in taking up ANT as an orientation is therefore open to question.

ANT progenitors have worried, above all, that ANT can become reified as an immutable research strategy, a fixed and singular standpoint for thinking about the world complete with methodological baggage that would inevitably reduce the phenomena it confronts to conform to its own theoretical content. In the field of educational research, where ANT approaches did not appear until the 1990s, and have enjoyed a surge of attention since 2000, the problem of singularity is not particularly threatening. ANT in education is a lumpy and messy series of uptakes. Educational studies exist that adopt ANT concepts as formulaic models, such as the obligatory point of passage or Callon's four moments of translations, applying them to analyse classroom life, educational policy, curriculum change and so forth in simplistic ways that reduce and contain complexity.

However, there are also a profusion of educational studies that appear deeply committed to the difficulty of ambiguity, non-stability and transgression in fixed methodological approaches. This may be because education, as an impossible practice, is itself located within existential uncertainty and contradiction (Fenwick 2010b). Education as curriculum, as pedagogy, as language and as policy *is* an aporia of (un)becoming. Learning simultaneously enacts both a present activity, a past for un- and re-learning, and a deferred future, a future of imagined ideals as well as fearful anxieties. Learning activity embodies imminent actors (this teacher and this learner with these things and texts) simultaneously with collective dreams and problems imprinted in all of its things. Educational research has hosted rich debates and experimentation about qualitative methods exploring what Lather (2007) has called its margins of intelligibility, working with feminist, post-colonial, narrative, emancipatory, anti-racist, post-structural and complexity analytical approaches. This may be why so many educational researchers working with ANT have combined it with other methodological approaches. With the many critiques of ANT now available, researchers have struggled to avoid applying it as a rigid framework that tames theory, method and the life under observation. As Leander and Lovvorn (2006: 295) explain, voicing what appears to be rather a common orientation in educational research, ANT is drawn upon 'not as a stable body of work, but one that provides some tools and perspectives with which to think and analyze' teaching and learning as sociomaterial practices.

Chapter 8

Spatiality and temporality

Understanding cultural geography

An important emerging line of research in recent years incorporates considerations of space and spatiality into analyses of power and learning in education (e.g. Gulson and Symes 2007), borrowing from cultural geography. This follows what is often referred to as the spatial turn in social sciences in the 1990s, which has found expression in research in a range of domains (e.g. Hearn and Michelson 2006). In such approaches, space is considered not as a static container into which teachers and students are poured, or a backcloth against which they act, but as a dynamic multiplicity that is constantly being produced by simultaneous practices-so-far. Space is not to be considered simply an object of study, as, for instance, in examining how classroom spaces are designed and used. Space is not the equivalent of 'place', which may represent a sedimented region or meaning. Spatiality, the sociomaterial effects and relations of space–time, is, more critically, a tool for analysis. Issues for education and work include how spaces become specifically educational or learning spaces; how they are constituted in ways that enable or inhibit learning, create inequities or exclusions, open or limit possibilities for new practices and knowledge;and how space is represented in the artefacts we use in educational practices, such as maps and pictures.

Particularly in new educational arrangements incorporating media and communication technologies, distance and online learning, the ordering of space–time has become a critical influence on learning and working. Spatial theories raise questions about what knowledge counts, where and how it emerges in different time–spaces, how subjectivities are negotiated through movements and locations, and how learning is enmeshed in the making of spaces. They open up new approaches through which to explore educational issues, moving the focus of research from individuals or individual interactions to the ordering of the human and non-human in space–time, where particular spatial practices are enacted as teaching and learning. Thus, in relation to changing spaces of education such as online learning, we can begin to examine both the spatial distancing and distributing that occur, and the new proximities that become possible.

In this chapter, we review those notions of space that have come to be significant for understanding educational phenomena over the past 25 years, emerging in particular from critical, feminist and post-structural geographies. For shorthand, we refer to these diverse practices as forms of cultural geography, although much written in this arena could be referred to more widely as social theory. In examining why 'space is in the midst of a renaissance' (Kaplan 1996: 147), we are inevitably going to be selective. There are different trajectories that have resulted in the increased interest in questions of space, so that it is no longer the concern only of geographers, architects and urban planners. Spatiality has become an issue in many social sciences. Spatial analyses are used to explain the social, and the ordering of spaces is one of the ways in which power is exercised through the social. Thus 'the discourse of geography has become much wider than the discipline' (Gregory 1994: 81), or, as Lefebvre (1996) implied, space is too important to be left to geographers. Similarly, cultural geographers are as likely to draw upon writings from politics, philosophy and history as they are from their own subject discipline.

As Soja and Hooper (1993: 197) pointed out some time ago, there is now a general agreement that 'space makes a difference in theory, culture and politics'. Consequently, we see growing preoccupation with the significance of 'the spatiality of human life' and recognition of the difference that spaces makes. Space is often described as under-theorized and marginalized in relation to the modernist emphasis on time and history. When the latter was emphasized, space was constructed as neutral, fixed and immobile, unrelated to the social, and without impact on the formation of subjectivities. Space was framed as a neutral container or background within or against which activity took place through time. In recent decades, there has been a shift from considering space as universal and abstract in favour of conceptions that make clear the enacted, turbulent, entangled and hybrid nature of space. Thus it can be argued that there has been a movement towards a situation where:

> [S]patial relations are seen to be no less complex and contradictory than historical processes, and space itself refigured as inhabited and heterogeneous, as a moving cluster of points of intersection for manifold axes of power which cannot be reduced to a unified plane or organized into a single narrative.
>
> (Hebdige 1990: vi–vii)

However, it would be inappropriate to conclude from this that time has now been simply replaced by space. It is more helpful to think of it in the way Massey (1993: 155) does – 'space is not static (i. e. time-less), nor time spaceless [...] spatiality and temporality are different from each other but neither can be conceptualized as the absence of the other'. As she goes on to point out, we need to think in terms of 'space–time', of a conception and actuality of time and space as inseparable and interactively relational, as, for example, we witness in school timetables and their organization of spaces, times, bodies and artefacts. Or, as Jones *et al.* (2004) suggest, we may need to consider spacing and timing as actions, verbs rather than nouns, thus pointing to the ways in which they are both performed and performative rather than simply existing. Here, for instance, the school timetable might be said to space and time actions by ordering people and things into particular relations, rather than those relations being ignored and space and time being treated as things.

