A School's Lived Architecture: the politics and ethics of flexible learning spaces

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Contents

Abstract

This thesis draws on ethnographic research in a new secondary academy school in the north of England. Built under the *Building Schools for the Future* (BSF) programme, the school and particularly its design featuring innovative, flexible learning spaces were intended to transform education. This project sought to understand broadly how definitions of innovative education were proposed architecturally and organisationally in the school and, more specifically, on what or who flexibility depended with a particular focus on teachers' work.

Drawing on realist philosophy and architectural and spatial theory to underpin the empirical work, the research took place over two years using participant observation, interviews and questionnaires to explore teachers' perspectives towards and uses of the school's learning spaces. These included a mix of semi-open classrooms and larger, more open, flexible learning spaces.

Flexible learning spaces are often proposed as spatial designs supporting (or even leading inevitably to) 21st century education. The thesis shows how teachers' efforts to use the spaces flexibly for teaching were made difficult by noise levels, limited time resources, highly structured team-teaching and the wider educational culture including high stakes assessment demands.

Rather than notional flexibility of the spaces, what mattered for these teachers was their ability to use the spaces in ways that they wanted. The thesis argues that the flexibility of 'flexible learning spaces' is both a rhetorical move and an ontological claim that is untenable – an example of spatial fetishism – and as such it can have ethical and political effects. Approaching a space as inherently flexible obscures other constraints (e.g. assessment demands and time) and how the characteristics of particular users affect whether and how a space can be flexibly used. If what matters is the *use* of spaces in flexible ways, then that 'use' should be recognised as the work it is, rather than seeing flexibility as a spatial property.

The thesis also relates the promotion of flexibility within the BSF programme to changing modes of educational governance and a devaluing and dispersal of educational purpose. It proposes an alternative understanding of flexibility, based on Amartya Sen's capability approach and Herman Hertzberger's architectural theory, that shifts attention towards enabling teachers to achieve purposes they value.

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Figures and Tables

Figures

Tables

Abbreviations Used in the Thesis

BB98	Building Bulletin 98
BSF	Building Schools for the Future
CABE	Commission for Architecture and the Built Environment
DCSF	Department for Children, Schools and Families
DfE	Department for Education
DfES	Department for Education and Skills
IWB	Interactive Whiteboard
KS3	Key Stage 3 (traditionally Years 7, 8 and 9)
KS4	Key Stage 4 (traditionally Years 10 and 11)
OECD	Organisation for Economic Co-operation and Development
Ofqual	The Office of Qualifications and Examinations Regulation
Ofsted	The Office for Standards in Education, Children's Services and Skills
PCC	Pottisham City Council
PfS	Partnership for Schools
PISA	Programme for International Student Assessment
PoE	Post-occupancy Evaluation
PTA	Pottisham Technology Academy
Year 7, 8, 9, 10, 11	The five year groups of PTA, with students aged from 11 to 16.

A Note on Anonymity

This thesis reports on research in a school in England that I call, pseudonymously, Pottisham Technology Academy (PTA). The people from the school also have pseudonyms. Documents referring to the school are anonymised and listed in Appendix A instead of the general references section. The ethical reasoning for this is explained in Section 4.6 but there are methodological consequences too and I discuss these in Section 4.4.

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Chapter 1 Introduction

> *BSF investment and [the School Strategy for Change] process create an opportunity to do things differently, change the nature of the learning experience and close achievement gaps. It is about step change, innovation, stretch goals, challenging orthodoxies, and will potentially involve radical shifts from current practice. If what is proposed is low risk, it is probably not pushing the boundaries of the possible far enough.*
>
> Partnerships for Schools, 2009:5

> *To deliver education transformation, the designs of our schools will be different.*
>
> Pottisham County Council, 2008:2

1.1 Rationale

In 2010, a new secondary school – Pottisham Technology Academy or PTA – opened in a northern English city. Funded and guided by national government's Building Schools for the Future programme (hereafter BSF), it would have to be 'ambitious and visionary' (Department for Children, Schools and Families et al., 2008:14). PTA was one of many new schools built at the time. Partnerships for Schools (PfS), the government agency overseeing the BSF programme, provided guidance on the educational and design visions: the new schools would have to 'push the boundaries of the possible' (2009:5).

However, PTA would begin life in a school system that stood out as having a 'long-term investment in high stakes testing' (Grek, 2009:34). The chief regulator of the educational assessment system described her work in an area that was 'high volume, complex, high stakes and where media interest is high and risk tolerance is low' (Stacey, 2012a:online).

Ambitious, innovative and radical, these 21st century school designs would face operating conditions that were risk-averse and highly pressured. Teachers – the main focus of this thesis – would work in PTA's mix of classrooms and flexible, open-plan learning spaces which, the local council explained, would 'deliver education transformation' because of their 'different' design (Pottisham County Council, 2008:2). This ambition seemed

representative of BSF as a whole which was not only a 'building programme' but an 'educational change programme' (PfS, 2009:6). These two aims, building and change, were not simply aligned in parallel, however. They were conceived as a causal relationship: *building and design would lead to educational change* (DCSF et al., 2008:1; DfES cited in Curtis et al, 2008:40). Yet, in spite of the certainty, there was a lack of evidence to support such claims (House of Commons Education and Skills Committee, 2007:12; Leiringer and Cardellino, 2011:916; Woolner et al., 2007:47).

This thesis responds to that broad scenario by exploring the intentions of design and policy and how – resting on causal assumptions about a building's ability to transform education – the effects of those intentions were lived out in everyday teaching in PTA. I argue that the causal claims developed from and reproduced a discourse of 'architectural determinism' (Broady, 1966; Marmot, 2002) and I explore how this happened, and its consequences.

My rationale for the study is essentially this: because many people end up working and studying in the buildings that are the end result of design and policy processes, it is important to have a clear understanding of what their actual work in nominally transformative buildings, involves. This would involve empirical fieldwork but it would help theoretically too as a way of understanding the nature of the causal models on which school design is based and claims justification – and this understanding needs critical engagement (Woolner et al., 2007:61). Further, because deterministic assumptions about what buildings do, go some way to prescribing particular futures for education, it was also important to understand the ethical implications of those causal models. If the future is already partly written by policymakers and designers, then causality and architecture become political and ethical concerns: which parts of the future remain available for the end-users of buildings to write themselves?

The research described in this thesis therefore sought clearer understanding of school building policy and design at the point where three weakly understood, under-researched or fragmented domains of knowledge meet. I have mentioned the first – the assumed relationship between school design and educational transformation.

The second is space which in the social sciences has suffered a 'long term lack of attention' (Halford, 2008:927) or is tokenistically treated (Sayer, 2000:112). There is a need to 'take systematic account of how places and spaces enter into the organization of social life and social action' (Atkinson et al., 2008:146). But if space is under-appreciated in its complexity, it remains important – it is 'intrinsic to the intellectual ordering of our lives and our everyday notions of causality and with it, agency' (Shields, 2016:9). In short, 'the way we imagine space has effects' (Massey, 2005:4).

The third was relevant because I was researching the innovative, flexible learning spaces of PTA: flexibility itself. The word as it is used in architecture is 'confusing' (Forty, 2004:148) because it is called upon to describe opposing design purposes: to extend the range of a building's possible uses and to ensure a specific functionality is productive over time (ibid). In addition, a school's theoretically available flexibility-in-design may lead to high levels of inflexibility-in-practice (Saint, 1987:211). In this sense, a 'flexible learning space' is more than a thing: it is an extremely bold *claim*. Architecture could perhaps also benefit from a clearer distinction between aspiration and lived reality as Neil Selwyn's work (2015) has sought to do in response to the often glib and superficial use of language in the educational technology field. Indeed, although applied to housing rather than schools, Schneider and Till (2005:159) find that a rhetoric of flexibility often belies inflexible buildings in use.

Flexibility is also interesting from the perspective of causality because it is routinely assigned as being a property of a space – that is, space is claimed to have the causal power of being flexible. This is a case of 'spatial fetishism' (Sayer, 2000:112) and raises important questions again about causality but also about the ontology of space, the nature of its representation and ethical questions too. For instance, if flexibility is in fact a product of people's work rather than space, a nominally flexible design can appear to promise something which it cannot deliver, because it is not its *to* deliver. Expecting people to be able to teach flexibly or learn flexibly because they are in a 'flexible learning space' might therefore overestimate the powers of space and underrepresent people's efforts.

In the idea that changing space in particular ways (such as innovative, flexible learning spaces) might change education for the better, these three domains of weak understanding coalesce. So, first the problematic assumption of school design-improved education causal relationship, then, as if superimposed, the problem of space and its superficial treatment and finally, confusing flexibility. Individually they bring their own problems and together produce an emergent whole of ambiguity but maintained nonetheless with funding and political support.

Hence, although there is warrant and rationale for studying what the effect of these three, together, might be for teachers and education, also important is a consideration of *the terms* on which design inevitably leading to transformation gets made.

For example, a recent review of the literature on learning spaces says that there are:

> gaps in the literature, in that most research on learning spaces focuses on the design phase, rather than on the later phases or on the people that use the space – practitioners and learners (Blackmore et al., 2011a:iii).

More specifically, it says that work is needed to respond to the question:

> How does the flexibility of space and mobility of technology and furniture impact on the use of space and learning by teachers and students? (ibid:33)

From my own literature review these do indeed seem questions worth asking.

But equally, the terms on which they are made need to be questioned. Is there a 'flexibility of space'? What would space have to be in order to have that property? Is the 'mobility of technology and furniture' a feature that inheres in those things, a property they have or does mobility depend on how the user can use them? Or where, or when? Is mobility something experienced equally by all users of the same technology? Under what conditions might it not be?

In short, these and many other questions that warrant attention, also require consideration as to their premises and the assumptions about space that they start from. I understand this pre-work as indivisible from the work in answering them. Because of that, some way of dealing with what things are and what they can do is necessary.

This implies a need for a study of the ontology of learning spaces in concert with an empirical study: a twin-pronged approach. The philosophical work would help to clarify the objects of knowledge that the empirical sought to understand, with the understandings from that empirical work feeding back into a more refined theoretical model of what space, flexibility and flexible space were. The following section outlines how I constructed an appropriate approach.

1.2 Research Approach

I adopted a critical realist, sociological approach as Roy Bhaskar, below, defines it. This was useful because his focus is relationality and people rather than aggregations of people. Relations between people, and between people and resources, would tie in all the different fields and topics of my study. It was a necessarily broad research project in the sense that studying one school and the school-building programme which gave rise to it, inevitably involved people, space, education, architecture, policy and, as I show, political and ethical dimensions which have often been ignored. How people are related is at the core of these different ways of approaching schools. Despite this breadth, a strong conceptual starting point emphasising relationality would help to retain focus and direction:

> sociology is not concerned, as such, with large-scale, mass or group behaviour, conceived as the behaviour of large numbers, masses or groups of individuals, but (paradigmatically) with the persistent *relations* between individuals (and groups), and with the relations between these relations (original emphasis, Bhaskar, 2011:71).

A significant part of the spatial work people and architecture do in schools contributes to the relations between people, and between those relations and the relations among, for example, knowledge and culture. In keeping with other realist philosophies, critical realism also focuses on what things are and what things can do by virtue of the kind of things they are and the properties they have. Given the vagueness about space and what built space can *do*, this would be useful. Understanding causality is therefore at the centre of realists' understanding of what the world is composed of:

> Realists about causality maintain that causality is connected to the display of things' dispositional properties: it is a matter of the powers that things have, in virtue of what they are, to affect other things, given what the other things are. Thus realists about causality think, *contra* Hume, that causal relations are relations of natural or metaphysical necessity, rather than of contingent sequence – and, further, *contra* Kant, that the necessity in question is given by properties inherent in the *relata* themselves, rather than by the synthetic operation of reason (Groff, 2008:2).

Realism and critical realism would therefore be helpful for the project in providing a vocabulary and conceptual tools with which to understand the social world of PTA and the difference that space made within in it. One of these tools would be the distinguishing between open and closed systems. A closed system is:

> one in which a constant conjunction of events obtains; i.e. in which an event of type a is invariably accompanied by an event of type b (Bhaskar, 2008:60).

It is the idealised space of science, a laboratory (real or imagined) where all other causes can be removed or incapacitated. There is no history or context or none that matter, prediction is theoretically possible and there is no feedback i.e. when event *b* comes back to affect *a.* Architectural determinism rests on these assumptions (Broady, 1966:150) as I will show in Chapters 2 and 3.

However, the world is not closed. People in buildings do come back and change their spatial conditions. People act in space but not as simple reactions to physical, architectural stimuli: they *interpret* space and act in ways that they want to whilst being informed, resourced and constrained by the histories and physicality of which they, their

colleagues, and buildings, are a part. The research approach therefore began with the assumption that causality would necessarily be operating in an open system, since the social world is 'always open' (Sayer, 2000:19).

To understand more about architecture and its traditions of creating space, I began to read books by Herman Hertzberger, a Dutch architect particularly renowned for his designs and writing on school buildings (2008; 2009) as well as architectural theory more generally (2000; 2001; 2015). His is a concerted and coherent focus on space and relationality between people, groups of people, inside and outside, the school and the world. It is also, as I came to realise later and show in Chapters 3 and 6, a relatively radical proposition about causality. In addition, Hertzberger does not simply recognise open systems, but exploits them, so returning to the user the agency and possibilities of a future that become obscured in deterministic accounts.

Hertzberger's theory and its opening to a range of futures is key to this thesis which studies one school built 'for the future'. The stuff of architecture in one sense *is* the future – the financing, the planning, the envisioning, modelling etc. The editorial director of both *The Architectural Review* and *The Architects' Journal*, Paul Finch, boldly says that 'All architecture is about the future' (2015:online). But there's the rub. People in schools have to live in a present that is partly shaped by other parties' thinking of the future. Hertzberger's perspective provides an analytic counterpoint. With other Dutch architects, he broke from the more determinist and paternalistic utopian visions of architectural modernism. His thinking stood in 'contrast to the "reaching into the future" mentality' (Lüchinger, 1981:15). As such, Hertzberger's architecture is therefore 'about the making of space, but also about leaving space for [occupants'] interpretation' (Till, 2013:108) in a *present* in which people are supported spatially. For Forty, 'to Hertzberger, "users" are the ultimate measure of an architect's work' (2004:313) and in thinking about space and schools, teachers as 'users' are key given their responsibilities. Most of all though, as the sociologist Abram de Swaan noted, Hertzberger is 'a pre-eminently sociological architect' (2009:21) and in his own words, the role of architecture is to 'make[] space for connecting people' (2015:94).

Hertzberger therefore complements another theorist I use to explore what happens inside buildings – Doreen Massey – for whom space is 'an emergent product of relations' (2005:68). In these terms, space is unpredictable because it is the outcome (not input) of human sociality and as such is a powerful way to challenge educational policy's employment of space as a lever of change. In fact, deterministic architecture can be read as a particularly powerful attempt among others

> at the stabilization of meaning [which] are constantly the site of social contest, battles over the power to label space-time, to impose the meaning to be attributed to a space (Massey, 1994:5).

Massey helps to see how a designed space might be re-made through social action.

Ethnography seemed to be the most appropriate form of research for the study. Its long-term engagement in the places and with the people who are part of what I wanted to study made it a fitting approach. I explain the specifics in Chapter 4. Briefly here, however, it is worth noting that Leiringer and Cardellino's research showed that 'scant attention is generally given to the complexity of the school environment' (2011:931). On a similar note, Blackmore et al. (2011a:11) found that individual schools' contexts are generally missing from design phase literature. Clearly, an ethnographic study provides no guarantee of exploring complexity but it does at least mean that some of the barriers to understanding it (e.g. sufficient time to see and hear conflicting or alternative accounts and ways of acting, involvement with participants and their daily work etc.) are reduced. In another review, Blackmore et al. (2011b:54) recognise the need to use ethnographic studies in order to explore complex educational environments.

This chimes with the need for observation that some of the more socially sensitive architects and historians of schools have made too. David Medd, for example, recognises that: 'In order to understand, the architect has to see. He needs to see teachers and children in action' (1970:177), a point later echoed by Andrew Saint (1987:vi). *Seeing* and understanding people and space, rather than abstracting from space are themes I return to throughout the thesis. As Burke (2010) has shown in comparison to current trends of school design, Medd and other architects of the post-war period had very different ways

of understanding how people might relate to space, transformation and schools. As with Broady's (1966) coining and critique of 'architectural determinism' mentioned earlier, I use some older resources to provide a counterpoint to the recent emphasis on architecture as a way to increase productivity.

In terms of my day-to-day focus, my research in school as a participant observer and when interviewing explored mostly teachers' use of and thoughts on the learning spaces. The emphasis on teachers rather than students was a decision based partly on what I thought was an over-emphasis in the literature on learning and ways of thinking about learning (e.g. Biesta, 2009). In addition, as I observed more teaching, I became curious about what flexibility meant and to whom or what it really was applicable. The decision was also a pragmatic one since I could more thoroughly research what the implications of designed space were by concentrating on one category of user. Given their greater power, teachers also get to make more decisions than students in terms of which parts of the *de facto* curriculum come to be implemented and how, who sits with whom, how encouragement and punishment are managed, and so forth. Whether this *should* be so is beyond the scope of this research. I assume instead that teachers act for the benefit of their students as well as their own and that understanding the role of space and teachers' work should therefore help to understand something about the type and nature of activities that students end up doing.

A consequence of the focus on teachers was an interest in the difference between flexibility in theory, and in practice. Ethnography and participant observation fitted my approach because it was a way of researching what happens in school as a form of '"lived visual data"' (Emmison, 2004:260). As such, it contrasted with representations of space such as scale drawings and plans which are used to provide particular abstractions of the world and render it simply but in a socially sterile fashion for architects (Till, 2013:178). Indeed, it has been argued that the built environment has been underexplored through ethnography (Atkinson and Delamont, 2005:827).

However, ethnography is predicated on an intensive involvement with a group of people and would depend on an opportunity to study in this way. Fortunately, in early 2013, my

supervisors had negotiated a collaborative research partnership with PTA who would contribute a small amount towards a research studentship. The partnership therefore defined the site and, to some extent, the focus. In September 2013, I began to visit the school periodically over that first year whilst also reading widely in order to define my approach.

That approach was of course influenced by my own interests and experiences. Just as research cannot leave the researcher out of its science, so the actual focus is shaped by their presence. Critical realism recognises the 'perspectival character of knowledge and experience' (Sayer, 2000:30) whilst positing an 'independent reality of being' (Bhaskar, 1998a:x). And my own knowledge and experience had a particular perspective, education being the area I had worked in for 12 years prior to beginning the research, leading educational and cultural tours, and teaching English overseas and in a London secondary comprehensive school.

1.3 Research Questions

Drawing on the literatures of school design and sociology of space, the theories of Hertzberger and Massey, realist philosophy, my own experiences and preliminary fieldwork and interviews in PTA, by the end of the first year of the PhD I had developed three main research questions:

> **RQ1**) How does PTA's design draw on and operationalise ideas of transformative, 21st century education?
>
> **RQ2**) What are 'flexible learning spaces', what facilitates or inhibits their flexibility and how do these factors relate?
>
> **RQ3**) What – and where – is the role of teachers in policies and architectural discourses of innovative spaces designed to transform education?

1.4 A Brief Introduction to Pottisham Technology Academy (PTA)

This section provides some key facts about the school and its design so that the reader has at least some context before Chapter 5 where I present the findings.

PTA is a mixed, 11-16 Academy school in a Northern English city that opened to 210, Year 7 (ie aged 11-12) students only, in September 2010. Each subsequent September a new Year 7 cohort joined the school until it reached capacity at the beginning of the 2014/5 academic year. The school is now still at capacity with the student number on roll making it slightly larger than the median of English state-funded secondary schools[1].

It was a new school to its students of course, but new also to the area as a building and as an institution (the only previous secondary school in the immediate area had closed some twenty years earlier). The two years of my involvement with the school covered part of its fourth year of operation, all of its fifth and part of its sixth. As a result, I saw the school grow in size from an 11-15 school to an 11-16 school when its first Year 11 students (who had been the Year 7s arriving in 2010) took their GCSE exams and left the school, and some of an additional year following these first public exams.

In terms of design, I include below three quotations from three documents relating to the design and construction of PTA. Others are used throughout the thesis. However, because research findings are not presented until Chapter 5, it may be useful for the reader to have at least something at this early stage to orient the subsequent discussion on BSF, transformation and so forth. The documents are referenced anonymously in Appendix A.

1) 'To deliver education transformation, the designs of our schools will be different' (Pottisham County Council, 2008:2).

[1] Exact number of students not included to hinder identification. Comparison based on data collected in the January 2015 school census and published in Excel Spreadsheet 'National tables: SFR16/2015', table 2f, available at https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2015 (accessed 17/3/16).

2) A Design Statement presents the conceptual justification and organisational outline underpinning a construction project and is usually submitted to the local authority. It includes environmental and demographic information too, but for my purposes, it is the design philosophy and ways of realising it that are of most interest. Overall, the project had eight purposes, but only one is directly relevant to this study: 'to … plan adaptability to allow for future changes in curriculum or educational requirements' (Pottisham BSF, 2009:10). This was followed by 'The Brief' which described the teaching and learning spaces themselves. I cite it verbatim:

> Teaching accommodation is to be organised around a year base approach for KS3, evolving to a subject based approach for KS4 and is to centre on the concept of the Large Learning Area/Flexible Learning Zone.
> The Flexible Learning Zone (or FLZ) is to support activities such as;
> - Presentation Space (staff or student-led)
> - Group Learning (including 'traditional class teaching)
> - Collaboration working (small groups, leaderless, egalitarian.
> - Individual (informal learning/social space/ICT rich)
> - Outdoor learning
> - Display Spaces
> - Resources
>
> The benefits of this approach are to;
> - Enable personalised learning agenda to be delivered more easily.
> - Enable the widest range of learning formats to be used; from team teaching to traditional classroom work to individual mentoring.
> - Give students more control over their learning by giving them freedom to choose/move.
> - Enable the 'Every Child matters' Agenda to be more easily addressed.
> - Be more responsive and adaptable to future changes in education.

