one another or to other people, places or

texts. These might include social networking sites, wikis, virtual worlds and other websites and also communication tools such as email or online chat. Over recent years, spatial analyses have made an important contribution to research and theorisation around such texts. Burbules for example has explored the kind of place-making that may occur online (Burbules, 2004) whilst others have considered the significance of the spatial to meaning-making within online and alternate reality environments (Howell, 2009; Davies, 2006). Arguments related to space and place have been central to policy-makers' calls for greater integration of networked texts within literacy and other provision; they have highlighted the potential to access resources, people and texts from different times and places, and the promise of new spaces for experimentation, participation and creativity (USDE, 2010). Recent studies are helping us to understand the possibilities and challenges of working in such environments in educational contexts. Gillen (2009), for example, outlines diverse literacy practices in the virtual world, Schome Park, whilst Merchant (2009) charts tensions between children's activities within an educational virtual world and more established classroom literacy priorities and practices (Merchant, 2009).

In this paper, I add to this work by arguing that it is important to examine what happens as learners produce and access networked texts *in classrooms*. I suggest that a spatial perspective is helpful to understanding the pedagogical possibilities and barriers associated with using such texts in these contexts. I build on work by Leander and McKim (2003) who propose that online/offline should be seen as over-layered spaces investigated via a 'connective ethnography' (p.218). They argue that, rather than investigating online spaces as fixed and separate environments, it is more useful to look at 'siting' (p.213), or the process through which spaces are established across online/offline environments. In this paper, I suggest that this focus on

process is an important one and that we need to consider the kinds of spaces that learners may be constructing through and around digital texts in classroom contexts. In developing these ideas, I begin by locating my argument in the context of theoretical perspectives which help to articulate the fluidity of space. Next I use two classroom incidents to make a series of propositions about how learners' interactions with and around networked texts may both construct and reflect space. This leads to an argument for conceptualising space that can help us identify the barriers and opportunities for integrating networked texts in educational contexts.

### **Perspectives on the fluidity of space**

The work of geographers such as Lefebvre (1991) and Soja (1996) has been highly influential in helping us to see space not just as a fixed background to social action but as socially produced. People's interactions are both influenced by their surroundings and help construct the kinds of spaces that emerge. These spaces are also patterned by the ways that different individuals, groups and institutions understand these spaces and their intentions and ideas about how they might be used. This means that, space is highly complex. It may be framed by and reproduce dominant discourses but also be over-layered with other kinds of meaning. If we are to investigate how spaces are significant to people's lives, therefore, we need to recognise that social spaces are hybrid and fluid.

In exploring this fluidity, Massey sees space as a 'sphere of ...coexisting trajectories' (Massey, 2005: 9) recognising that we can trace different narratives and discourses through any single space. In classrooms, for example, we could see space as defined by a variety of trajectories which include:

- the Victorian drive to separate schooling through bounded classrooms and school buildings (Piem, 2001);
- the 1960s commitment to collaborative learning apparent in open-plan areas and group work areas;
- the introduction of new technologies (itself patterned by diverse trajectories related to the design of educational applications, location of new technologies in school, visions of 21<sup>st</sup> century learners, and concerns about safeguarding);
- along with all the more personal and localised stories that play out around and so help to construct educational spaces.

Massey also emphasises how spaces as defined by inter-relationships with other spaces, for example through the technological and service infrastructure and through the experiences, memories and imaginations of those that interact with and within them. This problematises the boundedness of space in a different way. If classrooms are connected to other spaces, then it becomes difficult to decide where one space ends and another begins. Massey's notion of place as a 'meeting place' (Massey, 2005) is helpful here. She invites us to think of places not as 'areas with boundaries around' but, 'imagined articulated moments in networks of social relations and understandings' (Massey, 1993: 66). This enables us to see space as an ongoing construction, patterned by local and global priorities and practices and experienced in multiple ways by different individuals and groups. It raises questions about what Massey calls 'openness and closure' of spaces (2005:179) and prompts us to look at the *boundaries* that are erected and who is included and excluded.

In this paper I argue that a focus on the process of boundary-making around digital texts can provide valuable insights into the nature and quality of interactions around networked texts in classrooms. I explore how this can draw our attention to the varied ways in which multiple purposes, originating in different times and places and reflecting the priorities of diverse individuals, groups and institutions, may be significant to the kinds of spaces that are produced.

In what follows, therefore, I explore the significance of:

- how places are bounded and by whom;
- how this boundedness may shift;
- the part that literacy events may play in this.