Educational interest in spatial theory has closely reflected the distinctions and currents more broadly apparent in social theory, where four threads can be identified. None is entirely discrete from the other, and they have emerged from debates within and between the different framings. Each is subject to multiple interpretations. Almost all the threads are in explicit or implicit

dialogues with the philosophies of Nietzche and Heidegger.

First, there is a political economy framing of space. This draws upon Marxist traditions of analysis, in particular those emerging in Western Europe post-Gramsci. It is associated with such writers as Lefebvre (1991) and Harvey (1989). Lefebvre's three aspects, or trialectics, of spatial practices, representations of space and spatial imaginings, has been particularly influential in framing space as materially produced and productive, both manifesting exercises of power and contributing to such exercises. Such analyses focus on the orderings and representations of space as manifestations of changing economic conditions and their effects on everyday life. Industrialization, urbanization and globalization are key themes in such analyses.

Second, there is a feminist framing of space. Emerging from the analysis of the public–private binary as gendered and associated with writers such as Massey (1994, 2005), a key focus is the analysis of the gender inequalities in changing orderings of space–time and, more broadly, the power-geometries of their particular orderings.

Third, there is what we can refer to broadly as the post-structuralist framing of space, emerging from the work of, for instance, Foucault, Deleuze and Guattari, and associated with writers such as Soja (1989). These analyses have been influenced by the linguistic and culturalist turns in social theory from the 1980s and the associated form of 'post-' theorizing – for example, postmodern and post-colonial. Key themes in such approaches are questions of subjectivity, representation and power. Associated with this thread are attempts to examine the spaces of marginalized others, with concern being focused on, for instance, margins (Spivak 1993); interstitial third space (Bhabha 1994); nomadism (Braidotti 1994); and diaspora space (Brah 1996).

Fourth, there is what is referred to as a materialist (re)turn in framings of space (Anderson and Wylie 2009). This turn has attempted to address what are considered to be some of the limitations of the other three threads, but is itself caught up in the debates over how we frame matter and the material (Barad 2007). The materialist turn takes many forms, some of which might be seen as rejections of 'theory' articulated in post-structuralist framings of space. For us, the significant work in this thread is associated with the mobilities paradigm (e.g. Urry 2007), influenced in part by post-humanist and non-representationalist theories such as actor-network theory (ANT), within which particular spaces are network effects (Murdoch 1998). This work has focused on space as material (dis)orderings, as enactments and performances, a view consistent with the positioning of spacing as a verb, mentioned above.

It is important to recognize that material (dis)orderings are not social constructions in the conventional sense, as 'the social' is itself taken to be always, already, a particular ordering of space. Here there is a movement away from framings that assume and reproduce traditional subject-centred epistemologies wherein human intention and action is given an assumed primacy. Spatial orderings are not about human subjects, but are material assemblages of subjects–objects that interrupt and effect, questioning and promising, such as takes place in a kitchen space in the learning of cookery. Thus the material should not be assumed to be a foundational grounding in 'reality' or the 'social' or 'economic', for, as Anderson and Wylie (2009) suggest, materiality can entail an assemblage of any state and element. Following Serres (1995), materiality can be considered a turbulence within which emerge assemblages of (dis)order of various durabilities. Materialities therefore entail a constant process of gathering and distribution and thus their importance for framings of space as (im)mobilities.

It is also important to bear in mind the connections between the four threads. For instance, in different ways, both Harvey and Soja were influenced by Lefebvre's work on urbanization. Lefebvre himself influenced, and was influenced by, situationists such as Debord, who has also influenced strands of 'post' theorizing, and was also more interested in the material than in debates about epistemology. There is much ongoing debate about how to interpret Lefebvre and the diverse uptakes of his work in the English language (Shields 1999; Elden 2001). Massey was initially much influenced in her writing by Marxist feminism, although this shifted somewhat with time. Some of those emphasizing materiality might be described as extending the range of post-structuralist geographies. Many contemporary cultural geographers and social theorists draw upon the different threads in making their own spatial ropes, as is represented in the shift to focus on mobilities rather than place in spatial framings (Sheller and Urry 2006). Spatial theory and analysis is itself, then, a space of turbulence, or (dis)order. Within this turbulence, it is fair to say that, where they have theorized spatiality,

educational researchers have mostly drawn upon the works of Lefebvre, Harvey, Soja and Massey rather than the (im)mobilities approach.

While spatial analysis is not new, the major impetus for its increased significance stems from the trends emerging from the recession of the early 1980s, associated with globalizing processes and the accompanying changing material and cultural practices. An increased availability of continental European writings translated into English also added impetus to the spatial study of the social, in addition to the social study of the spatial. Globalizing processes signified changing spatial orderings, which required new forms of spatial analysis. We use some of the writings on this theme as an entry point into questions of space and spatiality. This is followed by outlines of spatial debates about technological spaces, space–time compression, (im)mobilities, and location and politics. In this way, we introduce some of the framings and themes that have been, or could be, taken up in the study of education.