3) 'Size of LLA - Maximum possible, to give greatest flexibility?' (Pottisham County Council and Anon Education Consultancy, 2008:10).

1.5 Thesis Organization and Chapter Synopsis

The structure of this thesis reflects the critical realist philosophical approach I take, one of *underlabouring*, a process of 'clearing ground a little' (Locke, 1985 [1690]:xiii, cited in Lawson, 1997:300) and 'demystifying inconsistencies, unreflected-upon assumptions and confusions' (Martins, 2006:672). In real terms this means that the thesis is front-weighted a little (word-wise) to account for the conceptual clarification necessary: there are two preliminary background chapters that do conceptual work (Chapter 2 focussing on the literature of school design and Chapter 3 on spatial, architectural and semiotic theory). Chapter 4 explains the Research Design and is followed by three chapters (Chapters 5, 6 and 7) which discuss the findings. Chapter 8 concludes.

Chapter 2 ***Transforming Education through Innovative Architecture***

This chapter introduces and critiques three key concepts: educational transformation, architectural innovation and 'flexible learning spaces'. To varying extents these are all part of the spirit and often the letter of Building Schools for the Future nationally and locally (in the design of PTA). I draw on policy documents and literature on school design to show that educational transformation through architecture is often imagined as a process in a closed system and that it rests on assumptions of architectural determinism. Policies and designs propose flexibility as a way of achieving 21st century education but what these terms mean is vague. I begin some of the clarifying work.

Chapter 3 ***Conceptions of Space and their Implications***

This chapter draws on spatial and architectural theory to continue the clarification work started in the previous chapter. The writings of Doreen Massey, Andrew Sayer and the architect Herman Hertzberger are especially helpful since I argue that architectural determinism is really a special case of spatial fetishism (where space is abstracted from time and process, and assigned causal powers). I also draw on social semiotics to explore Hertzberger's aim that space incites interpretation.

Chapter 4 ***Research Design***

The research strategy develops from a critical realist philosophy which I show is an appropriate and effective grounding for the ethnographic study used to explore PTA's learning spaces, their uses and meanings. I explain my broader methodological approach

and my research tools – principally participant observation but supported by documentary analysis, interviews and questionnaires. I also explain how I analysed data and comment on its quality.

Chapter 5 ***The Building of Pottisham Technology Academy***

I relate the academy building to national and local BSF policy through interviews with the architect, academy staff and policy documents. I explore these people's attempts to define a 21st century school and education, and how they use architecture and space to do that.

The chapter also serves as an introduction to the school: it starts by focusing broadly, on the planning, and then on where the academy is sited and its relationship to the surroundings. The second half of the chapter turns to PTA's interior spaces and layout.

Chapter 6 ***Learning Spaces and the Possibility of Flexibility***

This chapter explores flexibility in practice. Based on data from interviews, questionnaires and participant observation, I explain how PTA teachers use and think about the learning spaces, why using spaces flexibly was often difficult and how space and other resources helped and hindered them in their work.

Drawing on the empirical findings and theoretical work, I show that the flexibility of learning spaces as an independent, inherent property of their design is untenable ontologically, unhelpful heuristically and potentially unethical. By drawing on Amartya Sen's capability approach, I argue for a reorientation of flexibility towards people's real possibilities to act in ways they want.

Chapter 7 ***The Policy and Ethics of Flexibility and School Design***

Here I consider BSF policy and flexibility in broader social and political terms. I explore how policy framed people in relation to transformation, how architecture itself was used as a policy instrument and how flexibility can be a burden. Rather than reaching for the 21st century as much of the BSF messaging seemed to imply, I argue that school-building

and architecture worked, along with other trends in education, to further fragment a shared sense of education.

Chapter 8 *Conclusion*

I respond to the three main research questions, explain how the thesis contributes to knowledge and suggest directions for future research on flexibility and on school design more broadly.

Chapter 2 Transforming Education through Innovative Architecture

I use the three main sections of this chapter to situate the planning and realisation of Pottisham's BSF school – Pottisham Technology Academy (PTA) – within the wider trends and discourses of architectural innovation, education transformation and the contemporary English education system.

The chapter has two objectives. First to describe the educational and architectural cultures in which PTA came into being and second to explain how those cultures appeared to influence both how PTA was planned and designed, and how it might subsequently be lived and experienced.

This is the first main chapter of the thesis and the concepts presented here are explored further in Chapter 3 where I bring spatial, architectural and semiotic theory into dialogue with the substantive content of this, current chapter.

I start in **2.1** with an introduction to academy schools and the secondary education system in England to contextualise BSF and to make PTA's operating conditions explicit. In **2.2** I describe BSF and discuss the proposition of transforming education through architecture. Section **2.3** explores the particular inflections of educational and architectural innovation that coalesce in 21st Century learning spaces.

2.1 Academies and England's Education System in the early 21st Century

This section explains first the significance of PTA as an Academy school and then the wider school system of which it is part. Common factors between the two are claims of freedom and independence (often from local government) on the one hand and, on the other, evidence of schools' limited domain of freedom in their everyday operations. Later, in Chapters 5, 6 and 7, I will refer back to the role of context and what it means for the

possibility of realising architectural intentions – transformation of education and flexibility especially – given these restrictive operating conditions.

Academies and Academisation

PTA is an academy, a relatively new type of school in England that began with the Academies programme in 2000. This was intended, as their political sponsor and organiser, Andrew Adonis, notes, to bring about 'educational transformation' (2012:xii). However, academies draw on earlier school models too, including Grant-maintained schools and City Technical Colleges. The latter were particularly admired in policy circles because their independent structures and focus on strong leadership meant they could be 'free of the shifting sands of local and national education bureaucracies' (ibid:56). Academies are similarly 'free' of local government control and effectively independent schools operating with public funding in the state school sector. In these respects, they are similar to Charter Schools in the United States and Free Schools in Sweden (Machin and Vernoit, 2011:2).

Although initiated by a Labour government, the appeal of academies' claimed liberatory potential has meant their number expanded under the UK's Coalition (2010-2015) and Conservative (2015-) governments. The latest Department for Education figures (DfE, 2016) show that 65% of English, state-funded secondary schools are now academies. Academy ideals therefore show continuity across political parties with a Coalition government White Paper echoing its predecessor's emphasis (above) on freedom, especially negative freedom or freedom *from* via the claimed need for 'decisive action to free our teachers from constraint' and to 'free[...] schools from external control' (DfE, 2010:8). How this might relate to a positive sense of freedom, the freedom to, remains unclear today and I return to this issue in Chapters 6 and 7 through Amartya Sen's work on capabilities (1995) which I use to explore the concept of flexibility.

Particularly in the early period of academies, when Pottisham was exploring how to access BSF funding and relatively few examples of academies existed, much was made of the new-ness and difference of this new type of school. Academies therefore shared with BSF a self-consciousness about their type-breaking innovativeness:

> [a]n important part of [academies'] remit is to think and act 'otherwise' about learning and organisational practice and to escape from the 'limitations' of traditional organisational ecologies (Ball, 2007:172).

New 'organisational ecologies' meant that academies were (and still are) directly accountable to the Secretary of State rather than a local authority. Earlier academies (including PTA) had sponsors who, in place of the Local Education Authority, were responsible for overseeing and managing a school including the school's performance and finances, and recruiting the head teacher (DfE, 2014:online). Other Academy 'freedoms from' include a no-longer obligatory National Curriculum meaning that (with some exceptions) academies can develop their own.

Despite these freedoms, academies operate within a school system that has system-wide effects. For example, Higham and Earley's research on 2,000 English school leaders of all types found that in terms of 'freedom to act, government was seen to retain tight control over schools' (2013:15). Academy-ness was no automatic shield against this happening. The same study showed a general trend towards increased operational freedom and responsibility, and reduced control over the aims and purposes of schooling (ibid:13). This conflicts with how BSF would be done since 'Heads and teachers' would need 'to be able to articulate the educational vision' of designs (DCSF et al., 2008:30). I explore the implications in Chapter 7.

Finally, it is important to note that Pottisham has what might be called a mixed model in terms of political governance. Its academies and sponsors were solicited, together with BSF funding, by the local council. In addition, a Pottisham councillor sits on the Board of Governors and BSF (including some of the educational vision and general design principles) was managed by the local council.

I turn now to the wider school system in which PTA operates in order to situate the school in a context which partially explains the limited scope for (and risks of) educational and architectural innovation.

High stakes and Risk-averse: another kind of 21st Century Education

This section explains how English secondary schools operate in a high-stakes environment where (in terms of provision) they are part of a highly fragmented school system. Paradoxically, however, schools are also tied together by (and tied *into*) an increasingly powerful and risk-averse assessment culture.

This culture exists to a lesser extent outside of England too. I am not advocating the abstraction of English schools from wider international trends, so risking 'methodological nationalism' (Grek, 2014:268; see also Jessop et al.'s 'methodological territorialism', 2008:391). There are general educational patterns beyond England as Osberg and Biesta (2010:1) note:

> One discourse surrounding education is that of 'control', and many policy makers and politicians continue to express a desire for making education into a perfectly controllable and perfectly predictable technology.

Hence, England shares many features with other countries: a trend towards seeing education as (or making education into) a closed rather than open system, inspired by metaphors of mechanisation. It therefore shares a great deal in common with architecture too as I discuss in the section, Architectural Determinism, later in this chapter.

Yet England's schools *do* differ from those of many other similarly wealthy countries and these differences require consideration if the context of architectural design is to be meaningful. English schools are parts of a system that has, unusually, a 'long-term investment in high stakes testing, and [a] highly sophisticated system of data production

and use' (Grek, 2009:34). That high-stakes-ness is increasing (Leckie and Goldstein, 2017:online) and has knock-on effects for both students and teachers. For the former,

> Narrow testing regimes, reliant on coaching and practice to produce higher and higher grades, which actually signify less and less in terms of educational achievement, are unlikely to produce flexible and creative individuals over the longer term (Torrance, 2017:93).

This signals the first of many conflicts between the architectural intention of 'flexible learning spaces' and studying, teaching and managing a school in England, today. For teachers, there are effects too: England's teachers work for almost 20% more hours per week than the average of 36 participating jurisdictions in the OECD's 2013 *Teaching and Learning International Survey* (TALIS). Of those 36, only teachers in Alberta and Japan work more (Sellen, 2016:7). Sellen concludes that:

> it is plausible that a 'high-stakes' approach to raising performance has created a long-hours culture in a highly competitive school system (ibid:51).

At an organisational level, England is unusual too. In a recent mapping exercise, Steven Courtney (2015:16) shows that there are 'presently between 70 and 90 different types of school in England' and, as such, 'no longer a school "system" in England' (ibid:2). I think that there *is* a school system in England but that we need to distinguish between school provision and national school management via its 'highly competitive school system'. Doing so allows us to accept the main thrust of Courtney's argument – that competition between schools encourages them to emphasise their individuality – and also enquire into constraints that originate at a national level and that work across all schools i.e. that tie schools into a veritable *system*. Rather than fragmentation alone, there is fragmentation and unification.

So, if competition separates schools, it also joins them. This is principally the work of two national bodies working in parallel but whose activities support one another. Qualifications and their assessment are regulated by The Office of Qualifications and Examinations Regulation (hereafter Ofqual). School performance and standards are

inspected and regulated by the Office for Standards in Education, Children's Services and Skills (hereafter Ofsted).

The role played by Ofqual and the uses of assessment data have developed significantly in recent years, continuing a previously established trend but at a much faster rate. Starting in 2012, the Secretary of State for Education, Michael Gove, sought to reform education in England and to prevent a 'flight from rigour' (Gove, 2014:online).

The then Chief Regulator and CEO of Ofqual, Glenys Stacey, was concerned enough to write publicly to Mr Gove about the potential effects:

> if qualifications (and by implication curriculum and teaching) are limited only to those things that can securely form the basis of good accountability measures, the classroom experience is likely to be more limited (2012b:online).

Many of Gove's reforms were not implemented. However, those that did had a recurring and pronounced effect on school activities and their architectural facilitation and/or limitation as I will show in later chapters.

The 'high stakes'-ness of assessment and its role in shaping English education can be understood as part of broader, risk-averse educational climate. Glenys Stacey explains the importance of regulating the assessment market, this time in a speech at an assessment conference:

> When regulators get together, that's pretty much all we talk about – risk, and the risky things we regulate. It is always a hot topic for us … we work in an area that is high volume, complex, high stakes and where media interest is high and risk tolerance is low (2012a:online).

It is in this context, therefore, that PTA as I researched it can come to be seen. It is a context and an educational culture – even an economy – that is disciplined with threats of whole-school, penalising judgements from Ofsted and potential job losses for head teachers if they fail to get expected results. It is a culture and market that is much wider

and deeper than one school. It is marked by the need to manage risk, a culture whose forms of system control are regulated by desires and perceived needs to please and stabilise the qualification market and the media's reaction to changes therein. It therefore has causal powers that affect what a school can do and what the people in the school can do and so needs to be taken into account.

Into this increasingly risk-averse climate in the early years of the 21st century comes Pottisham's own BSF. As cited at the very beginning of the thesis, this was a programme that welcomed risk in a rather self-conscious fashion. BSF was about 'step change, innovation, stretch goals, challenging orthodoxies, and will potentially involve radical shifts from current practice' (Partnerships for Schools, 2009:5). This, from Partnerships for Schools' (hereafter PfS, their role is explained below) *Schools' Strategy for Change: Guidance for schools and local authorities* document, expresses a perhaps unrealistic hope given the constraints that teachers and schools work in. These aspirations, written in a blend of the future and present tenses by people who will not inhabit either the buildings nor the spaces or time that result, is a lot to ask from those whose eventual role it will be to attempt their enactment.

2.2 BSF and Transformation

This section introduces the BSF programme, initiated by a Labour government in 2003 and cancelled in 2010 by a Coalition government. It focuses more on the *concept* of educational transformation promoted within BSF and the assumption that architecture could be a means of achieving it, than the programme's structure or BSF as a policy. There are three reasons for this.

First, I leave discussion of BSF and policy until Chapter 7 where I approach it and flexibility in social terms – the ways that in PTA and beyond, BSF and flexibility seemed to represent a re-thinking of how the relations between the state, schools and citizens were to be imagined.

Second, PTA was not typical of the BSF programme in a number of ways. It was built under a 'Traditional' contract with the Architect employed directly by the client rather than 'Design and Build' or 'Private Finance Initiative', the more common form for BSF. This means that some of BSF's legal dimensions were less applicable to PTA while the discursive content remained highly relevant. In addition, since PTA was a mixed model academy with a strong local authority involvement (described earlier) some of the broad legal and financial arrangements of BSF are less relevant.

Third, there are now many thorough accounts of the programme itself. These tend to be institutional prior to 2010 and to originate within academia after the programme's cancellation in 2010. They include government-commissioned reports (PricewaterhouseCoopers, 2007), investigations by think tanks (Quarmby and Fazackerly, 2009), reports by or for Parliament (House of Commons Education and Skills Committee, 2007; National Audit Office, 2009) and so forth. Within academia more recently are a number of critiques specifically focused on the BSF programme itself: Mahony et al., 2011; Horton and Kraftl (2012); Kraftl (2012); Granoulhac, (2013); Mahony and Hextall, 2013. Hence much work on BSF's structure has been done and these texts are useful to ground my own study but I draw selectively from them rather than replicate them.

More relevant for PTA then rather than the BSF programme and its mechanisms, were the messaging, sense of urgency and other aspects of the discourse enveloping BSF: transformation; the possibility of school design changing education; a future-reaching orientation. These certainly did find their way into local Pottisham policy and, in one form or another, into PTA, hence my concentration on their influence.

BSF: history, policy and purpose

The political pronouncements at the time and commentary since facilitate a reading of the BSF programme that emphasises scale and new-ness. As Mahony and Hextall note, BSF was *ambitious* in size and the extent of its claimed causal powers:

> BSF combined a formidable expansion in the infrastructure of social and educational provision with explicit themes of economic, social, educational and community transformation (2013:854).

The vast sums involved (a projected £55 billion) and the risks inherent in such a wide-ranging initiative made BSF seem, perhaps, exciting as well as urgent. The House of Commons Education and Skills Committee's contemporary (2007) take on BSF indicates some of its importance and novelty:

> **It is worth emphasising the scale and scope of BSF; there is no project like it anywhere in the world. Not since the huge Victorian and post-war building waves has there been investment in our school capital stock on this scale**, and of course the potential for new ways of learning has moved on considerably since then. Investment in the three decades before BSF was announced had been minimal, meaning that there were very few architects, procurement experts or Principals in the system with experience to build on. Even the research base has little to tell us about how we should design sustainable learning environments for the future (original emphasis, ibid:12).

What is remarkable is that despite the lack of experience and knowledge throughout the system, it is also unclear what BSF was really for, educationally, other than that which could be indicated by 21st century-ness. Early in the programme, it was established that 'Schools must be designed to meet the needs of pupils and teachers in the 21st Century' (Department for Education and Skills, 2003:24). This orientation was retained up to and beyond 2008: 'BSF will transform every secondary school, providing 21st century learning environments' (Department for Children, Schools and Families et al., 2008:83). These environments would be 'world-class' and 'enable generations of young people to reach their full potential' (ibid:1).

And yet, in the parliamentary report, the Committee ask:

> The crucial question here, and one that the Department has not fully answered, is what do we want education to be in the 21st century? (House of Commons Education and Skills Committee, 2007:4)

Just two years after this parliamentary quest for guidance on what education is and so at the time that PTA is being planned, the independent Nuffield Review (the largest study on secondary education and training since 1959) comments on the piecemeal interventions of government. The report notes that they:

> …do not cohere in some overall sense of purpose. There is a need in policy, and in the provision and practice of education, for a clear vision of what all these interventions and investments of money and effort are for. What is the overall purpose? (ibid, 2009:3)

Broadly across the education system and in BSF, there appears to be plenty of money but a relative lack of clarity regarding aims, justifying Mahony et al.'s observation that 'it is sometimes difficult to pin down exactly what is supposed to be achieved through BSF' (2011:346). Certainly, in the architecture world, Sam Jacob's view of BSF as a programme takes, in this piece for *The Architectural Review*, a critical slant emphasising its structural ambitions:

> …the idea of a school was a function not of any philosophy of education but of supply chain efficiencies as administered by global contractors: the mechanism of building a school was the focus (2015:online).

This is key. BSF was a *mechanism* – as if it belonged to a closed system inscribed through language into the world of systems and physics. This mechanism was tied to others so that the programme would have effects on other elements in the system. Specifically, it would transform buildings, the functioning of schools and make for 21st century teaching and learning:

> BSF is not simply a building programme. The programme creates an important opportunity to transform the way secondary schools function, developing buildings for the 21st century with teaching and learning to match (DCSF et al., 2008:5).

Mirroring the national-level messaging, PTA's planning was undertaken by Pottisham County Council who had received authorisation and funding for six academies. PTA was therefore inspired with a similar reach towards the future and transformation would be delivered unto the people of Pottisham, as to the nation as a whole. Pottisham BSF is explored further in Chapter 5 where I draw on interview data from PTA's architect, school leaders and local council documents.

Future-Reaching: Architecture as a Lever of Transformation

In the introduction I cited Arnulf Lüchinger's criticism of the future-reaching mentality associated with architectural modernism and noted how he summoned Hertzberger as a designer developing alternative responses based on *current* needs. This section presents a critique of BSF as a future-reaching policy agenda with more than a whiff of the modernism that Hertzberger and others rejected. My main point is not about modernism *per se* rather that BSF and other architectural discourses are inherently problematic when they posit the world as something requiring transformation. Difficulties arise because of several *dislocations*: between the past and the present; between the present and the future; between design(ers) and use(rs); between knowledge and aspiration and more.

I first of all describe the problem of future-reaching and, like Lüchinger, use architects with alternative stances to offer a critical counterpoint, as well as other writers such as historians and education researchers to show that this is not only a disciplinary problem. I then move to explain *how* future-reaching comes about and the more specific mechanisms through which it is represented. I close this section by exploring the problem of architectural determinism and show how it affects architecture in general, school design and BSF leading to overly simplistic causal models where buildings are assumed to affect human behaviour. I make links between architecture and policy and show how the two fields often exhibit common patterns of thinking and reproduce similar discourses.

I begin with what might seem a banal point. Building schools for the future means not building schools for the present. Temporally and discursively, these imagined schools are positioned *beyond* current users and immediate needs. This is the first dislocation and it represents a rupture in time, experience, risk, knowledge and use. It has to be imagined what and who these schools will be for and what they will do. In terms of fulfilling their intentions, success is predicated on accurate prediction.

Future-reaching is endemic in education which is 'centrally concerned with promises for and assumptions about the future' (Craft et al., 2013:90). This is partly understandable for modern, state-organised schooling systems in which education has to be 'provided deliberately' (Ward, 1995:93) and therefore planned and paid for. However, it is how this happens that is most relevant to my argument since a 'tokenistic treatment of the future has become particularly bound up with instrumental and determinist notions of technology' (Craft et al., 2013:90) and – I demonstrate – architecture. For Françoise Granoulhac, technology, architecture and the future coalesce in the Academies programme forming a kind of 'trinity[2] of technology-innovation-buildings' (2013:10). Further, it is because architects have a 'penchant for imagining futures that never arrive' (Moore, 2016:online) but are nevertheless paid to keep on imagining new ones that the coalition between educational and architectural future-reaching is so resilient and sometimes very harmful.