Below I use two examples of classroom literacy events to explore why such a focus may be useful in understanding the barriers and opportunities associated with using networked texts, and make a series of propositions about boundary-making around networked texts in classroom contexts.

### **Investigating boundaries and boundary-making in classroom literacy events: some propositions**

The following examples are drawn from a study designed to explore how learners and teachers negotiate networked environments in contemporary classrooms. The study involved observations in four English primary (elementary) school classrooms recorded through detailed field notes. All classes were taught by teachers who were enthusiastic and innovative in their use of new technologies and interested in the implications of this for changing views of literacy. They were committed to the role of participation and collaboration in learning and worked hard to overcome challenges in enabling large groups of children to engage with networked texts

given limited resources. In summaries of the two literacy events, I note how children interacted with and around networked texts and consequently how different kinds of spaces seemed to be bounded and re-bounded. In the first example, a Year 4/5 class (or 8-10 year olds) were focusing on writing a shared text exploring arguments for and against the building of wind turbines.

### **Writing a shared text: wind turbines**

The previous day, the class had discussed a range of arguments for building wind turbines. On this day, the children worked in groups, each of which had a laptop. The teacher had made a shared document available via the class blog. This contained a table with two headings: 'for' and 'against'. The teacher asked the children to use a selection of pre-selected Internet sites to research possible counter-arguments and note their arguments on the table, which they could access via networked laptops. Anyone could amend the content at any time. The table was also projected onto the interactive whiteboard at the front of the class.

There was a sense of urgency as the children set to work and they seemed keen to complete the task by the end of the lesson. As they did so, however, they faced a number of frustrations and challenges. Some of these related to negotiating composition around a shared laptop: given that only one person could type, children often obscured the screen for the rest of the group as they learned across to add to or change the text. Other challenges arose because they were composing a *shared* document: one group was surprised to see text appearing on the interactive whiteboard and then realised that this was because another group was typing; some contributions were typed in and then apparently deleted by another group; sometimes, as one group saved their contributions, the text disappeared from the other screens.

At one point, the phrase 'block the radar' appeared on the screen in front of a group I was observing. This caused a stir on the table – the children did not know what 'block the radar' meant. Realising that someone else in the class had typed this, one boy wandered round until he found the group responsible and asked them to explain. A boy from the second group stood up to do so: facing the other boy, he used his arms to represent the turbine and mimed how radar could be blocked by the moving blades. This occurred in the (usually unoccupied) space between the tables. Once happy with the explanation the boy returned to his original table. As he got there, a new suggestion appeared on screen: 'Easy to demolish'. Again he went on a hunt to find out who had written this. This time he seemed more interested in finding the identity of the author than the meaning of the comment.

In commenting on this episode, I want to draw attention to various ways in which boundaries were established, maintained, shifted and dissolved. Firstly, it is worth noting what did *not*

happen. The children made no references to learning in other subjects, even though there was evidence of this in the texts displayed on classroom walls. They stayed focused on the task set and followed the teacher's instructions closely. In doing so, they seemed to accept that what they did in this lesson would build on what happened the previous day in the same subject. They also seemed to accept that this might be separate from other activities completed in lessons for other curricular areas, even though those lessons would be conducted in the same classroom. In this way, the children's activities and responses helped to maintain a 'classroom' that was organised in certain ways in space and time. This is important in indicating the significance of the material in helping to uphold established practices. Miller, draws on Bourdieu's work on the relationship between materiality and practice (Bourdieu, 1990) to explore how the physical environment is often aligned to dominant discourses: 'much of what makes us what we are exists, not through our consciousness or body, but as an exterior environment that habituates or prompts us' (Miller, 2010: 51). Notably, the children also self-regulated their virtual activity. Whilst the laptops were loaded with a range of programs and provided access to the Internet, the children only accessed sites listed via the blog and did not search beyond these. None, for example, took the chance to visit favourite sites or follow up areas of personal interest. The children challenged neither the material boundaries represented by the classroom walls nor the textual boundaries set by the carefully framed internet task. They drew on well-established routines and expectations about how they operated within the classroom and the kinds of literacy that were relevant there. This leads to my first proposition: *boundary-making associated with established classroom practices will be significant to learners' engagement with networked texts in classrooms.*