Globalizing spaces

One influential way of theorizing globalization, often referred to as 'world culture' theory, highlights 'the compression of the world and the intensification of consciousness of the world as a whole' (Robertson 1992: 8). Or, as Waters (1995: 3) suggests, globalization is 'a social process in which the constraints of geography on social and cultural arrangements recede and in which people become increasingly aware that they are receding'. As more people experience an apparently shrinking world, certain spatial constraints become less, due to possibilities for the increased mobility of people, goods and services. Spatial analysis emerges, therefore, at the point at which mobilities put into question the notion of space as a closed container, backcloth or constraint. Airline tickets bought in England are processed in India. Workers in the same company can be networked across countries through databases. People migrate globally for work, leisure, and increasingly as refugees. What in the past would have taken months to move around the globe now takes hours or even seconds. Increased mobilities mean that space and time are increasingly compressed. The argument here is that the compression of the world and the intensification of the consciousness of the world produce an interdependence that, in turn, compresses the world even more, with heightened intensification and so on. In this theorization, therefore, globalization is a process that both *connects* and stimulates awareness of connection and interdependence.

Such changes to the spatial orderings do not happen as the result of a natural process, nor are they neutral. Globalizing processes 'can be seen as being a condition resulting from a long history of international exploration, invasion and colonization, fuelled by economic, military, religious and political interests, and enabled through enormous developments in transport and communications technologies' (Evans 1997: 12). Globalizing spaces result from certain actions, as do the continued significance given to territories such as the nation state. Drawing upon Lefebvre's analytical framework of spatial practice, representations of space and representational space, Shields (1997: 194; emphasis in original) therefore argues that:

> [S]ocio-political constructions ideologically coded into cartographic conventions and reified in socio-cognitive mappings of the world [...] these serve to exemplify the extent to which we live within the territorializing and boundary-drawing impulse of the *imaginary geography* of the nation-state [...] *Representation of space* such as national air space and 200-mile limit inform and delimit our *practical* interventions in these spaces.

The particular representations inscribed in different theorizations of space always need to be borne in mind. Mapping and remapping are powerful practices, and provide a framing for practice and intervening. 'Space' and 'place' are articulated and performed within the spatializing practices of imaginary geographies and political moves (Pile and Keith 1997). Within this are questions of scale and the different scalings of space, for example, as place, as local, regional, national, or international. Here globalization itself can be seen as a form of reimagining spatial relations in the cause of re-inscribing different practices into and within the world. The scaling of space is not based upon taken-for-granted categories, but is performed.

This is significant if we examine many of the assumptions about spatial orderings and binaries that inform much social theory. For instance, we have the spaces of the nation and the region, and the First, Second and Third worlds, and distinctions between the local and global, and centre and periphery, that tend to be taken for granted. In its many forms, the spatial

turn points to these categories and distinctions being enacted or performed. The different threads provide various explanations of how that comes to be. For many contemporary spatial theorists, it is necessary to go beyond the categories of classical sociology and economics, which already tend to assume the nation state and economy as a privileged focus for research, and society as the foremost explanatory concept. In such approaches, the state, economy and society become reified and unquestioned as ways of framing understanding. For writers such as Urry (2000, 2007), it is a question of developing social theory beyond the concept of society. For those within the political economy thread, however, this ignores the powerful relations that remain sedimented in spatial orders such as the nation state. Here one of the arguments is that 'globalization operates as a "necessary myth" through which politicians and governments discipline their citizens to meet the requirements of the global marketplace' (Held and McGrew 2003: 5). However, we feel more sympathy with Massey's (1994: 159) argument that, while most companies have a national origin and with that a clear direction of flows in foreign investment, 'the geography of these flows has been changing and becoming more complex'.

As well as changing spatial relations and orderings of the global economy, it is also suggested that there are different possibilities for globalized forms of sociality, politics and practices, for what some term 'globalization from below' (Falk 1993; Kellner 2000; Singh *et al.* 2005; Gulson and Symes 2007). This interest in the 'below' can be traced to Lefebvre's critique of strands of deterministic Marxism and his notion that, rather than being a sub-system of the economic system, everyday life is the vital space of social existence. For Lefebvre, the colonization of the everyday by the state and capitalism has made the former a space of alienation, which has enabled the latter to continue, despite wars, recessions, etc. (Goonewardena *et al.* 2008). It is in state strategies for the production of specific spaces that capitalism reproduces itself. 'Whereas the state and capital attempt to "pulverize" space into a manageable, calculable and abstract grid, diverse social forces simultaneously attempt to create, defend or extend spaces of social reproduction, everyday life and grassroots control' (Brenner and Elden 2009: 367). The inference to be drawn from this was that the ordering of everyday space and time was more significant for analysis than a focus on the state, as it is through change in the former rather than the latter that sustained social changes become possible. In Marxist circles at the time, this was a heresy (Aronowitz 2007).

Globalized spaces are suggestive that the link between nation state and citizenship may be loosened with people acting upon issues of shared concern in and through global networks. This can be understood as a form of cosmopolitanism. National governments become only a partial focus for certain forms of popular intervention, as demonstrated by environmental groups such as Greenpeace, humanitarian groups such as Amnesty, and the anti-globalization movement itself. Globalization therefore provides possibilities as well as threats in the spread of capitalist relations. On the one hand, for instance, there is the feminization of labour where

> global assembly lines are 'manned' by women workers in free trade zones; subcontracted industrial homeworking is performed at kitchen tables by women who 'have time on their hands'; home-based teleworking is carried out by women who can't afford day-care costs and are grateful to have paid work.
>
> (Manicom and Walters 1997: 72)

However, practices also develop which bring together groups affected by economic restructuring in new ways, such as trade unions funding labour and community projects outside their own national base, or landless groups from different nations seeking to support each other's claims for rights (Routledge 2006). This 'globalization from below' is often supported by information and communication technologies (ICTs).