Before continuing, I should acknowledge that by using or citing 'architects' I am referring to a discourse, a particular way of enacting and discussing architecture rather than the people themselves. This will become clearer throughout the thesis. Architecture here has a parallel to Neil Selwyn's argument (2011:6) that digital technology as well as 'contemporary educational change' in general should be considered:

> as part of a broader set of recent societal phenomena, not least the rise of a restructured free-market capitalism that lies at the heart of much – possibly all – contemporary societal change.

[2] Triptych is more accurate: 'le triptyque technologie-innovation-batiments', but rare in English.

As a result I am in interested less in architects *per se* than in possible architectures as differing approaches to how the future might be built and where people sit in relation to that imagination. Ultimately, architects follow briefs, and these are closely tied to organisations' funding priorities. It is governments and other organisations therefore who decide the ways in which the money should be converted into buildings. However, government and others draw on the ideas and discourses, including architectural ones, available to resource their own decisions.

One example of those organisations, for example, is the OECD who are contributors to the restructuring of capitalism and societal change. Architects respond to rather than initiate questions such as: 'How can design transform existing facilities to achieve future educational goals?' (OECD, 2006:11). The future-reaching here is provoked by the OECD: they are not *present* goals we should seek but future ones, a twice-removed future-reaching.

This is very different from how school design has sometimes been imagined in the past and to how Hertzberger, for example, imagines it now. David Medd, a post-war school architect in England, explains the purpose of his and his wife's architecture (Mary Beaumont Medd, also an architect) was

> to design not for an unidentified future, but for the present … designing for the Future … is what led to the menace of the open plan. The argument was that the future of education is unknown therefore remove any obstructions the building may impose. Designing for the unknown means designing for nothing (2009:43).

Medd's views represented a progressive strand of thinking in England about school building and schools that continued until the early 1970s and where:

> vision was understood less as a projection into the future and more as an act in the present, educating the eye of teachers and children to see schooling in new ways in striving toward educational transformation. The collective efforts of a number of key individuals were to redefine school not so much to fit a future society as to fit the child's developmental, social, emotional and learning needs in their present (Burke, 2010:66).

This way of seeing connects with recent moves to re-think how we perceive of and go about constructing the future. Here, against future-reaching, 'education research needs to ... find ways to mobilise *the present* as a resource of powerful contingency and possibility' (original emphasis, Facer, 2013:142). In Chapter 3 I will draw on Hertzberger, Doreen Massey and others to synthesise an approach to architecture that can meet the call made here for focusing on the present and possibility. Now, however, I turn to further dislocations, first between the use of school buildings and their design and second between the values and philosophy of an educational present, and a future in which it is not known what values or philosophy might apply.

Transformation and the Problem of the Missing 'How'

The discourses and buildings of future-reaching policymakers and architecture are at odds with much that we know about school design. Andrew Saint, for example, emphasises the need to ground innovation in context and also explains how education should guide architecture. The following quotation is long but revealing in its commentary on the misapplied use of open plan classroom design in 1970s' Britain:

> …the generous space-standards which prevailed in the richer American school-board districts gave the concept [of open plan] some plausibility and success. Britain succumbed to a short-lived clamour for the open plan, an easily grasped idea which excited the shallow-minded, less among teachers than in the architectural profession. It was opposed by A & B Branch [the Architects and Building Branch, a multi-disciplinary unit within the then Ministry of Education that researched and advised on school building] on the grounds that with the lower English space-standards the results would be claustrophobic and rigid, not flexible at all. Only a few English 'open-plan' schools were built … It was always the view of the English school-builders that space in schools, however desirable in itself, should be linked to a clear educational philosophy of its use (1987:211).

Saint's point is not only about the importance of a relationship between school space and educational philosophy – he qualifies the mode of that relationship: the philosophy should have primacy over the spatial design. Form should follow vision and function.

Dislocate the two by, for example, transposing architecture into the future and there will be problems, Saint seems to suggest.

This is certainly the view of more recent commentators. In their case study of 'innovative' Scandinavian schools, Leiringer and Cardellino caution that 'innovations in building design should not be allowed to outpace developments in teaching methods' (2011:932). The teaching and educational culture of the school should be followed and supported by form:

> Design solutions that do not fit underlying values are unlikely to have a significant positive impact on the delivery of teaching, indeed they might have an entirely opposite effect (ibid:931).

Gislason's empirical research (2010:128) further confirms that educational vision matters, and should lead design. Other sources long available at BSF's outset also voiced serious concerns about expressing 'changing educational ideas in architectural form' (Seaborne and Lowe, 1977: 212). How the architecture-educational vision relationship should be modelled raises a number of questions. One regards what flexibility is for, which I address in Section 2.3.

Another question challenges the aim of BSF at both national and Pottisham levels – to use buildings to transform education. Jacob (2015:online, cited earlier) noted the lack of a 'clear educational philosophy' as did Parliament's Education and Skills Committee (2007), also cited earlier. Hence, although there was plenty of guidance on what good design was and how to achieve it – indeed, even an 'abundance' (Leiringer and Cardellino, 2011:916) – the key problem was that that 'formal documentation falls somewhat short in describing how design quality can be fostered to achieve the aspired to "educational transformation"'.

It could therefore be said that with BSF there was a missing 'how' accompanied by a lack of philosophical guidance. That 'how' would have to be found as would a philosophy. The people responsible for finding them would be very different people, in a different time

and space from those who proposed architecture as a solution to educational transformation. This will become a thread connecting Chapters 5, 6 and 7.

Crisis, Missed Opportunities and Being Left Behind

Much of the energy surrounding BSF seems to have been encouraged by representations of urgency – if we do not act now, opportunities will be missed and people will be left behind. Good things come to those who, instead of waiting, seize the initiative. Perhaps this was the missing educational philosophy. It was 'a historic opportunity' (2003:4) the Department for Education and Skills wrote. The urgency and extent of action were justified by the obvious necessity to keep up with previous great initiatives:

> The Victorians bequeathed a visible inheritance of their commitment to education. It is now time – indeed, the time is long overdue – for us to start the systematic renewal of all schools, so that our legacy to future generations is at least as great (ibid:5).

This was not only 'public facing' marketing speak. Significantly for this research, local authorities were told that 'it is crucial that local BSF projects are ambitious and visionary' (DCSF et al., 2008:14). In addition to the urgency, there seems to be what Stephen Gorard calls a 'crisis account' (2000:309-10) where the current educational situation is made to appear worse than it is by comparison to a better age. The past is brought back in as a comparator with which to serve out rhetorical inspiration whilst confirming the inadequacy of current schools.

Some of these crises and dramatic-sounding injunctions to avoid being out-of-date appear in architecture too. For example, a paper on new learning and working environments stresses that:

> the way we connect is changing so much, so fast that organisations that aren't architecturally nimble face the risk of being left behind (Hutton and Kaicker, 2014:236).

Being nimble means flexible design and is not just important, but the antidote to failure. For Dana Cuff, an architect and professor of architecture who has also studied the profession from the perspective of anthropology, these existential threats form part of architecture's 'crisis mentality' and serve to stoke innovation:

> Within architecture's crisis mentality, a dire state of affairs is variously attributed to the economy, stylistic confusion, a lack of creativity, poor construction, the state of education, and so on. This professional anxiety can serve as a call to action that intellectuals and practitioners produce and listeners grasp. A convincingly significant message of catastrophe demands collective response. The digital revolution, the surveillance city, the World Trade Center site, the Katrina-ravaged Gulf Coast, global warming – each has been variously construed as a crisis that requires architectural remediation … Disaster scenarios hold the potential for innovation: the old ways have not worked, so new solutions are necessary (Cuff, 2012:390).

This is not to say there is no truth about the nature of a given crisis but rather it is how the crisis is used. Hence, school improvement and (re)building seems reasonable given that 'Investment in the three decades before BSF was announced had been minimal' (House of Commons Education and Skills Committee, 2007:12). However, the positioning of the school estate as so far behind and the demands of the 21st century arriving so quickly perhaps help to frame people as subject to what can seem as external, real forces.

There is an analogue in education where 'the role of fear, and particularly the fear of being behind and the fear of being left behind' (Biesta, 2015:351) are exacerbated by countries' participation in international assessment systems. The mechanism appears to be different (exams, not out-of-date school buildings) but its essence is comparison (the need to make sure our human capital development keeps up with other countries' or other great achievements in the past). Architecture and education are hurried into dramatic, future-oriented solutions to perceived shortcomings.

One way of reading BSF is as part of a shift in the discursive management of education. Innovate or be left behind and suffer the consequent crisis is one way of reading it. For this to happen, it would be necessary to be different, to really 'push the boundaries of the possible' (Partnerships for Schools, 2009:5). In this manner, people, I argue here and

throughout this thesis, are forcibly dislocated from the imagined and designed spatial processes that involve them. They are positioned either to the sidelines of architectural and educational innovation or redefined as outputs of a transformational, causally determinative process as the remainder of 2.2 will show.

Be Different to Be New and Better

A sense of doing things differently pervaded all levels of national BSF policy and in Pottisham too where it was the difference of its school designs that would deliver education transformation (Pottisham Country Council, 2008:2). In a 2008 report on the Academies programme commissioned by the Sutton Trust, a team from the Institute of Education cite the then DfES (Department for Education and Skills) on the implementation stage of Academies:

> The most noticeable feature of this stage, however, will be the building works, creating a visibly different school and contributing to the establishment of a new ethos and a growing expectation that the new Academy will make a real difference. New buildings will also help raise expectations and demonstrate the investment that is being made in the local community (DfES cited in Curtis et al., 2008:40).

The semiotic work performed by a 'visibly different school' is charged with 'mak[ing] a real difference' but is not explained, leaving it unclear how difference, in itself, can cause further difference. 'Different' and 'innovative' are relative terms; they require referents – different from what? The lack of any referent suggests that somehow difference may indeed be enough to add value – part of the strategy of branding that both Husbands (2016:online) and Courtney (2015:16) see Academies engaging in. For Courtney, this is where 'distinctions deployed as brands are intended to enhance [a] school's position in the field relative to other schools' (ibid). However, there is also a sense that in spite of individual differences, this is the beginning of a new architectural *type*. Academies…

> literally stand for and represent, in their buildings and infrastructure, new, bold and different thinking – more of the dynamic rhetoric of New Labour …

> As texts the Academy buildings are enactments of a new 'imaginary' economy (Ball, 2007:172).

However, the sense of new-ness, innovation and being different that academies project is not limited to the kind of contribution that Ball suggests. In Pottisham, difference itself is marshalled as a causal power effecting education transformation since it is the different design that PCC expected would transform education.

Architectural Determinism: ways of seeing that obscure what people do

The possibility of such transformation rests on the assumption that actions now will affect later outcomes. As many of the BSF programme statements suggest, it is important at a political level that those outcomes are intentional. As such, transformation describes a causal relationship whether or not a particular model of causality is specified or, as often the case, is left implicit and assumed. That holds at a national level and locally too: 'To deliver education transformation, the designs of our schools will be different' (PCC, 2008:2) is a causal statement and an example of a wider problem in educational and architectural writing and theory.

In essence, the problem is that school design is imagined as a mechanism operating in a closed system that wholly and without assistance or interpretation *delivers* the transformation of education. School design is assigned the causal power to transform education and as both a rhetorical flourish and an ontological expression, it is problematic.

The statement is an example of 'architectural determinism[3]'. This, for Alexi Marmot, an expert in the fields of design and research on buildings in use, is 'the term applied to the concept that building environments directly affect behaviour and attitudes' (2002:252). The case of PTA is not unique. There is a *tendency* that: 'Designers … promise that a new

[3] Architectural determinism is not a new phenomenon and comes by other names (see Herbert Gans's 'Fountainhead syndrome' (1977:26) for example; also Jameson, (1984a:xvii)).

environment will change behaviours and attitudes' (ibid). For Maurice Broady, who coined the term in 1966, architectural determinism 'implies a one-way process in which the physical environment is the independent, and human behaviour the dependent variable' (150).

Architectural determinism is a key concept for this thesis in two ways. First, I use it to construct an argument as to why deterministic discourses are harmful for thinking about schools and, ultimately, how this research might go some way to counteracting them. This is therefore a critique and response to the literature. Second, the concept is also useful at a more theoretical level since central to architectural determinism is an abstracted treatment of space to which causal powers are assigned. This has been called 'spatial fetishism' (Sayer, 2000:112). It is necessary to get to the philosophical underpinnings (and blind spots) of that fetishism in order to appreciate the extent and nature of the discourses and logics that promote particular understandings of space over others and particular treatments of people by deterministic thinking. As a result, I use architectural determinism here to enquire into the literature on architecture and school design and again in Chapter 3 but approached from a more philosophical position.

Architectural determinism has significant implications and therefore requires unpacking and exemplification. For Broady, it is 'more often found implicit in architects' thinking [rather] than in any clearly argued form' adding that it is 'probably the more dangerous for that' (1966:150). Representations of that thinking appear in language where they present and reproduce ideas about space, design and architecture directly contributing to behaviour. For example, later I will explore the idea of 'flexible learning spaces' because I think this phrase is more than a name – it presents a series of claims about these spaces and, because these are spaces for people, a claim also about the social world and people's role in it. In short, a flexible learning space is an ontological proposition not simply a 21st century descriptor for 'large classroom'. Resolving these problems of ontology is important because the nature of things that we study as objects of social science often:

> lack plausible, well-defined and locally consistent scientific ontologies. One of the pitfalls of the social sciences is that we may assume that they *do* have such ontologies and accept unthinkingly the sorts of ontological categorisations that appear implicit in social theories, or even in our everyday language about the social world (original emphasis, Elder-Vass, 2010:70).

Further, in architecture, language influences how buildings are materialised. The architect and researcher Thomas Markus and discourse analyst Deborah Cameron explain that briefs, design statements, policies of architectural intention and so forth are:

> products of linguistic choices which construct reality in particular ways. And the constructions of reality which are made apparent in discourse will very often also be apparent in the way a building organizes space (2002:14).

While I think their 'construct reality' is a little strong (an issue I return to later), the thrust of their argument is a powerful and intriguing one. Precision of language is important because it influences ways of seeing the world. Their point is relevant to this thesis in another way too because it points to a dialectic between the material and the semiotic that I explore in Chapter 3. For the moment, though, it allows me to approach determinism as a tendency rather than a simple absence or presence.

Indeed, as Broady suggests and Markus and Cameron elaborate, it is perhaps more useful to think of representations of architectural intentionality as more or less loaded with deterministic flavour some of which *may* pass into the design itself and onwards to the building. This raises the question of how that might happen and is the focus of Chapter 3. For now, I accept that 'we encounter discourses in and via *semiotic objects*: buildings, texts, rituals…' (original emphasis, Kress, 2010:110). As a discourse, determinism is a way of expecting that the world and the things in it behave and are related in certain ways, and may therefore influence people's reactions to that world.

Architectural determinism relies on a reading and projection of an input-output way of seeing buildings and people and their relationship where the input is the building or independent variable as Broady has it and behaviour the output or dependent variable.

The input→output relationship captures the 'one-way' expressed by Broady: that is, people's behaviour is assumed not to feed back and affect the building.

Architectural determinism therefore assumes that this world is a closed system. As such, other variables – people's agency and social structure for example – are not seen to intervene on the buildings→behaviour relationship. In fact, people's agency and social structure are not seen at all. They lie outside the discursive and conceptual apparatus of architectural determinism. Because of this, the relationship between buildings and behaviour is presented as if it were marked by regularity which, in turn, permits predictability. Key then to stronger forms of architectural determinism, is that this discourse is not merely a way to read the current world but *a way of seeing the future*.

More recently than Broady, Jeremy Till, an architect and teacher of architecture, has made a similar case and laid it at the door of the profession itself. In seeking to strengthen its own values and ways of doing things, 'Architecture' (author's intentional capitalisation, 2013:19) has sought purity, a form of self-imposed withdrawal from the messy world of 'the everyday, the social, and the economic' (ibid) where the:

> walls of the black box protect architects from the contingencies of the world beyond, allowing them to develop theories and practices unfettered by others (ibid:18-19).

Till therefore shows how such a design culture can facilitate deterministic thinking: architecture can invent a model of the world where it can assert itself as *the* (i.e. only) independent variable bearing on behaviour. Yet in putting the blame on architecture, he inadvertently plays down others' roles. Seeing architecture as an all-powerful and idealised solution to problems, is attractive to non-architects too. It makes the possibility of transformation that policymakers seek, for example, appear simpler and more attainable. The statement 'To deliver education transformation, the designs of our schools will be different' (cited earlier) was written by a finance officer in an English local council, not an architect.

Deterministic assumptions rest heavily on a detachment from the empirical world (hence Marmot's use of 'promise'). This can be partly explained by three related problems in architecture that are, respectively: professional, cultural and informational. At an individual, professional level:

> Designers may inspire clients and users with visions of benefits at the start of a project, but rarely return to assess whether or not the outcomes have been attained (Marmot, 2002:252).

A gap or dislocation is therefore maintained between a promise made and a promise fulfilled: efficacy of design solutions can be assumed rather than ascertained.

The second reason is structural and regards the culture and economics of the building industry. It derives from the fact that examining buildings-in-use is not something that 'designers, builders and project managers':

> have been trained to do, nor have they been commissioned and paid to do it. They have been appointed to create or to change buildings, not to follow things through into operation, so they go away when their work is physically complete (Bordass, 2006:1).

The third reason is systemic and informational. To start with:

> Knowledge of the causal links between buildings and behavioural outcomes is limited by the relative scarcity of evaluative research on buildings (Marmot, 2002:252).

Then there is a lack of feedback mechanisms to collate the lessons learned from finished buildings (and what scarce research there is), and feed these forward into future design. As well as insufficient information, what exists cannot be applied and so 'the building industry and its professions suffer from collective amnesia' (Markus, 2001:473). These problems are particularly prevalent in school design and construction as Adrian Leaman, an expert in Post-occupancy Evaluation (hereafter PoE), explained to me in an interview (Wood, 2016a:online).

In essence, this is architectural determinism and its theoretical basis. Its consequences deserve attention. In Blackmore et al.'s 2011 review of the literature on the connections between the design of learning spaces and student outcomes, they found that:

> Much of the design phase literature is aspirational: that is, it assumes or anticipates changes in teaching and learning will occur as a result of learning space design. There is limited empirical evidence provided to support claims connecting the design process to learning outcomes (2011a:10).

By maintaining the worlds of theory and experience apart in this way, the cultural and economic disincentives to learn about buildings in use allow for a vacuum of knowledge to be filled with a host of good intentions, assertions and promises. These assertions are unaligned to daily life within buildings temporally, conceptually and evidentially. As well as offering up ungrounded hypotheses therefore, this way of seeing and building the world is also poorly prepared to understand how that world might be inhabited in unexpected ways. In short, architectural determinism is an unsuitable set of premises with which to explore buildings in the complex real world *because its very structure obscures complexity*. Thus, in regard of BSF:

> It was not possible to prove the accountable value of architecture (as opposed to building) on the educative process. In education there were simply too many variables in play to authenticate the transformational claim [of BSF] (Dudek, 2015:online).

Nonetheless, the transformational claim was made frequently by policymakers, educationalists and architects alike. These included people associated with critical traditions within academia and architecture. Hence my point in citing certain of these people is to show how widespread the problem is rather than to make any personal attacks. For the architect and critic Sam Jacob, a judge for the Architectural Review's School Awards 2015, school architecture 'choreographs life' (2015:online) but it is unclear how primacy can be granted to a building without social structures guiding or indeed regulating who goes into which buildings and when.

The anthropomorphisation of buildings continues with JISC's 'Spaces are themselves agents for change. Changed spaces will change practice' (2006:30). It is unclear here what ontology of space makes it an agent. None is given and the certainty with which changing space changes what people do to the exclusion of anything or anyone else has long been critiqued (e.g. Lefebvre, 1991:59). However, the phrase reappears as the chapter title in another influential commentator's work (Oblinger, 2006) paralleling the way in which Mahony et al.'s (2011:357) analysis of local BSF documents showed 'parroting' across authorities – simple repetition of key words such as 'transformation' without any evidence of its meaning having been understood. Sometimes it seems these glib and energetic-sounding formulations appear to constitute a discursive web of deterministic visions.

Sometimes the concept appears in expressions by architects and educationalists for whom it is unlikely. In this example, by Mark Dudek in *The Architects' Journal*, he employs the very trope he seems to want to overturn, with buildings 'dictating' pedagogy. The discussion is in the context of a longer piece revisiting BSF from which I cited earlier:

> Lively debate across the disciplines of education and architecture suggested that new schools architecture could actually transform the performance of its users. Whether the building was 'transformational' or not became one of the key ideas of the time, indicating that an innovative structure could in itself improve pupil attainment. During a brief golden summer it even seemed that architects were leading other disciplines in dictating a better pedagogy through their built work (2015:online).

There is also a form of negative determinism where certain practices are ruled impossible because of an ill-fitting space:

> In fact, an older school building actually prevents the delivery of a true 21st century education, while well-designed school buildings can be a catalyst for pedagogical change' (Nair, 2014:online).