Of course these spaces may be inflected by both official and unofficial discourses that intersect in various ways. In illustrating this, it is worth noting some boundary-making I observed in various schools that seemed associated with established literacy practices. Despite repeated attempts in the UK (as elsewhere) to promote the role of collaboration in supporting reading and writing, significant time and attention is devoted in primary schools to individual literacy outcomes. These are particularly important to teachers and schools given high stakes testing linked to school accountability. Maintaining individuality in authorship and readership is challenging in a small classroom containing a large number of people. Yet learners observed during the study still managed to maintain individual spaces. Often this was achieved partly by children physically demarcating personal spaces using the paraphernalia of print literacy – pencil cases, rulers, ‘reading books’ and so on. Such objects incidentally not only marked out their space but imported what we might see as *identity markers*: interests, favourite colours, heroes and so on, imprinted/emblazoned on stationery items. When children moved tables or chairs, they took this pile of stuff with them, re-establishing a personal space in a new location. Dyson’s work provides compelling accounts of the varied ways in which children bring their worlds with them into the classroom (Dyson, 2002; 2008). In this case, the children seemed to take their worlds with them as they moved around the classroom, generating portable individualised places.

Notably, the use of laptops challenges this focus on individualised spaces and may prompt shifts in how learners engage in reading and writing. Lack of funding means that equipment is often shared, as in this classroom, and this may lead to more collaborative approaches. Moreover, classroom computers are institutional and collective, lacking the features

that may personalise home computers to learners and/or their families- wallpapers, screensavers, bookmarked favourites and so forth. At school, learners may have personalised folders to save their work but these sit alongside the folders belonging to other children and their teacher. Also, the orientation of screen-based texts - displayed upright rather than flat on a table - means that learners can easily see and comment on one another's work. Notions of authorship and ownership are looser than when composing on paper. Of course those children that access computers at home –by no means all children - may also be sharing screen spaces with family members. My point here is that this is all significant to boundary-making, to the kinds of spaces created around digital texts. The extent to which learners make decisions about where and what they access and compose; how they go about this and who with, will all be relevant to the kind of space that is produced. All this leads to my second proposition: that *the process of reading and composing on screen may work to bound spaces in ways that challenge the conventions of some common school literacy routines.*

In this case, the children placed their laptops on the group tables – one per group of four children –and gathered round to see the small screen. This presented the text vertically, and the shape of the laptop created a fourth wall to the group's space. No-one sat behind the laptop and those on the edge of the group had to stretch and lean across, resting their arms on the table and each other rather than sitting separately in chairs as they normally would. There was little spoken negotiation here, either about where they sat or who used the keyboard and mouse. It seemed that 'working in a group round a computer' was an established classroom activity and the children quickly settled into that routine. Of course, more fine-grained, multimodal analysis (Taylor, 2006) may have yielded subtler insights into how interactions were managed and the power

relationships that were enacted here. It did seem though that their use of space helped to bound the activity in different ways: individual authorship was replaced by group composition (even if certain individuals ultimately dominated this process). What I want to focus on particularly, however, is what happened when the shared document changed in front of their eyes. This happened as others in the class made amendments or as technical glitches meant that the technology itself was seen by participants as adopting a mischievous role (perhaps poltergeist-like), deleting text ad hoc and bringing a randomness and riskiness to the carefully ordered space planned by the teacher.

These amendments and deletions not only disrupted anew the children's notions of authorship but also seemed to disrupt other classroom relations. In this, as in many primary classrooms, literacy is primarily an activity associated with sitting not standing and children are expected to stay at allocated tables. However, in response to this incident, children formed and re-formed groupings as they negotiated the task. One boy's impromptu meeting with a member of another group created a new location for interacting around texts. As he wandered off to search for the author of the 'block the radar' comment, he seemed to expand the space within which he worked. The changes in textual space disrupted the ordered distribution of children in groups at tables and indeed new routines started to develop: after he had been successful once, the boy set off again. This illustrates a third proposition that *boundaries can shift from moment to moment*.

Moreover, the opportunity to discuss *between* tables opened up new possibilities for meaning-making. The second boy had more room than at the cramped table. He was able to stand and use gesture to recreate what he had read on screen, miming how the turbine could

‘block the radar’, something that would have been difficult in the tight space around the laptop. Work exploring possibilities associated with screen-based texts often focuses on the possibilities for making meaning multimodally, using images, hyperlinks, sound and so forth. What this example illustrates is the significance of opportunities for multimodal meaning-making in physical space. Multimodal analyses of classroom interactions (Kress et al 2001; Taylor, 2006) have highlighted how classroom spaces and resources are significant to the kinds of meanings that are made. In this case, the process of working with a networked text in a classroom seemed to generate possibilities that were different from what might have happened had children been contributing to the text at a distance. For at least two children it led to embodied meaning-making as they met up away from screens. My fourth proposition then is: *disruptions to classroom spaces may be linked to new possibilities for meaning-making.*