> Affinity groups of 'senior' or retired citizens, feminist scholars, individuals who share knowledge on health afflictions, hobbyists, professionals, political organizations and many others are [...] using the Internet to educate, proselytize and organize, cutting across national boundaries with apparent ease.
>
> (Goodenow 1996: 200)

These both expand the possibilities for sociality and politics, but also for some represent a threat to associations, solidarities and actions based upon the local, proximity and place. However, while notions of globalization both from below and from above help to reframe different possibilities, they also

present a spatial relationship that seems to be set within binaries of 'above–below', 'power– resistance' and 'oppression–emancipation', which themselves constrain debate and understanding through the very processes of categorization in play.

Giddens (1990) suggests that, while globalization has resulted in the spread of 'Western' institutions across the globe, this trend also produces a pressure for local autonomy and identity. In other words, globalization is about examining places as simultaneously traversed by the global and local in ways that have been intensified by the compression of space and time. Thus, alongside the global availability of satellite television, McDonald's, Nike and Harry Potter films, there is an affirmation of, for instance, local, regional and ethnic identities. Some transnational companies have explicitly adopted strategies of 'glocalization', extending their influence around the globe, while situating themselves and their products and services within local conditions. Localization can therefore be part of the strategy of companies in seeking a competitive edge in the global marketplace.

What this suggests is that the local is as much a condition for globalization as the global itself; space and place are traversed by the global–local nexus – 'time–space distanciation, disembedding, and reflexivity mean that complex relationships develop between local activities and interaction across distances' (Waters 1995: 50). The integration of the globe *reconfigures* rather than supplants diversity. This is why scalar analysis has become an important part of spatial research (Collinge 2005), as it 'functions by assembling a series of spatial categories into a hierarchical framework that is used to investigate social change' (Robertson 2007:217). Thus we see attempts to introduce a global policy space, or a European policy state, through which flows of national and local policy can be reconfigured. Attempts to rescale thus become subject to critique and deconstruction.

Globalization 'does not necessarily imply homogenization or integration. Globalization merely implies greater connectedness and de-territorialization' (Waters 1995:136). Waters draws upon the work of Appadurai (1990) to provide a framework for the assessment of the extent to which a global cultural economy is in the making. Appadurai identified various arenas as 'scapes' within which cultural objects flow. There are 'ethnoscapes, the distribution of mobile individuals (tourists, migrants, refugees, etc.); technoscapes, the distribution of technology; finanscapes, the distribution of capital; mediascapes, the distribution of information; and ideoscapes, the distribution of political ideas and values' (Waters 1995: 126). To these, Waters added sacriscapes and leisurescapes, respectively the distribution of religious ideas, and of tourism. In all these arenas, Waters finds the evidence for cultural globalization well advanced, and, with that, the increased role of the symbolic in the material and political. Massey (1994: 161) writes also that

> each geographical 'place' in the world is being realigned in relation to the new global realities, their roles within the wider whole are being reassigned, their boundaries dissolve as they are increasingly crossed by everything from investment flows, to cultural influences, to satellite TV networks.

The material and political therefore are to be understood increasingly as mediated by the symbolic and cultural rather than as separate domains.

The assertion of heterogeneity by the locale or by the region may take many forms. For instance, it may involve the protection/assertion of a specific identity as a reaction against the perceived homogeneity introduced by the global. As Turner (1994:78) argues in relation to contemporary religious fundamentalism, it 'is a two-pronged movement to secure control within the global system and also to maintain regulation of the lifeworld'. Within the global–local nexus, fundamentalism attempts, through the deployment of notions of religious community bounded together by spiritual belief and sentiment, to contain, if not negate, the assertion and spread of difference and secular consumerism. Fundamentalists are opposed to a globalized culture based on secularism, consumerism and modernization, but they themselves have a vision and *modus operandi* which make sense, and are possible, only within a globalized world. Thus, paradoxically, such movements also take their own worldviews to be universal and seek to promote themselves more effectively through the use of new technologies.

What we can say, then, is that spatial analysis of globalization points to the paradoxical and the complex. The integration of the globe reconfigures rather than supplants diversity, in the process introducing forms of economic, social and cultural (im)mobilities and (en)counters. In considering educational issues about, for instance, national policies, online learning or global citizenship in the curriculum, there are many issues that can be explored and framed through spatial theories of globalization.

Technologized spaces

Integral to the discussion of globalizing spaces is the influence of new technologies and forms of connectedness and mobility. ICTs can be framed in a number of ways. They are tools for communicating, ordering goods and services, and organizing lives. They reconfigure the possibilities for relating, supporting the increased forms of mediated sociality of absence–presence beyond the face-to-face through the technoscapes of, for instance, mobile telephones and online social networking (Licoppe 2004). ICTs also enact spaces and ecologies of their own – cyberspaces. For instance, the

> increasingly sophisticated and hyperrealistic graphic representations in video games are able to beckon into being believable environments that possess a genuine sense of spatiality, and often intense sociality, that grips players and pulls them into a compelling ludic realm 'beyond' the screen display.
>
> (Dodge *et al.* 2009: 1288)

There are important affective engagements within such spaces. Computing and software are increasingly pervasive in daily life. ICT is both hardware and software, which combine in the enacting of space in particular ways, what Dodge *et al.* (2009) refers to as 'code/space'. In their study of software in people's homes, Dodge and Kitchen (2009) identify the ways in which coded objects, processes, infrastructures and assemblages embedded in everyday life help to enact socio-spatial life.