In short, across a range of fields, the discourses invoking models of change are often simplistic, reliant on metaphors from chemistry, physics or logistics to connote straightforwardness and invoke closed system assumptions and models of causality.

Alternatively, the language assumes poetic licence, granting human powers to buildings that can never accept them.

These are patterned, common and obscurantist ways of representing thought about school design and they are a problem. They offer nutrition to desires for simple solutions and recirculate asocial imaginaries of school buildings and school life. They are also wrong in the sense that the models of causality they employ are inappropriate which is why I return to the problem of causality in Chapter 3 through a realist focus. A realist, causal powers ontology is particularly useful I think to point up the inadequacies of assuming cause is explained by the identification of regular conjunctions between events. It is worth acknowledging, however, that this critique has fairly wide support in the social sciences even if the proposals to overcome it are very different (see for example Bourdieu, 1986:18).

The moves to represent school architecture through its (imagined) direct effects on behaviour are examples, I argue, of attempts to make education 'a perfectly controllable and perfectly predictable technology' (Osberg and Biesta, 2010:1). As discourses, they can support a broader trend towards a goal of learning-maximisation where learning has only very particular definitions amenable to accountancy and performance management as suggested by Dudek's comment on the 'accountable value of architecture', above.

Finally, such a way of seeing causality as deriving from regularity between events is closely related to the future and future-reaching discourses. This joins with and strengthens a consensus across many policymakers and scientific professionals that 'educators should insert calculations about "the future" into decision-making about education today' (Facer, 2013:135). Modernist architecture in its time was characterised, for Jameson, by 'prophetic elitism and authoritarianism' (1984b:54). There is a sense that certain strains of modernist thinking re-emerged in BSF (see a similar argument in Kraftl, 2012:852) in a functional demand for the control of education's future – even if that was an unclear future characterised by 'slippery' aims (Mahony and Hextall, 2013:855).

In Chapter 3, I will develop the above points using work on spatial and architectural theory but for now, the state of my argument is simply that the largely implicit model of causality on which PTA's planning was based and which is a recognised, general problem in architecture, is deficient because it obscures what people do. It inappropriately relies on an imagination of the social world as a closed system and ultimately on an understanding of causality that is untenable but appealing because it appears to grant the ability to see the future – by knowing how today's inputs will lead with regularity to tomorrow's outputs. Nationally and locally, BSF was a knowing, self-conscious exercise that, against experience, proposed and instantiated architecture as a lever of education transformation.

I now turn to the particular flavour given to the education that was to be transformed – a 'future-ness' that was inflected, again self-consciously, with notions of innovation and flexibility.

2.3 21st Century Learning Spaces: Linguistic and Material Innovations

A legitimating driver for investment in and transformation of education is the often-cited 21st century. For example, Pottisham County Council envision themselves preparing for 'the major change to education that the 21st century demands' (PCC, 2007:9). This section discusses 21st Century-ness as characterised in educational spatial design, educational philosophies and pedagogies. The label of '21st Century' assumes there is a discrete difference between now and just a few years before. That assumption invites inspection and so the purpose of this section is to establish what these claims involve. In particular, I explore how language and design both re-frame the social aspects of education.

Shifting Vocabularies and Discourses: from education to learning

As Markus and Cameron (2002), cited earlier, note, the language used to describe the built environment goes some way to shaping how we react to it. As a consequence, it is worth digging into how that language does its work as Paechter (2004a:450) argues in her work on metaphors of space:

> …an examination of the ways metaphors are used in educational discourses is illuminating of the assumptions that underpin those discourses and the ideological commitments (conscious or unconscious) of those who use them.

I follow a similar path to all three of the above writers but focus on the language used to represent education and its spaces and in architecture generally.

I start with architecture to show that problems with language are not unique to recent descriptions of educational innovation. In fact, the confluence of verbal elasticity in both architectural and educational discourse, their mutual interests in defining futures and, sometimes, a lack of self-awareness regarding how their assumed transparency of language positions people mean they share problems regarding representation. The following is a critique of the terms used to describe social housing:

> When words failed, new jargon was fabricated. Paths became 'communication links'… pathway crossings [became] known as 'communication nodes' … access-galleries became 'streets in the sky' (Pepper, 2015 [1977]:online).

In Pepper's 1970s, linguistic innovation dressed architecture in full social regalia. Ironically, the shift now is in the opposite direction, away from the social and towards language as a means to sell a new (and narrow) vision of learning. Here its changing vocabularies represent 'a particular technologization or instrumentalization of education' (Friesen, 2013:21). Gert Biesta names this process 'learnification', the 'translation of everything there is to say about education in terms of learning and learners' (2009:38).

Learnification represents education and educational architecture in ways that obscure social relationships (on the one hand) and simplify education (on the other). Further, it helps to represent school architecture as a technology of learning-maximisation. The focus on learning crowds out other senses of what schools are for and redefines what

learning is. For example, the architect of a new secondary school profiled in *The Architects' Journal* claims that:

> The spatial organisation allows a variety of learning activities to take place concurrently within acoustically defined spaces but which are transparent and showcase learning (Mark, 2016a:online).

The designed space – that is the added value that architecture provides rather than just the building *per se* – is tied to (causally) 'learning activities' rather than education more broadly. The transparency of these spaces serves to pedestal learning conceived as a valuable and visible thing as much as a process.

This is part of a broader shift. For example, *Figure 2-1* shows how the frequency of the words 'education' and 'learning' have changed between 1800 and 2012. The graph is from Google's Ngram Viewer[4] which shows the percentage share(s) of words against all words published in a particular year in Google's corpus of scanned books. I have chosen 1800-2012 to show their once similar frequencies in the period 1800-1865 approximately:

Figure 2-1 Changes in frequency of the words 'education' and 'learning'

Drawing conclusions from this data is not straightforward and I discuss the implications elsewhere (Wood, 2016b:online). However, the graph does show an increase in

[4] Link to URL: [Accessed 22/11/16]
https://books.google.com/ngrams/interactive_chart?content=education%2Clearning&year_start=1800&year_end=2012&corpus=15&smoothing=3

popularity of ‘learning’ relative to ‘education’, particularly from about 1990 suggesting that Biesta’s argument for a translation from the latter to the former may indeed be happening.

Such a pattern is seen also in the trend where ‘classroom’ is replaced by ‘learning space’. Whilst neither term is neutral, ‘learning space’ offers a *particular* way of speaking, writing and thinking about these designed places, their purposes, the activities that take place in them and of course of the people who spend time there.

For example, ‘classroom’ is a noun based on the possession of a space by a social group, a *class*. The space is theirs, they are defined collectively, it is clear there is a ‘they’. Even if we do not know who ‘they’ consists of, it is unavoidably people who are at the centre of the construction. In contrast, ‘learning space/environment’ describes (optimistically, since ascertaining learning is complex) a site’s *assumed* activity – a potentially individual, internalised and more psychologically-framed one. Again, neither term is objective, but whilst it is true that a restaurant is an ‘eating space’, it cannot be reduced to it.

Differences between room and space are also managed temporally via claims such as ‘The classroom is obsolete: It's time for something new’ (Nair, 2011:online) and questions: ‘Once we are “outside the box”, will we still need it?’ (Heppell, 2006:64). These are patterned ways of representing classrooms that excise their social value and continuing relevance. Before a future of ‘learning spaces’ can be habilitated, it seems that work has to be done to denigrate the past.

Innovative? Flexible? Learning? Spaces

Innovative learning spaces form part of a tradition of re-thinking spatial conditions to achieve changes in education: the ‘hegemony of the classroom’ and challenges to it are ‘continuous and compelling’ (Burke, 2014:52). Change or better, *attempted* change, is a constant. Within this constant process, flexibility itself has a long history – at least as far

back as the American, open-plan designs of learning spaces in the 1960s (Saint, 1987:211). In the 21st century, however, the idea of flexibility in relation to learning spaces is manifest in two approaches, often employed together. The first regards transforming the classroom, the other on supplementing the spatial offer and variety within a school.

In the first approach, 'learning space' refers to a built area where students and teachers are together in time and space. It is a discussion about the classroom transformed for the 21st century. In some cases, it follows the 'architecture as lever' approach where spatial design produces pedagogic development as Deed and Lesko (2015:229) note: 'the openness concept is one driver of the re-imagining of teaching and learning'. Saltmarsh et al., (2015:316) make a similar point. Ultimately, this approach is about *transforming* the classroom conceptually, physically or both.

The second application of flexibility is more existential and appears in a strong and weak form. Its strong form questions the appropriateness of a purpose-built, educational space *at all*. Flexibility can 'be construed as a denial of the material significance of place in people's lives' (Clarke et al., 2002:287). In a world seen to be *a*- or *post*-spatial, dedicated spaces for learning are rejected[5] (see Negroponte, 1996 amongst others for an account of how digitisation stimulates this perspective; McWilliam, 2011 for one promoted by thinking skills and job market readiness. For a critical perspective, see Burke et al, 2010:680; Selwyn, 2011:11; Edwards, 1997).

A weaker version of this second approach to flexibility questions the monopoly of the classroom and its role in education. It promotes spatial pluralism where different spaces are available for different activities or groups of students within the institution, or, occasionally, a complementary approach envisaging 'an interconnected social life where school is only one site for learning amongst many' (Sefton-Green, 2016:243). Whilst it may reference the versatility of one individual space, its main focus is the assumed

[5] For very different reasons from the deschooling movement which I do not focus on here since 'flexibility' is not related.

increase in flexibility deriving from a wider range of spatial *types*. These are always at least physical but sometimes online in addition – as in the case of Italy's Cl@ssi 2.0[6] or Spain's Escuela 2.0. For some, the 'classroom-as-container' is seen as 'a dominant discourse of the [educational] field' (Leander et al, 2010:329) hence any attempt to disrupt the established physical space is also a disruption of the schema disciplining educational thought and action.

Architecturally, the focus is on providing additional spaces for learning including ones not traditionally designed for learning. These may include break-out areas, wide corridors-as-'learning streets' (Hertzberger, 2008:204) and even 'learning stairs' (Robertson, 2014:online). It is about extending the spatial offer of an institution where these supplementary and adapted-for-21st century learning spaces are potentially new objects (OECD, 2006:3) as well as sites of learning.

Both of these approaches – transforming the classroom and supplementing the spatial offer and variety in a school – are relevant to PTA which has classrooms, 'bases' (their word for flexible learning spaces) and other areas for learning, for example a 'Discovery Room' and breakout areas. The strong form of the second approach (a rejection of space) is not directly relevant to PTA.

Transformation and supplementation are not discrete tools of design. Because space is subject to conditions of scarcity as a result of funding, regulations and so forth, a change in one is likely to change the other. This raises a methodological point since it implies the need to research a school's official learning spaces alongside *and* in relation to others. Further Research Design implications are discussed in Chapter 4.

[6] Italy's research body for educational innovation, Indire, notes that for these Cl@ssi 2.0 learning spaces, 'At a structural level, [physical] learning spaces will probably remain unchanged… …structural constraints have been overcome in recent years with *the extension of the classroom space* by virtual learning environments, content management systems and learning management systems related to Web 2.0 tools' (my emphasis, 2013:online). This is curious then since if Italy does not feel the same perceived need to transform the *aula* or classroom itself, it suggests the need for an approach that is sensitive to cultural and historical understandings of what '21st century' and 'innovation' *mean* and, by implication, what the role of architecture is in achieving them.

I have therefore shown two of the broader influences on and interpretations of flexibility. I now turn to what – given the vagueness of BSF's aims – flexibility might serve and why it might be deemed to be an attractive property of school spaces.

The Advantages of Flexibility

Flexibility is often a marketable quality for school design. It suggests freedom, productivity, efficiency and even insurance against obsolescence as I discuss in the final chapter. Although not specifically about flexibility, the following quotation shows how design in general is seen as part of the competitive advantage a school can offer:

> As schools behave more like private businesses they will be in competition with one another to attract the best teachers and students. Architects can draw on their experience in the private sector to help them achieve this (*The Architects' Journal*, 2015:online).

In the same article, another architect explains that good design is a way to prevent institutions 'losing students' (ibid). Design therefore ties in to a wider educational market including students not simply as users but consumers of architecture.

The RIBA's (Royal Institute of British Architects) report, *Better Spaces for Learning: #TopMarkSchools* (Plotka, 2016) includes flexibility as a component of good design (ibid:21). Design is seen to confer a number of advantages being not only 'a better use of public money – it has real implications for pupil attainment and teachers [sic] productivity' (ibid:8). Again, design is framed reductively in an input, output fashion and linked to productivity gains, rather than education more broadly.

The purpose of architecture (and indeed schools) is shifting. Productivity and attainment are also key to assessment systems and their increasing integration with economies where education is seen 'through the metaphor of production and control' (Biesta, 2015:356). The aspects of education that are most commensurable with logics of production and control are those easily measured, as the head of PISA, Andreas

Schleicher, explains in an interview: 'If we want to bring it on the radar screen, we need to measure it' (Anderson, 2016:online). Hence an economy of learning and an economy of school design can be recognised as having common interests and a mutual language of productivity.

However, there is an important contradiction. On the one hand design should matter less in the 21st century. As good neoliberal subjects we should be always and everywhere learning (Olssen, 2006:222-3) and informational and technological changes have raised 'fundamental questions about the need for school buildings at all' (Burke et al., 2010:680). On the other hand, however, as RIBA are naturally keen to point out, designed space is more important than ever – at least for increasing learning.

I suggest that the contradiction – design does not matter/design does matter – is one that flexibility can ease. As Monahan suggests, the ambiguity surrounding what 'flexibility' actually means is a useful characteristic since it 'embodies the plasticity that it seeks to describe – one can readily adapt it to one's own purposes' (2002:online). The 'solution' is provided not by resolving the contradiction therefore so much as neutralising it: flexibility can be summoned by both sides so just as it can mean a denial of the importance of designed space, it can also be used to define good design, as, for example, RIBA do.

Serving dual, opposing purposes makes it hard to understand what flexibility is. Its rhetorical duplicity is itself a selling point beyond that identified by Monahan. For example, because the phrase 'flexible learning space' comes as a package, it is easy and logical to assume that such a space is indeed flexible, both in theory and in practice. But what appears to be flexible or is named so, might not, in use, *be* flexible as Andrew Saint explained regarding the 'fad' for open plan schools in 1960s USA. Their learning spaces were essentially 'undifferentiated big boxes, flexible and fully serviced in theory' but 'often very constraining in practice' (1987:211).

Further, there is the added complication that architectural 'flexibility' in general can add kudos. Schneider and Till (2005:159) note its 'rhetorical value as a signal of progressive modernity' that can lead to (in this case houses) that 'are *representations* of flexibility,

but in use are often less flexible than normal' (original emphasis). As well as signalling caution about using the term, the above comments point to the need of establishing through use and practice *how* it is that flexibility actually happens – if indeed it does. This is then another reason for working on both theoretical and empirical levels.

None of the above is to deny that a flexible learning space might be helpful for teaching and learning and therefore intrinsically valuable from the perspective of students and teachers. Certainly, that seemed to be the suggestion in the BSF guidance:

> Schools in the future must be able to help children and young people to: learn in range of different ways, in a variety of environments and at times that respond to their individual needs… (DCSF et al., 2008:14)

However, the proposal of flexible learning spaces in PTA (and elsewhere) in order to achieve these aims are hardly revolutionary. The aim of open plan design in England in the 1970s was to facilitate 'child-centred' teaching' (UCL Institute of Education, 2007:online) and in the USA, the 'ideal of individualization of instruction' (Staples, 1971:451). Gislason (2015:101-2) finds that flexibility as an architectural means to support student-centred activities has its roots much earlier, from at least the 1940s in the USA although these did not reach high school design until the 1960s.

Extending the discussion beyond space as a container towards its use would reveal the need to focus on classroom and learning space furniture too. Here Burke and Grosvenor (2008:22) show that European designers were experimenting with different forms of furniture design from the 1920s onwards. Flexibility may not have been a widespread part of the lexicon but, more importantly, there was an attention to the detail and needs of the child and teacher in their study, play and work.

A final note, and contradiction. Buying options for future adaptability through design and construction is a form of flexibility that costs money and opportunity: 'Making a building highly flexible – for example, with large numbers of moveable walls – is generally very

expensive' (CABE[7], 2007:60). Because school-building budgets are limited, flexibility has an opportunity cost, making it a form of inflexibility. A real-world, useful understanding of flexibility would treat it not as an exogenous variable that straightforwardly makes learning spaces better but as a design decision that is part of a complex, open system where it may both limit and be limited by a wide range of factors.

Clarifying Flexibility

Given the ambiguities concerning flexibility both in terms of what it means and what it is supposed to help achieve, the purpose of this section is to identify what seem to be educationally desirable features of flexibility and means by which it happens or is produced. Flexibility is related (and often equated) to openness and the more recent agility and so I also discuss these terms.

With some notable exceptions, learning space designs generally 'mirror contemporary architectural rather than educational imaginaries' (Blackmore et al, 2011a:10). Consequently, I also explore how flexibility is discussed in architectural theory more broadly although some of this work (especially in relation to Hertzberger's 'polyvalence') is left until Chapter 3 where I can better ground it in spatial theory.

This clarification work is important because it reduces the risk of moving forward with a taken for granted conception of what flexibility is. As a result, here, Chapter 3 and again in Chapter 6 in the light of findings, I discuss what kind of thing flexibility is and the nature of spaces that are flexible. This work is also important because there is the potential for harm to be done by assigning flexibility to a space if it might instead be a property or even a result of people's actions *and* space. As claims, 'flexible learning space' and variations make it harder to understand where and what people's role might be in ensuring a space

[7] Until 2010, CABE was the Commission for Architecture and the Built Environment, 'the government's advisor on architecture, urban design and public space' and responsible for much of the design guidance on BSF.

is *used* flexibly. A learning space is also a working space for teachers. It matters directly for them. None of this is to downplay the significance of space for students for whom it would seem to matter on at least two levels – through their experience of learning spaces and indirectly through the kinds of activities their teachers are facilitated or hindered in leading. As stated, however, this thesis focuses on teachers' work and so only the more indirect form is studied here.

Narrowing the Terms: flexibility; agility; flexible; open

For Saltmarsh et al., the two terms flexibility and agility are packaged up into a category of 'twenty-first century mantras' (2015:315). This appears to be a common pattern across the literature and was also the case in PTA's planning and briefing documents where flexibility appears to be interchangeable with agility. Across five documents at all stages of development, different terms are used, including: 'flexible classrooms'; 'agile learning zones'; 'flexible learning spaces'. In the Design Statement submitted for final approval of the school's design, 'Large Learning Area/Flexible Learning Zone' is used at first then just 'Flexible Learning Zone' and then just 'FLZ'. In an interview (29/9/14) with the architect, he referred only to 'Agile Learning Zones'. In short, for PTA, 'agile' appears to be synonymous with 'flexible' and indeed, 'zones' with 'spaces'.

The same pattern is found in the published literatures. For example, OECD (2009:23) uses 'agility' but is supplemented by a parenthetical translation i.e. '(flexibility)' when cited in Blackmore et al.'s (2011a:62) review. In contrast to OECD (2009), OECD (2006) refers only to flexibility. Texts using 'agile learning spaces' are rare with Heppell et al.'s 2015 unpublished user guide, an exception. The number of works featuring agility in relation to learning spaces is low. I therefore adopt flexibility and understand it as synonymous with agility.

Open-plan, openness and flexibility, and open and flexible are more awkward, however, since variations of the two terms are often collocated conceptually and descriptively. Open-plan tends now to be used more for schools of the 1960s and 1970s and there were

definitional problems then, too (Bennett et al., 1980:11-12). Open-plan is now rarely used (a notable exception is OECD, 2006:14) and in general it appears to be passé. 'Open' is still used, however.

One reason for the collocation, for example, 'multipurpose, open and flexible spaces' (Blackmore, 2011a:3) is that without it being said, there is probably a causal relationship between openness and flexibility. Where openness means bigger, there is indeed a strong argument that this increases flexibility and is perhaps best summed up by the notion of 'spatial redundancy' in Forty, 2004:144. Spatial redundancy – extra, available space – is indeed the first 'strategy' that he suggests architects have used to achieve flexibility. It is worth noting, however, that redundancy (independently of architectural flexibility) is likely to cost, requiring extra space (land), building costs and then lifetime servicing costs. I return to flexibility through redundancy in the discussion chapters.

Who and/or What is Flexible? Over What Timescale?

What the adjective 'flexible' modifies in the construction 'flexible learning space' is unclear. There are three possible meanings:

1) A learning space that is flexible: flexible learning-space
2) A space of or for flexible learning: flexible-learning space
3) A space that is learning and that is flexible: flexible, learning space.

'Flexible learning space' without any hyphens or commas to discriminate senses perhaps grants it the ability to connote all three without having to 'commit' to a single sense, facilitating its use as a hedging strategy.

Even when there are definitions of flexibility in relation to learning spaces, they are often vague and written in the passive voice making it harder to understand who the agent contributing to flexibility is, whether building, a person or combination (e.g. OECD, 2006:6). However, the same organisation later defines 'Agility' far more clearly:

> [OECD Quality Performance Objective] ***QPO 1.*** *Agility*. It is quick and easy to adapt educational spaces, in terms of spatial (i.e. furniture can be moved), technical (e.g. ICTs can be changed, lighting can be changed) and organisation (the space can be reconfigured) aspects, to support a range of educational programmes and pedagogies. (OECD, 2009:23)

Here agility is viewed from the perspective of the user and the resource of time is introduced, again from the perspective of the user. It acknowledges the different domains for which it is relevant i.e. spatial, technical and organisational and, significantly, agility here is 'to support…' education rather than leverage change.