My description of this incident is based on observations of what happened- on how individuals moved through and interacted with the objects and people that were present with them. This draws attention to two aspects of the boundary-making that may have been happening. Firstly it focuses on how spaces were bounded within the confines of the classroom. Secondly it privileges a chronological account of moment-to-moment changes. There may however have been all sorts of other ways in which this event was bounded. Massey’s notions of inter-relatedness and multiple trajectories encourage us to see any event as multiply bounded at any moment. We can illustrate this by referring briefly to a second classroom literacy event.

### **Reading a shared text: Google Maps**

A class of Year 5 children (aged 9-10 years) were sitting on chairs in rows in front of the electronic whiteboard. The class were investigating the 2011 New Zealand earthquake as part of a project on Natural Disasters.

The teacher began by asking them where New Zealand was and one child told her that it is next to Australia. The teacher took a plastic blow-up globe from the shelf behind her and pointed out the location of the United Kingdom and New Zealand. As she was doing this, a child entered from another class and asked if any child had a PE kit she could borrow. [*‘PE kit’ is a term used commonly in England to refer to the clothes worn for physical education or sports lessons.*] One child volunteered hers, fetched it and passed it over.

Meanwhile the teacher continued with the lesson. She projected Google Maps onto the screen in front of the children and zoomed in on New Zealand. Meanwhile, one child asked, ‘Shall we turn the lights off?’ The teacher agreed that this was a good idea and the child did so. As they looked at the map of New Zealand, the teacher invited the children to make comments and ask questions based on what they could see. These included:

‘In Year One we used to have this person called Keaton and he lives in New Zealand and he might be killed.’

‘My next-door neighbour- he might be able to move out there.’

‘My mum’s got an i-pod – she can see the whole world and it spins round’

‘And I went on Google Earth at home and you can play with it.’

In this incident, we see actions and interactions which suggest that this space was simultaneously bounded in different ways. In grand terms we could see the projection of the New Zealand map as extending the boundaries of the classroom - just as the policy-makers suggest – to include distant places (something developed later in the lesson when the children accessed CCTV footage and insider accounts from the earthquake zone). More mundanely, the enquiry about the PE kit established the classroom within the wider school community; the interruption to the lesson was not discouraged and it was accepted that children would share personal belongings. There were commonly held understandings about ownership and management of other objects too - such as the globe and the light switch – about who owned them, what was permitted and what was not. Access to the text- in this case, Google Maps - happened in this context. Like the children in the previous example, these children’s interactions with the website were shaped by expectations about how texts are used in school spaces. They did not suggest ‘playing’ on

Google Earth or searching other sites as they might do at home. Instead they waited for the teacher to direct them to a particular part of the site. All this seemed to help establish a particular kind of educational space that the children and teachers worked together to sustain. Interactions with the website were both shaped by and helped shape this space.

At the same time, boundaries may shift in other ways that may be significant in different ways for individual children. We see this in the comments children made as they connected what was happening to their own experience. The teacher's willingness for children to comment allowed in various references to experience beyond the classroom. For one, the image of New Zealand prompted anxieties about a friend whilst another linked it to a neighbour's plans to emigrate. Two more were reminded of other experiences of digital texts- of a parent's i-pod and of less formal interactions with Google Maps. In responding to the images made available through the website, the children did not just make connections with unfamiliar times and places (to New Zealand and the recent earthquake) but were prompted to make other kinds of connections linked to more immediate experiences in familiar, physical worlds. The significance of felt place/space to meaning-making is highlighted by Mackey's work which explores how space and place are deeply bound up with our experience of texts, exploring for example the various ways in which a local setting may inflect readings of childhood texts or provide a stage for playing out meanings and consequently become part of those meanings (Mackey, 2010). The projection of this map may have prompted all kinds of felt connections for these children with other experiences within and beyond school. The 'classroom' described could be seen as spreading in different ways for individual children. This helps to see educational spaces as not just shifting from *moment-to-moment* but shifting from *individual-to-individual* or *group-to-*

*group*. This leads to a fifth proposition: *classroom spaces may be bounded differently for different individuals and groups*.

### **Boundary-making practices & literacy practices**

A focus on boundary-making is important to our understanding about the barriers and opportunities associated with networked texts in educational contexts because it helps us to focus on what happens as digital texts are introduced to classrooms. Networked texts do not just generate new virtual spaces but are experienced within more immediate physical environments.