In much of the literature there is a shared sense of the centrality of the contributions that media, communication and transport have made to the spatial orderings of globalization (McChesney 2003;Thompson 2003). For some, this signifies a disembedding from the materiality of the local and immediate. Crang *et al.* (2007) argue that much initial discussion of the impact of ICTs and the internet were framed within a set of binaries of, for example, the virtual–real, immaterial–material, cyberspace–physical space, with the former posing a threat to the latter. However, this is a changing form of materiality rather than its loss, as the local cannot be assumed to be the realm of the authentic. This is particularly so when we consider the rise of mobile technologies and their capacity to relate people and places across great distances, and places that are themselves mobile, such as cars, trains and planes. Crang *et al.* (2007: 2406) point to the ways in which technology is part of, and enacted within, the everyday, and that ICTs are not new in that respect:'online and offline interactions are constituted and constructed together to sustain and transform the complex temporalities and spatialities of everyday urban life'.

For Morley and Robins (1995: 75), new technologies

> are implicated in a complex interplay of deterritorialization and reterritorialization [...] Things are no longer defined and distinguished in the ways that they once were, by their boundaries, borders or frontiers [...] We can say that the very idea of boundary – the frontier boundary of the nation-state, for example, or the physical boundaries of urban structures – has been rendered problematical.

Dependent upon which part of the globe one lives within and one's position therein, lifestyles, life courses and decision-making are increasingly mediated and re-inscribed through technologically integrated and integrating processes. However, care needs to be taken in framing ICTs as though they are central to spatial orderings, as the result is often a crude form of technological determinism and the complete dematerializing of space. Technological development is necessary, but not sufficient, to these processes, since their development, articulation and deployment is subject to a range of factors and possibilities.

The recognition of ICTs as more than tools for communication is expressed in the notion of cyberspace. For instance, Rheingold (1993) refers to cyberspace as a conceptual space where words, relationships and data are manifested through the use of computer-mediated communication. Kramerae (1995: 38) has another emphasis again: '"cyberspace" refers to the worldwide computermediated communication network where words and graphics are shared, and friendships and power relations are manifested'. For Bukatman (1996: 18), cyberspace is 'a completely malleable realm of transitory data structures in which historical time is measured in nanoseconds and spatiality exists somehow both globally and invisibly'.

Featherstone (1995) points out how frequently metaphors of movement and mobility crop up in discussions of cyberspace. Most notably, the metaphor of 'flows' contrasted with those of 'positionalities', originating with Deleuze and Guattari (1988) and their notion of rhizomatic branching networks framed as a critique of fixed boundaries and identities. These flows are held to have a deterritorializing effect – of people, images and information, commodities, money and ideas. This is suggestive, but of course also problematic, for there is the danger of constructing a view of cyberspace, and space more generally, which is transcendental, detached from the practices through which it is formed, the materialities through which it is enacted and the constraints it imposes. Although cyberspace may be malleable, we nonetheless need to be aware of the powerful constraints within it and the forms of regulation to which it is, and can become, subject. For this sort of reason, Urry (2007: 25) prefers to use the notion of flux, as 'flux involves tension, struggle and conflict'. There is a sense in which cyberspace provides metaphorical resources for the reconceptualization of space more generally – emphasizing flows, nodes and networks – even as those notions inform interpretations of cyberspace.

Kaplan (1996) argues that the new relationship between place, space and the social enabled by these new technologies creates new and different networks, communities and subjectivities as more and more people are connected electronically than by conventional geographical proximity. Some of these connectivities are new, some replace the human material face-to-face interaction, and others facilitate the organization of such interactions. This is a tendency already in place through pre-existing forms of media and communication, such as television and telephone, but it is the possibilities for, and levels of, interactivity that are increasing in relation to more traditional broadcast media. Even desktop computers are becoming staid for those who desire the mobility made possible by smart phones, pocket computers and the like.

The notion that geographical proximity or 'place' is now not so significant is undoubtedly troubled. A common response to this is to question whether cyberspaces are 'real' places. The way such a questioning is expressed is itself interesting. It signifies the difficulty of critiquing, in the language of that which we seek to critique, that which we find difficult to do without – in this case the 'reality' of place. However, as Bukatman (1996: 118) points out, 'whether cyberspace is a "real" place or not, our experience of electronic space is a "real" experience'. Furthermore, cyberspace has to be understood in relation to a techno-social restructuring that is real enough. There is a materiality to people and objects, which is not overcome in the interactive spaces of cyberspace. Thus, as Crang *et al.* (2007: 2407) suggest, 'ICT-based urban change involves a layering, tangling, and imbrication of new practices and new possibilities alongside old ways and enduring demands'. Based upon their study of a neighbourhood in Newcastle upon Tyne, UK, they (Crang *et al.* 2007:2411–12) 'see different media technologies offering different affordances and opportunities for ties and actions at different temporal and spatial scales simultaneously'. How such framing of issues influences the study of education and in turn raises new issues is explored in chapter nine.