This later definition is closer to the perspective offered by the schools' architect David Medd where flexibility is 'the tactical means the designer must offer the teacher' (1970:179) so that 'the school [building] becomes an instrument that teachers can manipulate' (ibid). The direction of the relationship is firmly established: design and space exist to support teachers' work rather than as a means to change it. The focus is on empowering and enabling the teacher to do their job and hence confirms Saint's wider observations discussed earlier (1987:211) and Leiringer and Cardellino's more recent study (2011:932).

This ambiguity of what flexibility is a property of and on what or who it depends in order to be actualised is common. The construction, 'flexible learning space' suggests it belongs to the space. Less frequently, as in OECD, 2009 and Medd, 1970, above, it is a property that exists somewhere in the interaction between people and space. For example, (Blackmore et al., 2011a:22) refer to the 'Ability to change space/flexibility'. Their review, unusually, includes attention to the human and social resources needed for flexibility and so draws welcome attention to contextual requirements.

Timescale is another contextual characteristic of flexibility rarely or insufficiently detailed. Number 7 of CABE's list of 'Ten points for a well-designed secondary school' is: 'Flexible design to allow for short-term changes of layout and use, and for long-term expansion or contraction' (2007:7). This is useful in that it distinguishes domains of interest: immediate

flexible use of a space is probably more relevant to a teacher, longer-term activities instead a concern of construction professionals and possibly finance. Further refinement of flexibility for teachers may be useful.

One final and particularly acute example will help to build a sense of what is potentially relevant to a useful understanding of flexibility. In a short passage, Uduku manages to point up economic, demographic, cultural, climatic, historical, political and racial contexts of learning spaces:

> Flexible, open-plan classroom design has had many Scandinavian (and more recently American) historical precedents. The practical problems of teaching in non-enclosed spaces are less crucial in the African or Asian climatic and cultural context where teaching in non-structured, unenclosed space is often both appropriate and is a re-appropriation of pre-colonial educational practice. Large class sizes, which are the rule in most post-colonial schools, also work better in open-plan spaces (2000:60).

With the previous work in mind, I now provide a summary of both the arguments made and the range of factors that might bear on the use of flexible and innovative learning spaces.

Conclusion

The above discussion has navigated a range of concepts about school, classroom and learning space design in relation to people. It started by locating the ambitious and self-consciously innovative BSF programme within an educational culture that was (and remains) risk-averse and high stakes.

BSF was framed less as a tool to support teachers or a clear educational philosophy than to leverage educational change. Pottisham's version of the programme (more fully discussed in Chapter 5) suggested a faithful application of the principles of future-reaching. Concern for change and the future appeared to be guided less by values and an orienting philosophy than a quasi-tautological interest in instantiating the future and

change. Some of the BSF documents both nationally and locally suggested a model of transformation that was based on architectural determinism with people as outputs rather than contributors to change and where, causally, the new school buildings would have a great deal of agency irrespective of context.

With education being reduced to a focus on attainment, school architecture was often presented as a catalyst for or mechanism of this process rather than the creation of social space. A particular focus on flexibility as a form of innovative learning space design showed that it was a complex and ambiguous concept. Its form of presentation often obscured how people or context might matter, or why flexibility might be useful for them.

To gain a better understanding of what flexibility is, how it applies to space and what or who facilitates or inhibits it, a number of considerations were identified in order to guide the remainder of the thesis: the role of people in relation to space and architecture in Chapter 3; research design in Chapter 4; support for the analysis, findings and discussion in Chapter 5 onwards.

To summarise therefore, the considerations suggested in (or absent from) the literature and other conceptual work that are pertinent to a study of flexibility include: the relationship between flexibility and time (including time as a resource and the timescale over which flexibility is intended to apply); teachers' ability to use the spaces flexibly and hence the resources enabling them to do that; the particular educational culture and history of the school; seemingly external factors such as assessment systems whether at a national or other scale; the amount of redundant space available; furniture.

This is not an exhaustive list and many others considerations were discovered once the project was underway. Together, they represented too large a set of features for one research project and the Research Questions and design helped to narrow focus. However, these considerations served as a sensitising guide with which to begin the fieldwork, accompanied and developed by work in the next chapter which explores spatial and architectural theory.

Chapter 3 Conceptions of Space and their Implications

Given the previously established ambiguities regarding the properties and powers of school spaces and their relationship to teachers' work and education, I use this chapter to clear the ground conceptually and mark a way forward.

To spell out what kinds of space I mean and use in the rest of the thesis I use realist philosophy as a way of: 'determining the nature of things or structures, discovering which characteristics are necessary consequences of their being those kind of objects' (Sayer, 2000:136). This is a causal powers ontology where, applied to the social world I study here, it is consequently important to stress relationality (Elder-Vass, 2010:4). This ties in well with the particular ways that Hertzberger, Sayer and Massey (key theorists I use in this chapter) approach space.

Section **3.1** starts and situates current understandings of space within a longer tradition of it being ignored in the social sciences generally and educational research too. Space has often veered between being a neutral backdrop to events in some accounts and capable of instantiating change in others. I use Andrew Sayer's description of spatial fetishism to help understand how such representations of space can happen. In addition, because spatial fetishism is a necessary precursor to architectural determinism, I use Sayer's writings to unpick some of the more problematic representations of learning spaces.

Critique is complemented by a positive response, a proposal of space in its unfetishised form that includes time, process and social relationality. Doreen Massey's conceptual work provides such a substantive response to spatial fetishism, one where space is understood 'as the product of interrelationships' (2005:9) and so socially and temporally inclusive. Section **3.2** therefore uses this socially produced space to challenge depictions of space and particular spaces as the causally efficacious agent and people as the objects which space does things to.

In Section **3.3** I show how Herman Hertzberger's theoretical writings are useful to specify the designed space half of a dialectic formed together with socially produced space. His approach with an emphasis on the architect's role of creating 'spatial resources' (2009:8) for people complements Massey's focus on the space that people make. Similarly, his re-reading of structuralism, that it 'is essentially concerned with how the individual and the collective are interdependent and are able to influence one another' (2015:32) implies a focus on relationality that can usefully complement realist philosophy. Hertzberger's writing also provides a number of productive concepts for thinking about designed space of which I use four: 'spatial unit'; 'articulation'; 'space-making'; and polyvalence (Hertzberger's alternative to flexibility). I discuss and critique these and show their potential value for discussing school space in concert with Massey's socially produced space.

All buildings are material and semiotic productions: they physically build spaces in a material sense and they simultaneously communicate ideas about those spaces and what they might (and often, especially in a school, *should*) be used for. I draw on Kress (2010) and Fairclough (2005) to help understand buildings as both material and semiotic objects. This is especially helpful given the importance of interpretation and semiotics in Hertzberger's theory. Section **3.4** does that work.

3.1 Problems with Conceptions of Space in Social Theory and their Implications

The conceptual and linguistic handling of learning spaces is ambiguous. This renders the properties of those spaces uncertain and, in turn, harder to know what people's role is in relation to them. It also makes it harder to discuss, critique and share ideas about school and education if we are unclear about what it is we are referring to. Chapter 2 established that this happens at a policy level and in professional and academic debates.

These problems of definition and conceptual clarity stretch far beyond the applied setting of individual spaces, however. They are mirrored and exacerbated by the ambiguous

theoretical treatment of socio-spatiality (Shields, 2016:9) and in social theory where there is an 'amazing lack of precision as to [space's] definition' (Simonsen, 1996:494). These problems are partly disciplinary in origin, regarding a 'long term lack of attention to space and spatialities within the discipline of sociology as a whole' (Halford, 2008:927). For Andrew Sayer, theoretical explorations of space in the social world often 'begin and end with token references to the importance of space but fail to say anything much about it in between' (2000:112). In addition, useful sociospatial concepts have suffered from 'short intellectual product life cycles' with the effect of 'limiting opportunities for learning' (Jessop et al., 2008:389).

In sum, the few who do pay attention to space, have their own pet theoretical 'space' and talk past each other. We lose opportunities both for comprehension and accountability – the terms of the debate never keep sufficiently still, preventing empirical work from feeding back into a shared theoretical discussion.

The problems with empirical work on learning spaces (Chapter 2), and the state and use of theory (immediately above) are compounded by a third, less disciplinarily-oriented problem. This is a more general tendency for space to be ignored in everyday life: space becomes 'buried' (Soja, 2000:xiv) and the spatial aspects of practices are 'taken for granted' (Fahy et al., 2014:126).

Forgotten space is potentially a problem for studying schools too. Space has 'a "taken-for-granted" quality that blinds us to the fundamental ways in which the school is spatially constituted' (McGregor, 2004:6) and the spatiality of schooling is therefore often 'left uninterrogated' (Paechter, 2004b:307). The architect and architectural historian, Peter Blundell Jones, explains how space comes to be forgotten. In a chapter on schools, he makes a general point that spatial setting 'always makes some patterns of use easier and others more difficult' but:

> We become blind to this once habituated in the use of a building, for it seems just to be there, and we have to make an imaginative leap to envisage how it might be otherwise (2015:13).

Blundell Jones's point along with many of the other arguments cited above pose methodological questions, for example, how can space be studied when people are so habituated to it? Indeed, this is one reason why space 'needs to be integrated within more general ethnographic accounts' (Atkinson and Delamont, 2005:827). Whilst these are discussions for the following, research design chapter, they depend on what happens in this one – in how theory is understood and in what it says and assumes about the world.

The above obscurities and episodes of blindness require a response, one which they already begin to delineate. To start, I note that it is important to establish that they are indeed what I have called them – problems – and why. In particular, I want to argue that they are more than intellectual problems alone. They can have political and ethical consequences too. Fragmented understandings of or blinding to the importance of space are so significant because they have pervasive knock-on effects:

> …conceptions of space and time are intrinsic to the intellectual ordering of our lives and our everyday notions of causality and with it, agency. (Shields, 2016:9)

As Doreen Massey puts it: 'the way we imagine space has effects' (2005:4). Given a start by the problems outlined above, the task of the following section is to explore more fully what those effects are.

3.2 Countering Spatial Fetishism I: Socially-Produced Space

The problems just identified – disciplinary and individuals' blinding to space, high conceptual turnover, a disconnect between theories of space and empirical exploration of it – together with the ambiguities over what learning spaces are (Chapter 2), can now be used positively in framing a response.

I begin that work by considering the differences between absolute and relative space. This is essential both as preliminary clarification of the concept 'space' and in order to

understand how space is often assigned causal powers in its own right – i.e. Sayer's 'spatial fetishism' (2000:112).

This section is therefore a necessary going back to basics of *what space is* in order to understand its ontology, i.e. what kind of thing it is, what constitutes it and what properties and powers (if any) it has. In doing so, it provides the preparatory work for a more applied consideration of space.

The Nature of Space, Space-Time-Process Unity and Abstraction

In opposition to absolute, Newtonian space[8] which posits the independent existence of an empty void, relative space is made and defined by, loosely, 'things' including people:

> Space only exists through its constituents and there is no friction of distance in term of some abstract, immaterial metric, only frictions of particular substances (Sayer, 2000:110-111).

An implication of this is that space, time and what produces them, process or action, are in fact a unity, what in her earlier work (1992) Massey calls 'space-time', later e.g. 2005, just 'space'. This is a way of seeing the phenomena of space and time that insists on their 'inseparability' (Massey, 1992:84), and 'their joint constitution through the interrelations between phenomena; on the necessity of thinking in terms of space-time' (ibid).

Sayer explains how the conceptual awkwardness or unfamiliarity of this necessity plays out in everyday life:

> Although our language can only denote it through three separate words, space-time-matter form a single whole; to talk of just one of these is to abstract – perhaps unknowingly – from the other two. Usually we refer to

[8] I gloss over the history of these differing conceptions, suffice to say that Einstein re-introduced relative space after Newton's relegation of it. In 1715, the German philosopher Leibniz had argued for relative space against Newton's supporters and their absolute space. For Leibniz, space denotes: 'an Order of Things which exist at the same time, considered as existing together' (1715:online). In brief, Leibniz lost the battle but won the war. See also Ferraro, 2007:1-2.

> objects or processes without making their spatial and temporal dimensions explicit, thereby avoiding clumsy locutions … But these seemingly innocuous features of our language invite misconceptions too. The difficulty of deciding whether someone is using the word 'space' in a way that implies the possibility of it existing independently of process (and hence implying an absolute concept of space) or merely as a short-hand for space-time-process, makes it particularly difficult for even the debate on space to be conducted (2000:111).

This is the crux of the issue for much of the discussion on learning spaces. The space they presume is often treated as if independent of what happens: space (as a mass noun, 'tied' to time and process) becomes conflated with – or even when represented, subsumed by – *a* space (i.e. a count noun, an architecturally-made void, independent of time and process). The architecture of a space can come to signify what is in fact an interaction or process – and be misrecognised for that.

Clearly in many areas of our lives, not just verbal language as in Sayer's example, space comes to have a 'short-hand' version. It can often be useful. The architect's plan ('the foundation of architectural production' (Till, 2013:178)), for example, relies on abstracting space from time and process. This abstraction need not be a bad thing, but it (the represented space) is now an incomplete thing and the bits that are missing (time and process) make it easier to forget they were there in the first place (Sayer, 2000:109).

Moreover, the plan is not abstracted space itself but a *representation* of abstracted space – as indeed are policy documents and PTA's design statement – and so a further step away from 'lived visual data' (Emmison, 2004:260). In mediating the relationship between unified relational space and a representation of abstracted and now (as marks on a sheet of A2 paper[9] or a policy pdf file) absolute space, these documents claim coherence between the past and the future. The past is a harking back to the unity of space-time-process, but the representation is a feeding forward into design, a movement from *is* to

[9] Taking a line of approach such as Kress's (2005) which explore how the materiality of representations makes a difference for their representational possibilities, it is interesting to think how the use of computer-aided design (CAD) to enable fly-throughs of architectural models might change the extent and manner in which architectural plans will continue to abstract space from their unity. I leave this point here but mark it to point out that the forms abstraction take are themselves technologically shaped at least in part and the idea of 1:100 or indeed a paper plan is not a neutral starting point from which all change departs.

ought. As such, and as a representation that requires communication, it is inevitably bound up with more than just lines of ink on a page. As with a map, each example of a plan or policy document is an 'ideological fixing-in-place (the attempt to impose an order on the world, to get one's bearings)' (Massey, 1994:14). And because they are representations made not only to record but *project*, the architectural plan and the policy are simultaneously therefore ideologically-loaded visions and instructions to quantity surveyors, plumbers, builders or architects, principals and other politicians. This is a process then of *operationalizing* very particular visions in semiotic texts, including policies and plans but also, ultimately, buildings (Fairclough, 2005:934; Kress, 2010:110):

> Successful strategies may be operationalized, i.e. cease to be merely imaginaries for change, and effect real change. Operationalization includes enactment: discourses may be dialectically transformed into new ways of acting and interacting (Fairclough, 2005:934).

How any text, plan or policy, handles these sets of operationalizing moves is key because they are particular, selected arrangements of abstractions. Jeremy Till illustrates this in a discussion of the role of the 1:100 scale in architectural plans:

> It is a scale that is detailed enough to give a semblance of reality, but not so detailed that one has to confront the actuality of spatial occupation in all its mess and uncertainty (2013:178).

The plan and the policy abstract space from time and use or occupation, and depending on their treatment and eventual employment, have the potential to become useful tools to think where windows, services, load-bearing walls and so forth should be sited. But these abstractions also, inevitably, promote particular values and ways of seeing and thinking that can discourage analytic attention to time and process:

> attempts at the stabilization of meaning are constantly the site of social contest, battles over the power to label space-time, to impose the meaning to be attributed to a space, for however long or short a span of time. And there are two levels at which such contests may be joined: the first, and the most usual, is simply over the label/identity/boundary to be assigned; the second, the one being pressed here, is the insistence on pointing out - and thereby challenging - the nature of that debate itself (Massey, 1994:5).

It is here then that I want to take this challenge forward, to explore not just the labels that feature in the debate on space but to explore the structure of the debate itself. With this in mind, I therefore return to the architectural determinism that was discussed in Chapter 2 but now with an application of Massey's and Sayer's theoretical points to the nature of the determinism itself. The first step is to explore how that determinism comes to be constructed and I do that through Sayer's explanation of spatial fetishism. This move is theoretically important in its own right for establishing a clear and coherent understanding of determinism. Understanding how determinism is constructed will point the way forward (in Chapter 4) to a research design that can challenge determinism's premises and offer an empirical enquiry based on a less abstracted understanding of space.

Spatial Fetishism and Architectural Determinism

Abstracting space from time and process is a potentially useful and sometimes necessary way of dealing with the world. Whether or not it is harmful partly depends on how the abstracted space is treated. The representations of space produced in plans and in the language we use to discuss particular spaces can become problematic when the abstractions they promote provoke the 'attributing [of] powers to space… …regardless of the causal powers of the objects constituting it', that is, 'spatial fetishism' (Sayer, 2000:112). Spatial fetishism is a two-step process: firstly space is abstracted from time and process, then it is assigned causal powers. Architectural determinism is therefore a special case of spatial fetishism; it shares the characteristics of spatial fetishism but goes further. In its strong form, architectural determinism nullifies the powers of any other entity or actor: it is a statement about the ontology of the social world and a framing of that world as a closed system where effects can never be causes and people's behaviour is an output of design only. The discourse in both strong and weak forms operationalises particular ways of 'seeing' conceptually so that how a building can be known is shaped by

a focus on the principal actor, the architecturally-designed space, to the exclusion of people (and indeed other entities with causal powers).

There is then a fundamental mismatch between the assumed ontology the plan or policy will operationalise in everyday life and the actual ontology of the building as it will be inhabited. This mismatch is one with epistemological consequences, an example of what the architect and theorist Eyal Weizman calls 'problems of violence at the threshold of detectability'[10] (2015:5). It is as if sociality, people and process are positioned beyond that conceptual threshold and cannot therefore be 'seen'. The determinist manner of understanding what the world consists of and how it might be known structure a methodology (Till's 'black box') that obviates any interest in looking at those other entities or powers. Against an all-powerful, determining space, they can do nothing anyway since within this schema 'architectural design has a direct and determinate effect on the way people behave' (Broady, 1966:150) and so it is as if there is no room for other powers.

It is therefore against this reading of the world and its asocial, atemporal spatialization that Massey's work stands and that I use both to inform my own understandings of what space is in schools and as a conceptual linchpin with which to hold the wheels to the axles that drive my research design in Chapter 4. For the sake of consistency, just as I have argued that a certain determinist way of seeing the world is not neutral and has implications, so too will any other, Massey's included. Hers has the advantage, however, of bringing back into view the very things (time, process seen as social action, multiple determination, power) that determinism obscures.

[10] Weizman is also a forensic architect, collating evidence of illegal killings by drone strike for various international bodies. The 'threshold of detectability' refers in the first instance to the fact that 'the size of the hole that a missile makes in a roof is smaller than that of a single pixel in the resolution to which publicly available satellite images are degraded' (2015:8). The missiles are designed to explode *in* buildings not on them and their entry points are small, rendering them beyond the threshold of detectability of satellite imagery so that the effects of those who launch missiles cannot be seen by those who would document and evidence potential illegality. This mismatch is then used by Weizman to explore the politics of knowing (and not knowing) – and the violence that may result. Hence, it is in this second sense implying epistemological violence that I use his term. I will return to a broader version of this discussion in relation to BSF in Chapter 7.

Massey's theoretical commitment to seeing space as 'an emergent product of relations' (2005:68) complements Hertzberger's own desire that architecture invites and indeed provokes people's 'space-making' (Hertzberger, 2008:21). Both are therefore interested in space that is socially-produced and the way they treat this has implications for causality – on any claim about what buildings can do.

Importantly, both forms of space – the architecturally-produced and the socially-produced – reject the *ex ante*, closed system, one-way determinism that Broady and Marmot critique. For Massey's space, this is because it is produced by people and so cannot be known *a priori*. For Hertzberger's it is because his space requires interpretation – the implications of which are explored in the final section of this chapter. In essence, Massey and Hertzberger redraw the lines of a determinist threshold of detectability in such a way that makes people and social relations not only clearer to see, but locates them at the centre of an ontology of space. So whilst Adrian Forty is right to acknowledge users as supreme in Hertzberger's architecture (2004:313), it is also important to recognise that Hertzberger gets there not through a commitment to participative design, for example. Instead, it is his philosophy of space that rejects spatial fetishism and in its place asserts the agency of individuals and groups to engage with and interpret architectural resources with the architect supporting their ability to do that.

However, relationality remains at the core of Hertzberger's theory and practice as it does for Massey and it is to the role of relations and space that I now turn.

The Relations between Spaces and Other Spaces

How space connects through relations that exist distinctly from (without being independent of) their physical locations is a key plank in Massey's writings. Such an understanding is integral to making sense of how space matters for schooling because it allows us to recognise the spatiality that is made through process as well as focus on the school as artefact of previous activity. 'The spatial', she writes:

> can be seen as constructed out of the multiplicity of social relations across all spatial scales, from the global reach of finance and telecommunications, through the geography of the tentacles of national political power, to the social relations within the town, the settlement, the household and the workplace. (1994:4)

Hence to cut out any one place from the 'multiplicity of social relations' within which it is embedded and expect it to reveal all that is of interest socially is a hopeless ambition. So too is the converse in the sense that since socially-produced space is always being made and always 'across all spatial scales' it is clear that as a research 'object' evading temporal and spatial enclosure, this space will throw up some methodological challenges regarding how it might be 'known'. I discuss these in Chapter 4 in relation to how the research site will be defined, and the relationship of ethnography to time and space, and its potential as an appropriate research strategy.