We see this in the first two propositions:

- *Boundary-making associated with established classroom practices will be significant to learners' engagement with networked texts in classrooms.*
- *The process of reading and composing on screen may work to bound spaces in ways that challenge the conventions of some common school literacy routines.*

We need to recognise the significance of experience within these physical places- and of other physical places evoked by networked texts- when we look at the use of networked texts in classrooms. This emphasis on looking at what people do around networked texts reflects Prinsloo's idea that 'the new literacies are best studied as resources situated by social practices that have local effect' (2005: 87). He argues that we need to see new literacies as 'placed resources' and 'make an effort to understand local cultural processes, meanings and symbolic processes, in a way that is sensitive to local variation' (Prinsloo, 2005:94). By looking at boundary-making, we can focus on the interactions associated with networked texts within specific local contexts. We can see how the routines and expectations of classroom behaviour, and schooled literacy practices in particular, are challenged or reinforced when new texts are used.

At the same time, this perspective prompts us to be wary of defining local contexts too rigidly. The next three propositions suggest that learners' actions, reactions and interactions bound spaces in different ways at different times and in doing so help construct them.

- *Boundaries can shift from moment to moment.*
- *Classroom spaces may be bounded differently for different individuals and groups.*
- *Disruptions to classroom spaces may be linked to new possibilities for meaning-making.*

From this perspective, there is no single local context in a classroom. Sometimes children's actions may uphold the kinds of spaces designed by teachers whilst at others may seem to shift slightly, or be bounded differently. Deleuze's notion of the 'baroque' helps to conceptualise this (Callon and Law, 2002; Deleuze, 1993; Kwa, 2002). Baroque ideas see the world as endlessly complex, problematising common understandings about people's relationships with space. This suggests that,

there is no distinction between the individual and his or her environment; that many, perhaps most, relations remain implicit; that entities are made out of a myriad of heterogeneous entities; that these in turn are made out of an infinity of other entities, and so on. (Callon and Law, 2004 :4)

From this perspective, 'size and inclusion' are 'effects' rather than givens (Callon and Law, 2004:5). We do not operate within contexts but our actions create the spaces within which we move. By looking at moment-to-moment, individual-to-individual and group-to-group shifts, we can examine how spaces are actively bounded and re-bounded. This highlights a reflexive

relationship between spatial practices and literacy practices and brings us to a sixth and final proposition:

*Boundaries are significant to how individuals engage with networked texts but, in turn, what people do with and through texts helps to bound space in particular ways.*

### **Concluding comments: the importance of boundary-making**

This focus on boundary-making risks over-emphasising distinctions between established and new practices and spaces. It could be argued for example that both the moment-to-moment and individual-to-individual shifts in the two incidents described above are minor and that all ultimately work to uphold existing classroom spaces. However, a focus on boundary-making can help to highlight when disruptions do occur and the kinds of possibilities these generate. Whilst here I make no judgments about the kinds of spaces that could or should be encouraged, I suggest that insights into these processes matter to understanding meaning-making and the integration of networked texts in classrooms.

A spatial lens offers an important contribution in helping policy-makers and practitioners understand the opportunities and challenges associated with the use of networked texts. It offers firstly to explain why networked technologies have been used in limited ways in many schools. It draws attention to the kinds of boundaries established by literacy policy and contemporary classroom practices, for example the impact of the rules and conventions that govern how, when and by whom networked texts are accessed. It also draws attention to how learners' responses and activities may help to bound space and this provides insights into the kinds of spaces for learning that may be possible and the kinds of shifts that may be important in generating new pedagogical possibilities.

At a time when educationalists are seeking ways of using networked texts to facilitate more participatory and collaborative learning opportunities (Jenkins et al, 2006), perspectives which help us investigate patterns of interaction and ownership around and through texts are important. All this will become more important as technologies such as mobile technologies, cloud computing and virtual worlds are used increasingly in schools, further challenging the idea that texts - and the literacy events associated with them- are located in single sites. This means that we need to complement work which considers *how* we might integrate digital texts with work which explores *what happens* as we do so. There is a need for further phenomenological and ethnographic research to explore the shifting and fluid spaces that may be emerging around networked texts in classrooms. We need to know more about: the kinds of spaces that are enabled and how they are bounded in different ways for different teachers and learners; and about how ownership of spaces shifts and who and what is excluded and included as this happens. In particular, and with specific implications for literacy provision, there is a need to know more about the role texts play in all this and what this means for how meanings are constructed.

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