Space–time compression

Central to the analysis of the reordering of space and time has been its compression, in part, through new and speedier forms of communication and transport, and the general mobilities we witness. This has been the case in aspects of education as well as in culture and society more generally. Soja (1989) suggests that the restructurings of space–time do not simply displace previous conditions, but rather *overlay* and *interweave* them. Compression is basically the notion that the world feels smaller, and in an important sense *is* smaller, as more people, goods, information and services are now able to travel around it and communicate across great distances much more quickly and easily than was previously the case. With compression comes the sense that things have speeded up and possibilities for detached dwelling reduced. Seclusion and detachment from the social order becomes more difficult. However, the process of compression is itself one of uneven development, as there have been periods and places of greater compression than others. Lefebvre's (1991) popular analytical framing of space as lived, perceived and conceived provides a convenient heuristic for exploring this phenomenon, as particular spatial arrangements are argued to emerge from their lived experiences, practices and representations.

Probably the most systematic attempt to chart this process of compression from the Enlightenment is to be found in the work of Harvey

(1989), which situates globalization and space–time compression within the current restructurings of capitalism. Here it is the search for increased profits and social discipline on a global scale under conditions of enhanced competition for goods and services that effects change. Drawing on a neo-Marxist framework, Harvey argues that the crises in capital accumulation at various stages in the history of capitalism have resulted in the disruption of established patterns of spatial arrangements and their continual reordering around new centres and forms of production. Harvey is extending the work of Lefebvre, for whom

> spatialization of the state centrally underscores both its intrinsically territorial parameters as an institutional apparatus; and its strategic, if contradictory, role(s) in producing and transforming the territorialized spatial grids that underpin the modern capitalist world order.
>
> (Brenner and Elden 2009: 364)

Here state, space and territory co-emerge as strategies of capital accumulation and governing. Thus the crisis of overaccumulation and revolutionary upsurge in Europe in the 1840s was resolved in part by the expansion of investment and foreign trade through imperialist appropriation. This compression of space–time was made possible by the

> expansion of the railway network, accompanied by the advent of the telegraph, the growth of steam shipping, and the building of the Suez Canal, the beginnings of radio communication and bicycle and automobile travel at the end of the century [...]
>
> (Harvey 1989: 264)

As a result of these developments, global processes and change were speeded up. This acceleration was enhanced by the tight ordering of space–time on Fordist production lines, the first of which was built in 1913. For Harvey, the period of the late 1980s was marked by a further intensification of space–time compression, as capitalism was reconfigured with Fordist forms of capital accumulation, giving way to flexible accumulation and what was referred to as post-Fordism. Here the development of new organizational forms made possible by the development of new technology and faster means of communication have resulted in an acceleration in production, also matched by an acceleration in exchange and consumption.

Fordism was deeply paradoxical for capitalism. Industrialization provided the basis for the expansion of capital accumulation. However, the urbanization processes associated with industrialization – bringing together large numbers of people to work in factories – also provided the ground for a sense of solidarity and forms of union organization to oppose capital. In other words, the very processes that created the conditions for the development of capitalism, through the creation of an urban working class, also provided the possibility of a challenge to capitalist organization. In response, as Harvey (1993: 88) suggests, 'spatial dispersal and geographical isolation' have played an important part in capital's attempts to sustain labour market discipline and control, and to displace the challenge potentially posed by an urban working class. Now, this dispersal has been enhanced further by globalized and technologized spaces that compress space–time, allowing new forms of spatial dispersal to develop across the globe, and thus for capital to locate and relocate where returns are highest. This gives place a greater significance for capital as it seeks out the most favourable conditions for its accumulation, a process enhanced by regional competition for inward investment and employment. This echoes the earlier argument that globalization is not in opposition to localization, but rather the latter can be understood as part of the former, and the former as expressing itself through the latter. New patterns of economic inequality are inscribed and re-inscribed in this process, as the current changing economies of China, Brazil and India illustrate.

This geographical dispersal is also taking place within the nation, region and locale. The everyday cannot be scaled as the local, given the changing forms of gathering and distribution. Developments in the organization of work have implications for the reorganization of geographical distances between paid and unpaid work, leisure and other social practices. The need for populations to be concentrated into urban conglomerations is undermined by increasing physical distances, with technology enabling people, goods and services to be brought together by means other than physical proximity. At its most extreme, this provides the possibility for certain groups of people not to have to visit a workplace at all, with an associated blurring of home–work boundaries (Massey 2005). They may live some

distance from their employers or even in different countries, but technology and forms of communication enable them to have their activities based within their own homes.

However, the strength of these processes is dependent upon the intensity of the space–time compression and one's place in the global–local nexus. Thus, as Massey (1994: 148–49) argues, in suggesting the need for a power geometry of space–time compression, 'different social groups, and different individuals, are placed in very distinct ways in relation to these flows and interconnections'. This has implications for the relationship between education and the economy, but also for forms and opportunities for workplace learning.

(Im)mobilities

There are also those who pursue de- and re-territorialization and emerging connectivities as pointing to the significance of mobilities, flux and movements in framing understanding of socio-spatial relations (Urry 2007;Watts and Urry 2008). This work seeks to thread a route between sedentary views of space that assume value and authenticity in notions of place and the local, and a postmodern grand narrative of the superiority of mobility or nomadism over other forms of life. In relation to the former,

> sedentarism treats as normal stability, meaning, and place, and treats as abnormal distance, change, and placelessness [...] Such sedentarism locates bounded and authentic places or regions or nations as the fundamental basis of human identity and experience and as the basic units of social research.
>
> (Sheller and Urry 2006: 208–9)

What is sometimes termed the mobilities approach can also be seen as contributing to the materialist turn in geography, as 'there are hybrid systems, "materialities and mobilities" that combine objects, technologies, socialities and affects out of which distinct places are produced and reproduced' (Hannam *et al.* 2006: 14). Here place is not bounded or separated from flux and networks, but arises from them.