Remaining with space and schools for the moment, however, I argue that the very relationality that Massey specifies is at the heart of education itself. I take as sufficient for the purposes of the present argument the following description by Gunther Kress of the interactions between the social and culture and which are part of how education happens. He describes a dialectic of social semiotic production:

> 'The social' is the domain of action and interaction; of practices seen as semiotic work; at all times organized in fields of power. 'Culture' is the repository of semiotic resources, of material (e.g. modes) and non-material kinds (e.g. genres, discourses), which are produced in social action. The resources are constantly drawn back into use in social action, and, in social action, constantly remade. (Kress, 2012:370)

Part of formal education is the intentional and directed entry into this dialectic. Schools are many things but one of their roles is the physical and temporal co-location of students and teachers. Here they engage in semiotic work, drawing selected semiotic resources into use and so also re-making them. Through Massey we can see how this process has both a 'backstory' and a 'beyond' that – through the always becoming space produced in social relations – are necessarily joined to whatever particular work and resources are being engaged with in any given school.

One obvious implication of this is the challenge presented by an infinite, ongoing extension of resources, of culture and cultures. If schooling is the directed, intentional engagement with particular resources and particular forms of work in a specialised building, obvious questions are who gets to decide, which particularity gets decided, and how. For this reason, 'attempts at the stabilization of meaning are … battles over the power to label space-time' (Massey, 1994:5). These battles tend to happen over where the stabilising 'cuts' are made – *which* labels and boundaries are applied. But Massey flags up the challenge to the debate itself – the process of cutting – as it were. Which semiotic work to privilege, which semiotic resources to prioritise and so therefore which to play down are battles buried in curricula, assessment criteria, mark schemes and made more or less explicit in school philosophies, teachers' decisions and students' interests.

These are often seen as aspatial things when, at root, they are the edited outcomes of space as a socially-produced phenomenon and so capable of mobilising and transforming culture (as semiotic resources). This helps to understand the irreducible dialectic that a physical school instantiates. A school provides a centre of attention for seeing particular social relationships and strengthening those relationships in the process (always, of course partly shaped by the 'fields of power' that Kress notes structure social action). But it is also a cut into 'the multiplicity of social relations across all spatial scales'. Hertzberger, I believe, understands and uses this, noting that schools should be both a representation of and possible means for 'the reconciliation of a house with the world' (2009:8). This is achieved through his use of articulation which plays with the very notion of joining and separating. In that sense, his complementarity to Massey is interesting and potentially theoretically fruitful:

> the particularity of any place is … constructed not by placing boundaries around it and defining its identity through counterposition to the other which lies beyond, but precisely (in part) through the specificity of the mix of links and interconnections *to* that 'beyond'. Places viewed this way are open and porous (original emphasis, Massey, 1994:5).

The continuities of socially-produced space, and its envelopment and shaping through school architecture relate to knowledge and schooling in ways that help to define *what schools are for and what they are about*. I want to refer to one moment in 1975 where much of the above discussion was forced into the open. The debate about space, sociality and knowledge was acknowledged and particular 'envelopes of space-time' (1994:5) were questioned, questioning too therefore the existence of and basis upon which those envelopes were made. This moment comes in an influential document (known as the Bullock Report) to government on the nature of English teaching in schools in a chapter entitled *Children from Families of Overseas Origin* although its claim concerns all children:

> No child should be expected to cast off the language and culture of the home as he crosses the school threshold, nor to live and act as though school and home represent two totally separate and different cultures which have to be kept firmly apart (Department for Education and Science, 1975:286).

This text is still used in teacher training and is widely cited, indeed this quotation reappears, paraphrased, as one of the key questions of *The Nuffield Review* (2009:3). I understand this to be because it expresses something about the value of drawing on (always social) semiotic resources and experiences in teaching and learning. This therefore invites discussion as to which of those socio-spatially distributed resources are to be drawn on. But the passage is also relevant because of specific, recent shifts in education policy. The 1975 report contrasts with recent government interest in 'cultural literacy' (Abrams, 2012:online), for example. One of the country's leading educational research and certifying establishments, Cambridge Assessment frame the educationalist E.D. Hirsch's work as a 'knowledge-based core curriculum' and Hirsch as the 'godfather of knowledge' (2015:2) whose proposals have inspired ministers, education reform and, specifically, changes to the national curriculum (ibid). These envelopes of knowledge and the definitions of education they imply are also ways of enveloping and privileging particular space-times.

It is with this sense that Massey and Hertzberger can, through their theoretical approaches, provide extremely productive ways of what it means to imagine, design and

control space and, in the process, explore what these effects might be for the control of education, what school means and what people in schools can do.

3.3 Countering Spatial Fetishism II: Designed Space and Hertzberger's Thinking Tools

What makes Hertzberger theoretically productive is his emphasis on relationality: between parts of buildings and wholes, between individuals and groups, between design and use and, of most immediate relevance, between the space an architect can give and that which users can make. His writings about buildings and people provide a practical and fruitful way to think through the relationality that is integral to a realist social science, to Doreen Massey's work and indeed, the need to provide an alternative to spatial fetishism.

His writing makes clear not just that he sees designed space as part of an open system *and* that he exploits this: he designs for recursivity where users have an active involvement with the ongoing negotiation of a building's spaces and their interpretive potential. As Jeremy Till puts it, buildings designed by Hertzberger are 'completed not by Hertzberger but by the occupants' (2013:108). His theory builds on empirical design to create a set of conceptual tools that help to think about designed space in both general terms and in the specific case of a particular building.

Hertzberger's writings cover a period of almost sixty years from the late 1950s with the disbanding of architects associated with the Modern Movement. My focus on his extensive work is therefore necessarily selective. I intend to use four concepts as a 'set of *thinking tools*' (original emphasis, Wacquant, 1989:50) after Bourdieu who described his theorising in this way. By this, I mean that spatial unit, articulation, space-making and polyvalency can provide productive ways to understand the intertwining of designed with socially-produced space. They will also help to understand the nature and characteristics of the space in PTA which I analyse and discuss in Chapters 5 onwards as well as the

'necessary consequences' as Sayer has it, of seeing space in that way. I begin with 'spatial unit'.

Spatial Unit

For Hertzberger, spatial unit signifies 'a centre of attention' (Hertzberger, 2009:11). It is 'a space that achieves a certain equilibrium between a sense of seclusion and a sense of community' (ibid). It therefore provides a definition of spatiality more explicitly based on sociality.

I use 'spatial unit' to take a step *back* from the notion of 'room' or more general 'space'. Given the ambiguity concerning school space (Chapter 2 and this chapter), spatial unit can help to revisit all of the terms involved and impose an analytic distance between the spaces I observe and the language and concepts typically used to describe them.

In the more practical terms of thinking about particular spaces in a building, spatial unit provides another important advantage. It can help to understand both physically-made space e.g. made through walls, and space made semiotically e.g. differential zoning perhaps created through a change of colour or a step, or the lit part of a room. It therefore opens up new ways to think about what a space is and how one gets made.

Clearly Hertzberger is not the first to realise that other things besides walls can be used to shape space and sociality. Another influential architect, Christopher Alexander, makes a similar point (though perhaps a little over-enthusiastically) regarding light:

> …the space we use as social space is in part defined by light. When the light is perfectly even, the social function of the space gets utterly destroyed: it even becomes difficult for people to form natural human groups (Alexander et al., 1977:1161).

However, what Hertzberger does is interesting because it offers a way to see a broader relationship between sociality, space, and the 'architectural resources' (2009:11) involved

by tying these into the concept of spatial unit. Table 3-1 includes a list of resources in the left-hand column and, to the right, how it is that these resources are *principally* doing their work of contributing to the creation of spatial units. This is a heuristic distinction not a metaphysical claim:

Table 3-1 Example Architectural Resources making Spatial Units

Architectural Resource	Principally Material or Semiotic?
Walls	Material
Doors	Material
Arches	Semiotic
Thresholds (2015:84)	Material and/or semiotic
Steps and raised levels (Hertzberger, 2009:11)	Material and semiotic
Storeys (Hertzberger, 2009:11)	Material
Light	Semiotic
Colour	Semiotic
Sound	Semiotic
Difference in Materials	Semiotic

Take a wall for example. To do a job of making a spatial unit, it does so principally through its materiality. In contrast, a change in colour scheme on the wall or a visually apparent change in materials on a floor may do the same thing semiotically. Away from architecture, a football pitch clearly relies more on semiotic, rather than material spatial divisions – a maze, the converse. It is a heuristic because of course people do not usually walk into walls, the wall is interpreted as signalling (so semiotically) its materiality beforehand.

Given that much contemporary school design attempts to reconfigure space for improved learning, spatial unit helps by providing some clues as to what, exactly, *is* differentiating one space from another. This is valuable in a general sense but also has specific application in PTA where there are no classrooms by traditional definitions since most

classrooms have no door and instead an opening that is 1.5 to 2 times wider than a standard doorway. In addition, as will be shown in Chapter 5, teachers at PTA make and change spatial units frequently by arranging photocopiers, bookshelves and screens in particular ways.

Although I have explained it here in technical terms, in Hertzberger's theory a spatial unit is always connected to the idea of a social unit – not as a direct mapping, rather part of a spatial/social dialectic. This is especially key in schools where spatial units are constantly put to work in classifying knowledge, skills, ability levels, 'play' from 'work', adults from children and so forth. Articulation will make spatial units clearer.

Articulation

If spatial unit can help to avoid a taken-for-granted, 'reading off the script' of what classrooms and spaces *are*, articulation explains how spatial units are made: it describes both the process of putting architectural resources to work and their effects of making, separating, joining and connecting spaces. In Figure 3-1, the four stylised shapes are of equal area. The increased rippling from left to right produces new spatial units:

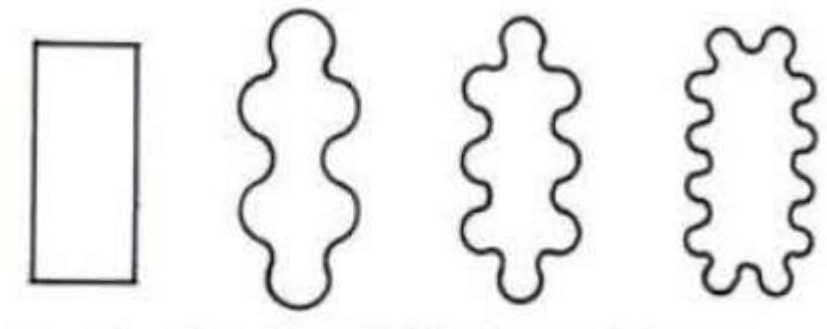


Figure 3-1 Articulated space (from Hertzberger, 2001:194)[11]

[11] Image © Herman Hertzberger, reproduced with permission from the author.

The shapes illustrate a number of key points. Firstly, to divide up is to multiply; the divisions made by the ripples create more spatial units. In this sense, articulating a spatial unit into smaller, different ones can add variety:

> Articulation, then, leads to 'expansion of capacity' and thus to greater yields from the material available. Less material is therefore needed, thanks to its greater intensity. (2001:194)

Secondly, to separate or divide up can also be to join up, to link. In this sense, articulation is a contradiction that can be used productively. The core of the contradiction can be seen in a dictionary definition of the verb 'articulate'. On one hand, related to speech, articulate indicates flow, unity and coherence of the whole: '1. Pronounce (something) clearly and distinctly. 1.1 Express (an idea or feeling) fluently and coherently.' On the other, a more technical sense of articulate emphasises division: '2. Form a joint. 2.1 Be connected by joints' (Oxford Dictionaries, 2016:online). To be articulated is therefore a whole whose expression of wholeness is achieved by the division, connection and relationships of its parts to that whole.

An example: a door can be thought of as a special kind of wall, one that can move by virtue of its hinges and therefore act as both spatial divider (when closed) and joiner (when open). Through the concept of articulation we can begin to see the power of an architectural and, if linked to social groups in the way that Hertzberger does, potentially also a socio-spatial theory based on separating and joining. In fact the door is the subject of an essay *Bridge and Door* by Georg Simmel where: 'separating and connecting are only two sides of precisely the same act' (1997:65). This idea is at the centre of Hertzberger's articulation but Hertzberger makes, I think, some advances on Simmel.

Simmel's interest is principally in the freedom a door connotes. It provides a break in a wall and so an acknowledgement that there is *something* beyond as well as giving access to that beyond. The boundary provided by the wall represents a limit to freedom, the door the means of obtaining it. Together, wall and door provide a definition of freedom (again, always material and semiotic). Hertzberger makes a very similar point (2015:68).

However, Hertzberger moves further and uses the same idea to link the individual (or individual groups) with the whole of a building's community:

> Besides leaving room for everyone's personal freedom, architecture must make space for connecting people, bringing them together and keeping them together, and has to provide the conditions to those ends. More than being a means of separation, it should emphasize those situations that hold out mutual prospects. (2015:94)

How can this happen? It is because Hertzberger's conception of space – and tools for designing and thinking it – includes both materially-determining and semiotically-suggesting space, that space can be understood as simultaneously separated and joined, and the social implications thereof more fully integrated within architecture. Hence, the predominant materiality of concrete walls make them useful as fairly unambiguous dividers of space. By contrast, glass walls and doors materially separate but semiotically join and separate – sometimes adding intrigue and curiosity, a form of invitation to join perhaps, or spy, or monitor. Colours, changes in elevation and light can also differentiate space *and* allow, even encourage connection.

Hence Hertzberger's adaptation of structuralism and curiosity regarding 'how the individual and the collective are interdependent and are able to influence one another' (2015:32) tie the different possibilities and constraints of the material vis-à-vis the semiotic into a socially grounded sense of design. Recalling Massey, cited earlier, this approach is both a way of acknowledging the multiplicities of space-as-experienced and *encouraging* it without stipulating.

Importantly for this project, the conceptual work underlying these architectural resources can also become a tool not just for future design but for exploring already built spaces and the social connections and divisions they suggest (semiotically) and demand (materially). For example, Hertzberger gives a lot of attention to the meeting of adjacent spaces, the 'in-between area' (Hertzberger, 2015:84). As has been discussed, a space of meeting is also a place of parting, and the dual properties of this juncture make it a

threshold. For Hertzberger it deserves special attention and indeed at PTA, given its fluid, sometimes ambiguous division/joining of space, it will be a useful tool there too:

> The threshold provides the key to the transition and connection between areas with divergent territorial claims and, as a place in its own right, it constitutes, essentially, the spatial condition for the meeting and dialogue between areas of different orders (Hertzberger, 2001:32).

For the purposes of this project, this has an important consequence. Following Massey, it is productive to think of thresholds in temporal as well as spatial terms. From the perspective of a student or teacher entering a school the 'in-between area' is an also an in-between time: it is, in their path from the outside of school and outside the official hours of their roles, a *moment* and space of transition. In addition, as with all of these spatial concepts, Hertzberger brings this concept back to sociality, connection and, in this case, also possession. Thresholds signify and are the result of 'divergent territorial claims' as much architecturally as they are socio-spatially. Seeing school in this way is a useful reminder, in tune with the Bullock Report and the Nuffield Review, that the concept of threshold is at once architectural, social, spatial, educational and cultural. It is vital for making a school, *school*. However, Hertzberger as with Bullock and Nuffield, holds that they should always be made permeable, the space of 'meeting and dialogue'. Thresholds – and by extension schools and education themselves to some extent – are not about exclusion *from* but the provision of a place for joining to happen.

However, whilst articulation is therefore a form of meaning-making it often does involve power which will be explored in more depth in Section 3.4. Suffice to say here that there is a connection between the spatial units formed through architecture and those performed in texts of a more traditional verbal kind:

> [T]he 'work' of classification is constantly going on in texts, with entities being either differentiated from one another, put in opposition to one another, or being set up as equivalent to one another. (Fairclough, 2003:88)

Much of the work of school is making meaning through classification that is achieved, in part, through architectural and spatial articulation. This will be revisited later.

A final note worth making on articulation is that a research design cannot limit itself to reading buildings *only* as semiotic texts. Whilst recognising the role that semiotics has in both communicating a sense of what a building is and in affecting people's likely physical and emotional responses to it, Lefebvre (1991:222) makes clear that the 'actions of social practice are expressible but not explicable through discourse; they are, precisely, acted - and not read'. As a result, a building 'can be reduced neither to a language or discourse nor to the categories and concepts developed for the study of language.' A research design must therefore seek to engage with how people feel towards and use buildings *as well as* 'reading' what can be read. Bearing this in mind, Section 3.4 discusses the role of semiotics in more detail and Chapter 4 responds with an appropriate methodology and methods. Now, however, I turn to the last two of Hertzberger's concepts I use in this thesis: space-making; and his re-working of flexibility as polyvalency.

Space-making, Flexibility and Polyvalency

Hertzberger's architecture aims to incite 'space-making' (Hertzberger, 2008:21). Rather than demanding a specific response, his theoretical aim is to increase the range of actions that people – individually and together – can accomplish. The following extract from an interview with him shows one example of how space-making can be encouraged architecturally and more importantly, the idea behind it:

> My 'teacher', and the 'teacher' of most other architects today, is Le Corbusier, who did things like making a small niche in the wall. If you have that niche in your house made of concrete, you cannot take it away and you are invited to do something with it … So in effect, the space or the features of the space are challenging you, asking you for an answer.
>
> *Without suggesting anything specific?*
>
> Without suggesting in a specific way. It's just saying 'Do something with me!' (Dyer, 2016:online)

Space-making is important because it runs counter to more deterministic architectural, cultural or school-management intentions. It emphasises the role of the user in making spaces meaningful for themselves. It exemplifies a philosophy that rejects a normative approach to school design along the lines of 'In this school you should…' and replaces it with a more open: 'In this school you *could*…' With this, Hertzberger's concept of designed space opens to the kind of space described by Massey, supporting it rather than contradicting it. Instead of attempting to fix envelopes of space-time and their meanings, therefore, Hertzberger shows how a certain level of indeterminacy might be exploited by users who want to make space in their own ways, for their own ends.

As such, Hertzberger's is a position and a way of seeing space that emphasises agency and the role of architecture in an open system. Space-making is grounded on invitation, not stipulation, through the resources that the architect can provide. And, because this invitation requires interpretation which is an explicit feature of Hertzberger's theory, he effectively adds in to the idea of a building, a world of mediation, acknowledging the 'perspectival character of knowledge and experience' (Sayer, 2000:30). People do things in buildings not because they are determined by the *building* but on their basis of *their* desires and their (always, necessarily unstable) interpretations. In doing so, Hertzberger breaks the direct causal links of a closed system representing an output as the inevitable, and only, outcome of an input. Making space is therefore also a way of making meaning both for the architect *and* for the inhabitants. There are further implications for an understanding of semiotics but I leave these until the following section. I now turn to his re-working of flexibility in the form of polyvalency which relies on space-making.

Polyvalency should be distinguished from multi-purpose, itself different from flexible, open plan (Capanna, 2013:28). A multi-purpose space is one designed with specified, intended activities in mind. The flexibility which derives from its use is that of adaptability between different intentions, for example, a drama studio one day, a performance hall another and a canteen area on yet another day: different but temporally discrete activities. The flexibility which derives from open plan is principally due to the redundancy of space providing additional options for the users: different but potentially simultaneous activities.

Polyvalence, however, is about providing signals and means of possibility and where:

> …it is not established beforehand how a form of space will act in unspecified situations, in effect providing it with a competence to be able to handle unexpected applications (Hertzberger, 2014:109).

Once more, therefore, Hertzberger shows his theory not simply to acknowledge open systems but to actively exploit the complexity and contingency of the open systems of the social world. The role of the architect is not to delimit but to resource possible actions:

> Polyvalence is premised on deliberately charging everything we make with points of leverage as opportunities for application and, accordingly, for interpretation. (ibid:112)

Polyvalence is not therefore about stripping a design back to an empty box but, on the contrary, filling it with spatial resources, articulating it and defining through material and semiotic means a range of possibilities such that people can make their own space, if they want to, in the manner they want to. Consequently, choice is seen as the real provision of means for people to decide their own courses of spatial action because they have a range of possibilities and suggestions to draw from.

3.4 Relating Semiotics and Discourse to Flexibility and Polyvalence

Institutions use buildings to enclose space in certain ways: to relate space to use, and to relate the use of space to particular groups of users. Buildings can be used as tools to offer stability to and shape social organisation. This is a view therefore of 'buildings as primarily social objects (i.e. not just aesthetic or technical ones) which can and should be subjected to social critique' (Markus and Cameron, 2002:3). Seeing buildings as objects of sociological concern makes an understanding of semiotics vital to exploring how it is that discourse is implicated in the socio-spatial tasks that buildings are made to do.

Hence in this section I provide an account of semiotics and discourse that coheres with a realist understanding of the world and with Hertzberger's thinking tools discussed above. This is both necessary and useful for a number of reasons that should help to qualify the previous paragraph. Firstly, I follow Kress, Hertzberger, Eco, Fairclough and others in accepting that buildings are semiotic objects: to be effective they will also *communicate* – as well as provide material opportunities of – use. How they do that needs to be explained. Secondly, to avoid a fetishist and determinist account of space, it is necessary to show that instead of particular spatial forms leading to *inevitable* behavioural outcomes, there is a coherent and much weaker form of communication theoretically consistent with spatial form affecting behaviour. Hertzberger's emphasis on design provides that through invitations and suggestions to users and then users' roles in interpreting (or indeed subverting) those suggestions. Finally, an explicit and defined role for the semiotics of designed space will help to understand how those meanings can be organised and operationalise particular discourses and indeed ideologies. Hence, the later part of this section explores how discourses are promoted through design and how some are promoted over others. This will assist in the work in Chapter 5 particularly where I will explore how PTA's design draws on and operationalises certain ideas of 21st century learning.