This work draws from a broad range of influences, including aspects of the work of Harvey, Soja and Massey, and insights from ANT. It also has a relationship to complexity theory (Urry 2003), as it attempts to frame spatially the social as neither fully ordered nor anarchic. Sheller and Urry (2006) identify six threads of theory informing mobilities research: the spatial turn in the social sciences; science and technology studies; the work of Simmel; the recentring of the corporeal body as a matter of concern; the topologies of social networks; and complexity theory. These provide a sophisticated set of resources through which to rework spatial framings.

> Issues of movement, of too little movement or too much or of the wrong sort or at the wrong time, are central to many lives, organizations and governments. Dreams of 'hyper-mobility' and 'instantaneous communication' drive contemporary business strategy, advertising and government policy while also eliciting strong political critiques from those who feel marginalised or harmed by these new developments. Fears of illicit mobilities and their attendant security risks increasingly determine logics of governance and liability protection within both the public and private sectors. From SARS and avian influenza to train crashes, from airport expansion controversies to controlling global warming, from urban congestion charging to networked global terrorism, from emergency management in the onslaught of tsunamis and hurricanes to oil wars in the Middle East, issues of 'mobility' are centre-stage. Many public, private and not-for-profit organizations are seeking to understand, monitor, manage and transform aspects of these multiple mobilities, and of the new 'immobilities', social exclusions and security threats that may be associated with them.
>
> (Hannam *et al.* 2006: 1)

A focus on mobilities points us towards a tracing of the movements, relations and networks of objects, people, information and images, and the ways in which flows are regulated, made possible and constrained. For instance, aircraft require airports and timetables, mobile phones require transmitter masts, rights to travel are restricted for many by laws and borders, and cars require petrol stations. To a large extent, then, mobilities emerge with the development of socio-technical systems or networks, the materialities of which can also produce the immaterialities of the virtual and

imagined.

Rather than starting analysis from a space out of which objects move, we are to assume and map mobilities and the ways in which spaces are moored, bounded and stabilized for the moment, and the specific (im)mobilities associated with such moorings. We might take such spaces for granted, as for instance, schools, but a mobilities analysis would examine the ways in which such spaces are enacted and become sedimented across time. These mobilities, immobilities and moorings point to the entanglement and complex patterning of spaces, and the requirement to examine particular empirical tracings of relational and network enactments of space (Murdoch 1998) rather than producing some overarching spatial explanation. We are therefore interested here in what Massey (1994) referred to as the power geometries of everyday life.

For Hannam *et al.* (2006: 4), the focus on mobilities is not a simple celebration of a privileged mobile existence, but a way to analyse how (im)mobilities are enacted and the power exercised through such enactments: 'the spatialities of social life presuppose, and frequently involve conflict over, both the actual and the imagined movement of people from place to place, event to event'. And not simply people, but also goods, services, news, information and power, which can be exercised at a distance through the use of new technologies, as in the coordination of the transnational production and distribution of goods through the expert systems of computerized databases and communication. In his argument for the deparochialization of the policy research imagination, Lingard (2007: 235) puts it this way: 'the mobilities associated with globalization demand a rethinking of implicit taken-for-granteds in social theory of the relationship between theory and society as a nationally bounded space'. He suggests that this is both difficult but necessary in the context of asymmetrical power relations.

What makes near and far, here or there, is not a static separation between two points that is travelled by some thing, then. Instead, these concepts of distance are created by relations that are always changing, as the introduction of the internet into daily life has made abundantly clear. When multiple points are linked, the concepts of micro- and macro- or local and global thus do not hold as separate spaces or scales. This focus traces the circulations of entities that continue to alter one another and the networks they act within, as well as the empty spaces between networks. For Marxist-informed framings of space, the macro-structures of capitalism are explanatory, whereas for mobilities framings they are to be traced precisely as to how they extend and to what they are connected.

(Dis)location and politics

For some, however, there is a renewed interest in the regional, historical and local in response to the perceived efficiency, functionalism and impersonality of modernism (Robins 1993). This results in a reworked traditional reassertion of the link between place and subjectivity, sometimes associated with what might be referred to as a conservative postmodern stance, although perhaps this should more readily be conceived as anti-modern. Here there is an inversion rather than deconstruction of the modern perspective within which '"time"is equated with movement and progress, "space/place" is equated with stasis and reaction' (Massey 1994: 151). Thus 'it is no coincidence that communities for resistance are termed "movements" in much political struggle' (Pile 1997: 29). Thus 'the ethnic absolutism of "root" metaphors, fixed in place, is replaced by mobile "route" metaphors which can lay down a challenge to the fixed identities of "cultural insiderism"' (Pile and Thrift 1995a: 10).

An important distinction here is between those who assert movement in a radicalized form, which continues to position space as an inert background, and those who emphasize movement as a spatialization of subjectivity and the political (Mohanty 1992). This has been central to much feminist and post-colonial analysis, attempting to theorize new possibilities with which to construct a more equitable dispensation. Here metaphors of movement are deployed to destabilize the centres of power and provide for new power geometries through different mapping practices. Mobility, then, assumes a political as well as a metaphorical role – 'nomadism consists not so much in being homeless, as in being capable of recreating your home everywhere' (Braidotti 1994: 16). Similarly, Chambers (1994: 5) suggests:

> migrancy [...] involves movement in which neither the points of departure nor those of arrival are immutable or certain. It calls for a dwelling in language, in histories, in identities that are constantly subject to mutation.