Clarifying Terms

Because 'discourse' and many other terms I use here have a variety of meanings and indeed different philosophical traditions (MacLure, 2003:174), I firstly specify how I understand and intend to use them. Very broadly, I follow a number of linguistically oriented practitioners and theorists (particularly Gunther Kress and Norman Fairclough) whose work develops from Hallidayan systemic functional linguistics to continue the application of semiotics in social analysis, and vice-versa.

I acknowledge first that the feasibility of this position has been hotly contested (see MacLure, 2003:187 for an explanation of some of these criticisms and Jones, 2007). However, moves by Fairclough (e.g. 2005 and Fairclough with Jessop and Sayer, 2004) to

align his approach to discourse as one with a more explicitly critical realist philosophy make some earlier critiques redundant[12]. In addition, the tenability of Foucault's own notion of discourse has been challenged (see Elder-Vass, 2011 also Sayer, 2010:ix for a cautionary note on the causal powers of discourse). In short, through Fairclough's positioning and on-going uncertainty about Foucault's position, this issue is perhaps not as stark now as it has been.

I take discourse to be that which 'deals with the production and organization of *meaning* about the world from an institutional position' and discourses 'to be meaning-resources available in a society to make sense of the world, social and natural, at a larger level' (original emphasis, Kress, 2010:110). That 'larger level' refers to their 'dimensions', to the scales of their domains and to their relations. Hence, words, sentences or particular parts of an image would not normally be thought of as discursive. Larger level also implies that discourses are drawn from a particular culture and so bridge instances of meaning-making and that culture is seen as a socially organised 'repository' of meaning- or semiotic resources. Finally, 'larger' refers to a level of coherence *between* domains and so is a relational quality too with discourse 'as a focus on *relations between* linguistic/semiotic elements of the social and other (including material) elements' (Fairclough, 2005:916).

[12] Fairclough argues for a 'moderately socially constructivist' (2005:916) position where ontology is not 'collapsing into epistemology' (ibid:917), in keeping with critical realism's argument for a world of being independent of the means of knowing it (Bhaskar, 2008:20). This insulates Fairclough from at least some of the critiques by others shown (not made) in MacLure (2003) since: 1) the possibility of universal truth is anyway rejected in critical realism; 2) there is no *philosophical* inconsistency between a real, intransitive world and a relative, transitive world of knowledge; and 3) he rejects the powers of discourse *per se* to construct reality. Fairclough's position in 2004 and 2005 *is* now less amenable to a poststructuralist accommodation but it is more defendable. It leaves, I think, Fairclough able to say that his discourse can refer to *how* meaning is made as well as *what* meanings are made without having to subscribe to Foucault's strong and (for Elder-Vass and others') inconsistent position. Hammersley's (1997) critique challenges the project and possibility of being 'critical' whilst producing quality research (by his terms). I think many of the examples by Kress and Fairclough that Hammersley focuses on are signs of over-reaching but Hammersley's own position is difficult since it relies on an assumption that the process of doing research has no immediate effect and therefore none to mitigate or emphasise.

Semiosis in this account is meaning-making and a form of communication. It is the production of meaning through texts (including buildings) by 'readers' and of texts by 'writers' – by people who draw on semiotic resources:

> Communication is semiotic work. Work changes things: the tools, the worker and that which is worked on. Semiotic work is no exception: it is work in the domain of the social; changes produced by social-semiotic work are meaningful. Meaning is made in communication, whatever its form … Communication is multimodal: by speech at times, as spoken comment, as instruction or request; by gaze; by actions – passing an instrument, reaching out for an instrument, by touch. At all times communication is a response to a 'prompt' (Kress, 2010:32).

When people communicate, they are designing texts between each other. Even when their actions are not communicating to others, people still communicate. Hence, instead of simply 'reading' off a building, people respond through their own design in the form of their actions and behaviour making this theory of semiotics less amenable to Lefebvre's critique, above. In addition, as Sayer notes (2010:ix) it is a mistake to treat discourses as if they were 'capable on their own of motivating people'. A response to a building is only ever a part response to the building itself – none of this is to downplay people's desires (on the contrary). However, it is also a response that will be influenced at a level that is beyond the merely physical, namely by the availability and nature of semiotic resources.

Semiotic Resources and Hertzberger's Spatial Opportunities

With the above in mind, it is now easier to see from a semiotic perspective how Hertzberger's 'spatial opportunities' (2008:11) relates to the use of space via people's choice and their freedom. Indeed, Hertzberger's reliance on interpretation means that some theory of semiotics at least is required. Here I show how a social semiotic theory such as I have drawn on is in a good position to connect Hertzberger's theoretical proposal to the world of the user engaging with designed space.

I borrow briefly the concept of polyvalence again: 'The idea of polyvalence is to design in such a way as to actively induce interpretation' (2015:140). This forms the core of his philosophy. And at the core of the semiotics of Kress and Fairclough is Halliday's statement that 'meaning is choice: selecting among options that arise in the environment of other options' (2003:8). For Halliday, Fairclough and Kress, those choices are emergent possibilities deriving from social interaction with and through cultural semiotic resources. For Hertzberger, the choices are ones that the designer has to lay down twice. This happens once on a physical level (of where it is and is not possible to move) and the second time on a semiotic level since those physical possibilities need to be signalled (or provide 'prompts' as Kress puts it) and, in the signalling, other choices are also created.

Hence Hertzberger's disapproval of open, neutral or 'generic' space is that there is not much in the way of choice or inspiration being offered – no prompts. In providing only a box, the architect is doing no semiotic work to create for the user possibilities which might inspire them:

> If generic space allows for interpretation, passively in other words, polyvalence actively induces it, encourages it and in principle incites it (2015:140).

People will, of course, find their own uses for open, generic space – I do not deny this and think redundant space is perhaps more important than Hertzberger acknowledges as I will discuss in later chapters. However, the architect has to deal with spatial and financial budgets and if bigger is not an option then it is the *form* rather than amount of space that provides their raw materials. How Hertzberger recognises this as a theorist is therefore to provide what will become users' own materials for making meaning and their own spaces. In other words, he gives them choices or prompts *and* advertises their existence, choices that say, 'Do something with me!' and that provide semiotic and material resources to do things but that do not prefigure *what* should be done.

Using Hertzberger's writings to think with is useful not just because he shows how an alternative to architectural determinism might be realised nor because he recognises and builds in the importance of the user's role in exerting their own means of interpretation.

These are practical advantages with political and ethical benefits too as Forty and Till acknowledge. However, I suggest his work goes further than this since it implies the opening of a gap in two ways.

The first gap is between the building and the user: Hertzberger breaks open the causal model which sees them as situated in a closed system. He shows us there is a mediating world requiring interpretation between the building and the people using it. As a result, the assumption that the independent variable of architecture can bear directly on the dependent variable of behaviour (and with regularity) is not so much critiqued as blown apart. As Stables et al. (2014:50) remark in their study of school design, 'a semiotic perspective frees us from deterministic assumptions'. What buildings *do* is only partly physical. Their job, as Hertzberger well knows, is to provide additional resources, requiring interpretation, in order to stimulate and provide further, spatial opportunities.

The second gap he opens follows from this and relates to time. Semiotic resources are historically 'located' and hence using a building is never only about the present but is connected to the past and the future since '[semiotic] resources are constantly drawn back into use in social action, and, in social action, constantly remade' (Kress, 2012:370). As Jan Blommaert explains, meaning is:

> derived from local enactments of historically loaded semiotic resources … The local and micro, therefore, are not synchronic but profoundly historical (2015:108).

Apart from providing a further argument in addition to Sayer's and Massey's against spatial fetishism, this enables critique of the idea that architecture and learning space design can simply be transported and planted in new territory as if all territory is neutral and history-free. The meanings people bring to buildings and the meanings buildings bring to people are always a form of 'engagement with elsewhere' (Massey, 2007:13) and other times.

This is not to say that there is no semiotic stability – there must be some in order for organizations to achieve their designated purposes. Indeed, in a very real sense seeking

stability *becomes* an organization's work since the 'the power to label space-time' (Massey, 1994:5) is very often distributed disproportionately in favour of organisational leaders. That contest happens through material means but very often their materiality relies on and helps to produce semiotic resources. As Mary Douglas (1987:48) has shown, for example, part of the 'stabilizing principle' of an institution derives from how it manages the naturalisation of certain classifications (including, by extension, articulation and the role it is put in classifying social groups and knowledge) and semiotic resources. Architecture has a significant part to play in this but would also do better for recognising the extent to which semiotic resources at a local level (even if always connected elsewhere and when) are *enabling* as Umberto Eco argues:

> all the ingenuity of an architect or designer cannot make a new form functional (and cannot give form to a new function) *without the support of existing processes of codification*… (original emphasis and ellipsis, 1997:178).

This raises many questions, not least a problematization of innovation: if Eco is right, one implication is that some kind of spatial culture ('existing processes of codification') needs to be in place for new practices and functions to emerge. In turn, this challenges the likely success of Partnerships for Schools' claims (cited earlier) that BSF is about 'step change … challenging orthodoxies … radical shifts from current practice … pushing the boundaries of the possible' (2009:5). Indeed, Eco's statement chimes with Dana Cuff's insistence that 'the interpretation of radical departures [in architectural style and form] must be tied to an analysis of norms' (2012:389). Understanding what really is new and its implications for users requires a secure understanding of what is being deviated from. Without recognising the causal powers of these codifications (normalised and structured semiotic resources equivalent to a culture or what Eco calls 'idiolect' (ibid)) to guide either what might be done in a building and how (for Eco), or how a design departs from the norm (for Cuff), designed space fails.

The point therefore is not to dismiss the semiotic work produced by people and buildings but to understand the nature of its production and transformation so how certain discourses become *the* discourses and to explore what else might be excluded.

Operationalization is key here. I described it earlier using Fairclough's (2005:934) definition but to provide an example more specifically related to architecture:

> the layouts and contents of museums and supermarkets are the material sites for the conjoining of discourses and their emergence in material and naturalized form. (Kress, 2010:113)

That 'emergence in material and naturalized form' is operationalization manifested in 'new ways of acting and being and new material arrangements' (Fairclough, 2005:931). It is therefore helpful for understanding *whose* space-time labels and stabilization attempts get to be recognised as the official ones and how:

> Organizational structures are hegemonic structures, structures which are based in and reproduce particular power relations between groups of social agents, which constitute 'fixes' with enduring capacity to manage the contradictions of organizations in ways which allow them to get on with their main business more or less successfully. (ibid)

This approach leads to and will guide two of my main research questions as I will shortly show.

Conclusion: Space as the Production of Possibilities

In this chapter I have presented a discussion and mobilisation of the ideas of Sayer, Massey, Hertzberger and others that will serve as my approach to thinking through what happens in school in relation to space both in research design (the next chapter) and later discussion of findings.

My starting point for this chapter drew on an overarching problem that was shown to exist across many debates in architecture and education, and that coalesced in the particular problem of school buildings. That was: what goes into presenting space in a deterministic fashion and what model of ontology is required in order for that to happen? Once that was understood as reliant on spatial fetishism, I showed through the work of

Massey and Hertzberger in particular how it might be reconceived. Space was seen as an ongoing, production of sociality that necessarily extends to other times and other productions of space – because space 'follows' people in a sense rather than pre-empting them.

That leaves designed space – the product of architecture – the role of contributing to the shaping sociality. In more determinist conceptions of architecture, this 'shaping' is perhaps closer to a marshalling of people. People follow the orders of architecture which is now a tool of policy and means to achieve policy aims. In the case of BSF, this was the transformation of education. Whether explicit or not, it tends to rely on an overly simplistic, closed model and Humean understanding of causality: buildings do *this*, therefore *that*; our schools will be different, therefore they will deliver education transformation.

Against this determinism, Hertzberger provides an alternative. 'Shaping' is now limited to suggesting, inciting. It involves providing architectural resources and with them spatial opportunities. This can be done through material and semiotic means. Because people now interpret designed space and they have to *make* meaning rather than simply being transmitted orders, an instability has been opened up, a space (literally and metaphorically) of possibilities.

Semiotics was used to understand how buildings, as semiotic objects, can do in theory what Hertzberger claims they can. The particular kind of semiotics I drew on is consistent with the broader philosophy of this thesis and helps to illustrate the instability that Hertzberger's architectural theory promotes. So, integrating their account of semiotics with critical realism means that Fairclough, with Jessop and Sayer, can write that:

> The effects produced by semiosis certainly depend on texts being understood in some fashion but not necessarily just in one, and only one, fashion. (2004:26)

We can say then that if a building à la Hertzberger is to do its job it will be underdetermined but not empty of signification. In contrast, a building à la PCC's thinking

seems to require that it be fully determined in order to work as an effective lever of transforming practices. As the architectural part of a broader policy aim, its job is to render the contingent inevitable. The means for doing this, however, is surprising since nominally flexible learning spaces do not provide the resourcing that Hertzberger insists spatial opportunities need. This is a contradiction that will be explored across the following three chapters.

Finally, I also showed how time was related to particular conceptions of causality and architecture, the fully determined model effectively an attempt to write the future and Hertzberger's architecture a way of leaving space for people and for their time. Understanding time in this way together with the use and imagination of architecture as a lever of transformation raise political and ethical questions as to the positioning of people in relation to buildings, and the extent of their agency that will be explored further in Chapters 6 and 7.

How socially produced space comes to be corralled by design in ways that direct it towards particular understandings of education is the focus of the first findings chapter, Chapter 5. Now, however, Chapter 4 explains how – given the nature of the problems described so far – an appropriate research design might effectively explore the learning spaces of PTA.

Chapter 4 Research Design

This chapter explains how I designed a research strategy appropriate to answering the Research Questions identified through the work in Chapters 2 and 3:

> **RQ1**) How does PTA's design draw on and operationalise ideas of transformative, 21st century education?
>
> **RQ2**) What are 'flexible learning spaces', what facilitates or inhibits their flexibility and how do these factors relate?
>
> **RQ3**) What – and where – is the role of teachers in policies and architectural discourses of innovative spaces designed to transform education?

That earlier work established the need for research into the flexibility of flexible learning spaces that would focus on what people do, their contribution to flexibility, the resources they need for that and how their own actions contributed to a lived, socially produced space in a dialectical relationship with designed space. I also showed that this research is warranted by explicit calls from others and by gaps in the existing research literature.

The chapter starts in **4.1** by focusing on what a critical realist philosophy means for this research and so relates the ontological basis on which the study is founded and the implications of that basis for knowledge. It then moves in **4.2** to a consideration of an appropriate form of ethnography and how in **4.3**, that might be operationalised in practical terms. Section **4.4** discusses the methodological limitations of the research, section **4.5** the analysis of data and the chapter closes in **4.6** with an account of the ethical considerations involved with undertaking the research.

4.1 Researching with a Critical Realist Perspective and Implications

Understanding what and who the social and material world are composed of and their relations to how that world 'works' – together with how it might be known – are questions of ontology and epistemology that are essential to coherent and effective

research (Mason, 2002:13). In addition, 'Critical realists advance a particular view of causality … [that] has implications for how social and educational researchers should act' (Scott, 2010:88). That 'particular view' was briefly explained in Chapter 1 – it focuses on the causal powers things and people have and the interactions of those powers. This section explores its methodological consequences.

Theoretical Stance

Scott above is correct but other realists also draw on a causal powers ontology without calling themselves 'critical' and I use their work too (e.g. Ellis, 2008 and Groff, 2008). I retain the label because it accurately describes the majority of my reading and is common to the approaches I use in semiotics and discourse (Fairclough et al., 2004; Fairclough, 2005). Some of this work is specific to the social world where a rationale studying social ontology is that can 'bring[] clarity and directionality' (Lawson, 2015:22) to understanding and explaining it.

This is also important for personal reasons. Researching and writing about the world without some idea to share with the reader of how that world is assumed to be increases the likelihood of misunderstanding it. We end up talking past rather than with each other – a significant problem regarding learning spaces as I showed in Chapter 2. Further, lack of clarity about education, learning spaces and their properties is used as a means of selling new education ideas and architecture as I have argued elsewhere (Wood, forthcoming). An approach that aims for clarity is no guarantee of achieving it, but it is a helpful way of beginning, given the ambiguity at hand.

However, critical realism has remained heavily skewed towards philosophical work (Scott, 2010:9) and 'its application to the collection and analysis of data at the empirical level is manifestly underdeveloped', something that 'needs to be rectified' (ibid). As a result, I have used other work including Hammersley's 'subtle realism' (1992:50-54) notwithstanding its critiques (e.g. Banfield, 2004). Other (critical) realist uses of or studies

on ethnography have also been useful. Where some have focused on structure rather than causal powers (Porter, 2002), others have used critical realism sensitively to draw out the complexity of educational situations (Barron, 2013) in order to explore a world a little less marked by the 'arrogance of sureness' (Porter, 2002:60) whilst retaining the division between being and knowing. Although I discovered it only recently, Gary Alan Fine's work is also interesting in its use of a realist perspective to explain 'the influence of the contextual' (2010:356).

Nonetheless, the predominance of theoretical groundwork in critical realism has – as I perceived it – perhaps conveyed a social accountant's model of life with a tallying of causal powers, their interactions and combined effects. It was refreshing then to read this, by Andrew Sayer:

> People do not merely have causal powers, like other objects, or indeed understandings, but have a relation to the world of concern…' (2010:ix).

A focus on causal powers in no way exhausts human social life. People have needs and desires in an 'also material' world they share with others and as such have 'common pasts and joint imagined futures' (Fine, 2010:357). When I was researching, I also drew on the work of others from a decidedly non-critical realist standpoint in an effort to concept-check how I was understanding who the 'people' in my study were. Jan Nespor provided a healthy reminder that people in research are 'real biographical entities … rather than descriptive fragments illustrating constructs of sociological discourse' (Nespor, 2000:552).

Implications of Critical Realism for the Research Project

The aim of this section is to draw out of a realist philosophy of being and knowing, the conditions and implications for a research methodology that are appropriate to my research questions and focus. Its immediate objectives are therefore to establish what the necessary and desirable features of such a methodology would be. In the subsequent section I then explain how ethnography meets and best serves those requirements.

Critical and other realisms that I draw on here distinguish what the world is from how it is known. Hence while 'Science is a social product' (Bhaskar, 1998a:xii), it need not conflate *being* and *knowing about being* in order for it to be so because 'the mechanisms [science] identifies operate prior to and independently of their discovery' (ibid). However, whilst a thing's causal powers (by thing, I also intend people for the moment) are ontologically distinct from actions and events in the world, and from another thing's causal powers, their abilities to affect and be affected should be understood in relational terms. It is the relations between things that helps to make sense of each entity's own powers which, depending on the relationship, may also be thought of as tendencies, liabilities and dispositions. These last three are simply types of powers and powers are what 'things have, in virtue of what they are, to affect other things, [or be affected by other things] given what the other things are' (Groff, 2008:2).

Another consequence of the '*relativity* of our *knowledge'* (original emphasis, Bhaskar, 1998a:x) to an independent reality of being is that this fallibility means – in common with other postpositivist approaches – that it matters who is doing the knowing and their position of knowing. Critical realism recognises the 'perspectival character of knowledge and experience' (Sayer, 2000:30). As well as leading the researcher to a reflexive position, it invites the consultation of a range of perspectives. Hence, what the researcher does themselves (eg observation) may be usefully supplemented by others (through participants' accounts in interviews, for example) on a point of epistemological principle. This indicates the value of a multi-method and multi-participant approach.

The points made by Groff, above, draw attention to the interaction between things based on what those things are. Given this, the job of a realist approach is not (directly) to explain events – indeed, 'The world consists of mechanisms not events' (Bhaskar, 2008:37) – but to identify and explain the mechanisms that give rise to events. Further implications follow.

Firstly, the injunction to look to causal powers and their mechanisms rather than events is not a methodological rejection of the importance of events. Events do suggest that

something is happening in terms of causal powers. However, to focus on events at the exclusion of non-events (which may be no less important for not occurring) can be misleading:

> Absence is a hugely valuable diagnostic category. Looking at what is missing in a social context/situation or entity/institution/organization will often give a clue as to how that situation and so on is going to, or needs to change (Bhaskar, 2014:xii).

This would become useful for thinking about the absence of flexibility, for example. But looking beyond events to causal mechanisms is useful for a second reason. The social world is an open system where *many* causal powers are constantly interacting in ways that countervail, limit, and otherwise influence each other to shape the nature of events: 'any given event is multiply determined by a number of interacting factors' (Elder-Vass, 2013:17).

Explanation therefore requires first the identification of single causal powers (retroduction, discussed further below) and, second, the range of entities and their causal powers being exercised *and* how these causal powers interact (retrodiction, as before). Given the different types of entity I am researching (people, buildings, architectural resources used to make space and so forth), a range of methods is likely to be useful because of the difference in what these things are and hence their different causal powers.

In the following section I take forward what the exploration shown here suggests would make for a productive and coherent methodology, namely: attention to context and relations; looking beyond events and entities to causal powers; reflexivity and a range of perspectives; a range of appropriate methods and what does not happen as well as what does.

4.2 Rationale for Adopting an Ethnographic Approach

This section bridges the implications of a realist philosophy and Section 4.3 where I explain the use of particular methods. I show how ethnography is the most suitable logic and approach for this research principally because its physical and social, long-term engagement with one case would help to: get to know a group of people, work alongside them, and observe and talk with them in order to understand a range of different perspectives. It would provide extended opportunities to explore the context of and relations between people, designed space and the culture they work in. In turn, this would facilitate understanding the lived, contemporary realities of spaces designed to be flexible and transform education.