Always in transit, the promise of a homecoming – completing the story, domesticating the detour – becomes an impossibility.

However, while such metaphors are productive, engendering as they do a 'landscape of movement and mobility by those for whom movement and mobility are unproblematic' (Pile and Thrift 1995b:24), the focus on movements and flows can result in place and the local appearing to be annihilated completely or simply dismissed as parochial. There is a danger also of privileging and normalizing the experiences of some as the experiences of all, paradoxically bringing back to centre-stage precisely what the surfacing of difference sought to avoid in the first place. Both roots and routes play a role in subjectivity. However,

> instead of thinking of places as areas with boundaries around, they can be imagined as articulated moments in networks of social relations and understandings, but where a large proportion of those relations, experiences and understandings are constructed on a far larger scale than what we happen to define for that moment as the place itself, whether that be the street, or a region or even a continent.
>
> (Massey 1994: 154)

For some, the de-realization and de-territorialization of place associated with space–time compression results in a loss of social meaning and disruption of established senses of community, culture and identity. This provokes what Robins (1993: 320) refers to as 'feelings of dislocation and disorientation' and homelessness. Here is 'a cultural sense of "postmodern" spatial stress and dislocation can thus be grounded in the material framework of new relationships between spatial regions and localities as well as in the "imaginary geographies" and spatial practices of agents' (Shields 1997: 196). However, feelings such as those of dislocation are not necessarily or inherently negative. Indeed, they can be a springboard for learning and positive forms of change.

For those interested in spatial orderings, politics and their effects on subjectivity, drawing upon 'post-' theories, different possibilities emerge. This is precisely a spatial politics of subjectivity:

> a politics of location as locationality in contradiction – that is a positionality of dispersal; of simultaneous situatedness within gendered spaces of class, racism, ethnicity, sexuality, age; of movement across shifting cultural, religious and linguistic boundaries; of journeys across geographical and psychic borders.
>
> (Brah 1996: 204)

Hybridity rather than homogeneity, and the relational rather than the bounded, characterize the spatial orderings. Within this, 'the significance of new hybrid and syncretic identities shows the potential for crossover identities which destabilize old [...] absolutisms' (Rattansi 1995: 280). There are, increasingly, a number of contradictory positionings that foreground the importance of location and locating practices, and with that the metaphor of the *network*. Here 'different social groups, and different individuals belonging to numbers of social groups, are located in many different ways in the new organization of relations over time–space' (Massey 1994: 164).

This identification of a condition that is increasingly one of hybridity, deterritorialization, mobility and disembedding engenders affective and political responses. In what sense, if at all, can this condition be understood as a state of homelessness or dislocation, of insecure boundaries and flux, where a sense of place, meaning and identity become problematic or no longer exist at all? These are themselves complex questions, located in certain traditional assumptions as to the proper relationships among place, meaning and subjectivity, where stability of place is often seen as resulting in stability of meaning and subjectivity. For Massey (1994), the outpouring about homelessness itself signifies a First World/colonizing perspective. For those elsewhere:

> the boundaries of the place one called home must have dissolved long ago, and the coherence of one's local culture must long ago have been under threat, in those parts of the world where the majority of its populations live.
>
> (Massey 1994: 165)

Homelessness and a sense of a loss of place may be a recent experience for those who have been at the centres of power, but a long-standing one for diverse others, and indeed the global majority.

Rather than the loss of home, therefore, it might be more appropriate to reconsider the meaning of home and the possibilities provided when the home

is, for instance, networked through telephone, television, mobile phone, the internet, fast jet travel, diverse products and services available on a worldwide basis – and subject to the climatic, environmental and political effects of actions taken elsewhere 'at a distance'. Home therefore becomes an effect of the associations that mark a space as a particular type of place. The stable identities of bounded place – themselves perhaps more nostalgic than actual, for many – may need to be reconfigured as 'diasporic identities [which] are at once local and global [...] networks of transnational identifications encompassing "imagined"and "encountered"communities' (Brah 1996:196). For Brah (1996: 180), this provides a space that takes 'account of a homing desire which is not the same thing as desire for a "homeland"'. It is for these reasons that Brah (1996: 209), like others, has extended the arguments of post-colonialism to suggest that 'the native is as much the diasporan as the diasporan is the native'. In other words, the notion of insiders and outsiders of nation, ethnicity, religion, culture, etc. is unsustainable; the ever-strident attempts to create such bounded spaces and places – through ethnic cleansing – being evidence of the sustained work and exercises of power through which hybridity is fought in the attempt to bound and bind. Here place, rather than being bounded and excluding, is conceived as a meeting place, a point of (en)counter (Massey 1999). Here 'places are not what lies on either side of the boundary, they are constituted through boundary work' (Hetherington 1997: 186). Places do not sit within boundaries, contained, but co-emerge through the enacting of boundaries. Subjectivity may therefore be said to signify (dis)locating practices (Edwards and Usher 2008), enacted by and enacting mobilities *and* moorings.

Conclusion

For us, spatial theory surfaces a number of conceptual metaphors and spaces – (im)mobility, mapping, scale, absence–presence – through which to destabilize the assumed categorizations and binaries which frame much of the thinking about socio-spatial ordering. Spatial framings provide us with the opportunity to enter Bhabha's (1990: 211) interstitial third space, which 'displaces the histories that constitute it, and sets up new structures of authority, new political initiatives, which are inadequately understood through received wisdom'. This is an emergent space of possibilities and constraints, mobilities and moorings, posing interesting questions for education as well as providing theoretical and methodological framings through which those questions can be explored. It is to these explorations we turn in chapter nine.