Defining Ethnography

Because there is an 'uncertainty of sense' (Hammersley and Atkinson, 2007:2) about what ethnography is, I clarify some key ambiguities before continuing. Firstly, ethnography defines 'a research process and research *product*' (original emphasis, Hughes, 1992:441). This discussion is about ethnography as a research process. It is not *an* ethnography.

A research process is not a collection of random events but one guided by a methodological strategy which I found helpful to think of in the way Jennifer Mason suggests, as '*the logic by which you go about answering your research questions*' (original emphasis, 2002:30).

However, thinking of ethnography as a process in this way points to a close relationship between epistemology and methodology. Indeed, I align my understanding of ethnography with Agar who emphasises this aspect:

> I think of ethnography as a *kind of logic* rather than any specific method or any particular unit of study. Ethnography names an *epistemology* – a way of knowing and a kind of knowledge that results – rather than a recipe or a particular focus. (original emphasis, 2006:online)

Green et al., following Agar, condense this in the phrase 'ethnography as epistemology', seeing it as a 'logic-in-use' (2012:309). This chimes with Mason (above) and Hammersley and Atkinson's framing:

> …ethnography is not just a set of methods but rather a particular mode of looking, listening, and thinking about social phenomena. In short it displays a distinctive analytic mentality. (2007:230)

The following is therefore an account of how I understood ethnography as a kind of logic within the specific remit of this project and in light of the assumptions and arguments about space that I illustrated in Chapters 2 and 3.

Ethnography as a Research Approach Appropriate to this Study

Ethnography both as a culture of research and as a process of logic-in-use was particularly appropriate to this project for a number of reasons.

Firstly, I was learning not just about PTA, but how to do research too. Ethnography allows for understanding to develop over time (Delamont, 2008:44). That time allowed me to trial things, experiment and learn by doing.

Secondly, I was interested in how the flexibility of using space happens in one school, so how a 'causal process works out in a particular case' and therefore a form of what Sayer calls 'intensive research' (2010:163). Consequently,

> Specific, identifiable individuals are of interest in terms of their properties and their mode of connection to others … causality is analysed by examining actual connections. (ibid:164)

Exploring 'actual connections' between people, the spaces they work in and the resources they need, takes time and co-location, in short: extended fieldwork.

Thirdly, understanding those connections by establishing what they consist of and how they are related is complex and takes the form of a dialectical, iterative process. It is *in-situ* analysis and theorising. In critical realist terminology, this involves retroduction and retrodiction. Retroduction is the 'activity of identifying single causal powers and explaining the mechanisms that produce them' (Elder-Vass, 2013:18). This theoretical half is complemented by the empirical activity of retrodiction, a seeking:

> to identify the set of powers that interacted to cause the event concerned (or at least the most significant members of that set) and how they interacted with each other to cause it (ibid:18-19).

For Lawson (on whom Elder-Vass draws) it requires 'the determination … of possible antecedents of … components, *and* the empirical elimination of possible [alternative] causes' (my emphasis, 1997:221). The two activities are distinct but not discrete:

> Retrodiction depends on a retroductive understanding of the causal capabilities of the interacting entities, while retroduction must ultimately be validated by successful application to retrodictive cases (Elder-Vass, 2013:19).

This dialectic of theoretical and empirical analysis therefore moves through cycles of corroboration and/or conflict similar to ethnography's frequent description as a moving, dialectical process through data gathering, analysis and theorising suggesting its suitability to a realist research project. For example, the knowledge-producing process of ethnography has been metaphorised as: a 'cycle' (Walford, 2008:13), 'spiral' (Troman, 2006:1), 'helix' (O'Reilly, 2005:177), or is 'non-linear' (Green et al, 2012:309), 'dialectical' (Hammersley and Atkinson, 2007:159; Willis and Trondman, 2000:6), 'iterative' (Delamont, 2008:55; Hammersley and Atkinson, 2007:158; Agar, 2006:online; Fetterman, 2010:93) or 'recursive' (Agar, 2006:online). It involves 'movement back and forth between ideas and data' (Hammersley and Atkinson, 2007:159) with its goal being a 'rounded, not segmented, understanding' (Hughes, 1992:443). Both intensive realist science of the kind I propose and ethnographic inquiry are processes moving between epistemology, data collection, understanding and confirmation of the validity of interpretations in a way that treats these logics and activities as necessarily non-discrete.

Thinking in this way also means rejecting the idea that research design happens only at the beginning of projects (Mason, 2002:24). Instead of being a strict implementation of a strategy, ethnographic research means accommodating, even encouraging, contingency – it should stimulate 'serendipity' (Wolcott, 1999:69), something I tried to do by turning down the offer of office space in favour of working in the staff café area (explained further in the section on Research Methods).

I have shown that whereas analysis and validity might typically be positioned at the end of a research project, in realist research, as in ethnography, these are integrated parts of the research cycle. Analysis and interpretations of data feed into and inform subsequent data collection and validity concerns not only eventual claims made but ongoing checks of methodological appropriateness.

Reflexivity and Bodily Location in Research

In an interview, Rom Harré notes that to research in the social sciences requires recognition that 'you are part of the operation' (Edmonds and Warburton, 2016:online). There is a double involvement that ethnography recognises: 'the researcher is the main research instrument' (Troman, 2006:1).

It is important to explain *how* I was socially, intellectually and bodily in the research. Firstly, I recognise that my personal history and beliefs will have made a difference in shaping 'not just what is investigated but also what is "discovered"' (Hammersley, 2011:133). My aim is not to escape my history or beliefs (even if that were possible) but to account, as far as is possible, for their role in producing the knowledge that I have. The challenge then, since '[a]ll perception and observation are assumption-laden' (Hammersley, 1992:50) is to be as 'transparent' (Mason, 2002:192) as possible about how I interpreted PTA. As Dey (1993:63-4) puts it, 'The danger lies not in having assumptions but in not being aware of them…' (cited in Walford, 2008:10).

The ethnographer brings their body as well as history into the research. As Amanda Coffey argues: 'We cannot divorce our scholarly endeavours from the bodily reality of being in the field' (1999:68) and this was brought home in a brief exchange with a (small) Year 8 student, Marie, whose opinion I discuss in Chapter 7. Briefly, however, Marie challenged me to think how I, as a 6 foot tall man, might see things, in part, *as* a 6 foot tall man. In short, she gave me a good lesson in what I had underappreciated until then was meant by 'conceptualiz[ing] yourself as active and reflexive in the research process' (Mason, 2002:86). That also meant thinking how my presence and research might have had an effect on others, in different ways.

4.3 Operationalising the Research

This section moves from considerations of being and knowledge to how the research was carried out. It describes the approach to defining the research site, what it was like to do research and then explains and justifies the methods chosen to collect data.

Refining and Defining the Research Site and Focus

Before beginning the research proper, I wanted to have some handle on the limits of the research and its site. There was a tension here because on the one hand I wanted the project to be manageable, on the other Massey, Hertzberger and realism all point to the principle that socially, semiotically and causally, the relationships that form space extend beyond any given site. The classroom or learning space is an artefact of spatial organisation, design and history and a space that leads elsewhere and to other times. As such, identifying causal powers involves studying events and the mechanisms that produce them whether or not they are in the designated research 'enclosure' (Archer, 1995:11).

In fact, equivalence between the school site and the site of causal powers is an example of the spatial fetishism I was trying to pick apart, and has been heavily critiqued (e.g.

Jessop et al., 2008:391) and in research on education more specifically (e.g. Nespor, 2000, 2002; Robertson and Dale, 2008; Grek, 2009). Moreover, I had called both Massey and Hertzberger into this project because their conceptions of space through connection were useful, critical ways of thinking how ideas of space-as-container might be challenged. I wanted to use their work precisely to see beyond a site as an *a priori* given. As a result, in the first few days of fieldwork I spent a lot of time walking in the area around the school and caught local transport. This was no immediate way to understand the implications of what lay beyond school but it did provide a reminder that there *was* a beyond.

As noted, there were few exemplars of intensive, realist research. I thought that some operational, starting questions to accompany the research questions would help and began with Goffman's:

> I assume that when individuals attend to any current situation, they face the question: 'What is it that's going on here?' (1986:8).

The focus is on the moment and on the resources and *individuals* at hand to the seeming exclusion of historic and social factors (see Fine, 2010 for further critique). However, by expanding the question, I could take advantage of Goffman's heuristics whilst putting it to work in the context of realist ethnography. For example, drawing on Bhaskar's statement that 'Absence is a hugely valuable diagnostic category' (Bhaskar, 2014:xii), I could supplement Goffman's original question with 'What is it that's *not* going on here?' This was helped by others proposing similar routes to Goffman. For example, Wolcott asks 'What is going on here?' (1999:69) and Lofland et al. suggest a process of 'tracing back' via asking, 'How did this build up?' and 'How did it happen?' (2006:154) with these last two moving from description to prompt what in realist terms would be called retrodictive explanations.

Getting into Place – A Short Account of Doing the Research

Goffman termed 'getting into place' (1989:126) a researcher's preparatory actions and

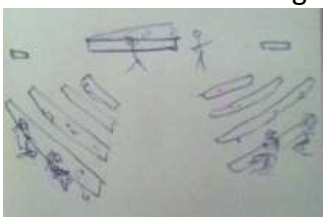
thoughts prior to and at the start of fieldwork. This section therefore provides a short account of how I conducted research at PTA.

Paul Carruthers, a member of the leadership team at PTA, acted as 'gate-keeper'. This was helped by an email (Appendix B) introducing my fieldwork and myself to PTA Staff and sent to all staff. I attached a photo to the text and this worked well as a form of ice-breaker – people often recognised me as 'the guy who's looking at space'. It also seemed to help people feel at ease since in the email I'd emphasised the fact that I was interested in their thoughts and feelings towards the space and architecture rather than emphasising the observational part of the ethnography which I could develop later with those individuals and departments where it felt most useful and least disruptive. To the extent that it is true that 'as the researcher becomes a more familiar presence, participants are less likely to behave uncharacteristically' (Walford, 2008:9), I hoped a slower investment might be friendly *and* help produce better research.

My presence in the school seemed to become accepted over time. I now had a security badge similar to other staff members allowing me to open otherwise closed doors that gave access beyond the threshold space of the atrium entrance. I chose clothing that was smart like the teachers so that I didn't stand out following Jones and Somekh for whom a researcher's clothing has the potential to signal 'equality of status with those who are being observed' (2011:133). However, I never wore a tie as male staff tended to, hoping that this might make me less inspector-like when observing lessons. In the event, my observing or even being in the school appeared to cause little in the way of interest beyond a friendly recognition that I was there for general educational reasons and I was happy with the licence this seemed to give as I could conduct my research without any awkwardness. The school itself had an informal social environment and 'outsiders' frequently float through or stay in lessons – to pull out a student for a chat, to use the photocopier in the corner, to observe more or less officially, to tap a friend on the shoulder, to mark books. My own presence, from very early on was met (as I experienced it) by a remarkable unremarkability.

My fieldnotes at this time (and this is still 4-9 months before starting fieldwork in a more

regular and comprehensive manner, once clearance had come through) were really lists of (often unconnected) observations and questions. The following extract is an early example. I had started the studentship just three weeks earlier and wanted to get a sense of the school across time and some insight into how the students experienced time and space so asked Paul Carruthers if I could 'shadow' a student for the day:

> 30/09/13
> **Gender.** I'm following a Yr 9 female student today. They're "top set". 45 students (11M:34F) Where have all the boys gone? The principal "slightly more than half the school are boys". So the boys are….in the bottom sets? Smaller groupings. Is this to aid their learning or to manage their behaviour? Is giving them more individual attention helping this or rewarding it? Is it rewarding the well-behaved girls to be taught in a class of 45?
> **Physical space/colour/images.** Exposed ducting – why? Courier New font on IWB [Interactive Whiteboard], looks "techy". 1 wall display for very large room, printed sheets on it. No human hand. Soft greys, white, peach, pastel blue. Broadcast seating:
> 
> [see diagram] How familiar is this to what home looks like? What does this space mean for these students? Does it mean modern? Cool? Sharp? Does it mean school, work? (Fieldnotes, 30/9/13)

I now discuss the methods of data collection and analysis used to answer the three main research questions.

Research Methods

The following subsections explain and justify my selection of methods for data collection. Although data were collected from September 2013 until December 2015, the 2014/5 academic year was the most intensive.

For clarity the chapter is divided into sections by individual method. In practice, however, the methods often merged. For example, observations would frequently turn into a casual conversation at the end of a lesson as I thanked the teacher for their time and

occasionally from there to a 'full blown' interview, in recognition of the fact that 'the whole rationale of ethnography is that there are not discrete *stages*' (original emphasis, Delamont, 2008:55). Similarly I was open to using a range of methods as consistent with the methodologically-informed but catholic approach to data collection suggested by Hammersley and Atkinson for whom ethnography means 'gathering whatever data are available to throw light on the issues that are the emerging focus of inquiry' (2007:3).

The weighting of the chapter broadly reflects how I invested my data collection time: it begins with participant observation followed by interviews and conversations, then questionnaires and finally documentary sources and email.

Participant Observation and Fieldnotes

Participant observation is a key tool of ethnography and sometimes synonymous with it (eg Goffman, 1989). Observation is also key to understanding designed space in schools (Medd, 1970:177; Saint, 1987:vi). Participant observation has been conceptualised on a scale or continuum (Bryman, 2008:410; Mason, 2002:92) but Mason argues that the researcher's position on that scale should not be static. In practice, 'you move between a variety of roles in any one research project for both intellectual and practical reasons' (ibid).

I selected roles that would help me to understand how the spaces were experienced by others. For example, I spent time supporting Maths lessons, much as a teaching assistant would and also spent a day with a Year 9 student traversing the divisions in time, space, skills, fun, seriousness etc that school imposes but nonetheless have to be worked at.

More usually, however, participant observation in lessons meant taking advantage of a range of opportunities that I was given and that I also helped to create. So, as well as supporting groups in Maths, I supported an individual student (also in Maths) and made more structured observations across a range of subjects. I varied where I sat in class – sometimes with students and participating with them, sometimes at the side of the class

and observing only. I observed outside of classrooms and learning spaces and in the playground too. There were, as Mason says, both practical and intellectual reasons for this.

On a practical basis, I wanted to make sure observations were convenient: I always asked Heads of Department for permission and then the particular teacher (if a classroom) or teachers (if a base).

Intellectually, varying lessons and participant observer roles was useful to gain 'adequate coverage of temporal variation' (Hammersley and Atkinson, 2007:36) across days and times of the day but also to understand how different teachers used the spaces, and a range of roles helped to do that. Architectural variation was important too and tied in with how teachers drew on a range of resources. Similarly, observing different ability groupings (the school setted all students), age groups, subjects, and lesson topics and styles within subjects all helped to give me a broader understanding of how the spaces might be used.

However, as my focus became more specific, I spent more time in English and Maths lessons. The research developed a '"funnel" approach, being progressively focused over its course' (ibid:160). The two subjects served as counterpoints: I had taught English not Maths. The alternate lenses helped me to attain a more reflexive position with respect to the data I was gathering and to 'shift from one perspective to another' (Wright Mills, 2000:7), in turn helping to 'make the familiar strange' (Gordon et al. 2007:188). This was also useful to rupture the taken-for-grantedness of space I discussed in Chapter 3.

My enquiry was partly inductive (Hammersley and Atkinson, 2007:165) though guided by research questions which changed during the course of the fieldwork. I therefore avoided a structured observation schedule with pre-defined categories of events and focal points in favour of an iterative process whereby questions or puzzles from previous observations or interviews fed into subsequent ones. Figure 4-1 is an attempt to reproduce this cycle:

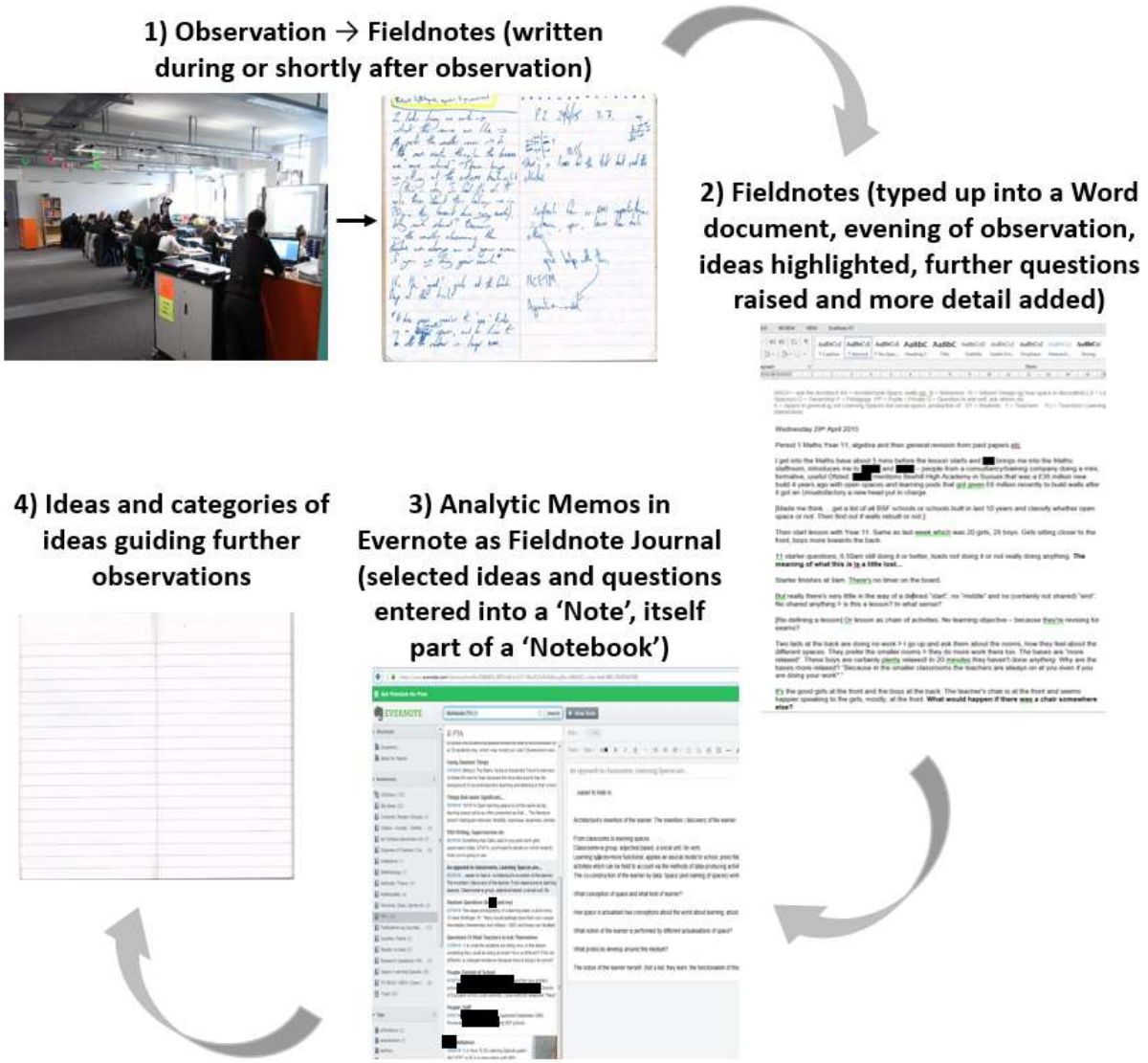


Figure 4-1 Cycle of observation, fieldnotes, analytic memos and new observations

Figure 4-1 shows the cycle of observing and recording fieldnotes [1], their transcription in Microsoft Word [2] and transformation into analytic memos in Evernote [3] which I used as a Fieldnote Journal (explained in more detail in Section 4.5). These memos often produced further puzzles and questions that were useful in guiding (without dominating as a structured schedule might) subsequent observations [4]. This was how I understood and practised what Hammersley and Atkinson call the 'dialectical interaction between data collection and data analysis' (2007:159).

Fieldnotes

In school I carried a small notebook and laptop using whichever felt most appropriate to record notes – the laptop when students were working on laptops, the notebook when they weren't. I also recorded notes during early interviews but soon stopped as it seemed to break into conversations.

In observations I tried to focus on who was in the class, what they were (not) doing and why as well as how the room was being used. Plenty of drawings helped with the latter – how desks were laid out, and if a seating plan was not being used, then where students chose to sit and how teachers responded. Likewise I tried to trace how teachers used the space and experimented with a variety of 'dynamic' drawings, tracing their movements. These proved too complicated to be helpful in the end and felt too invasive as well – I did not want to be the guy at the back scribbling into a book. This sometimes meant not getting the detail I wanted but perhaps also meant I was more involved with what was going on. As and when I could, I supplemented the notes with thoughts and feelings about the day, recording the date, lesson, class group, breakdown of gender and other details for easy retrieval later in case important.

In general, my mode of note-taking was 'comprehensive' as Wolfinger (2002:90) has it since just as he was interested in '*non*-interactions' (my emphasis, ibid:92) as a way of understanding what contributes *to* interactions, I was keen to use examples of inflexibility to think about what flexibility required. Bhaskar's suggestion of 'absence' (2014:xii) as an analytic tool proved useful.

Each evening I would type up fieldnotes into a Microsoft Word document, a process that often triggered further ideas or queries that I added to the growing Fieldwork Journal (explained in 4.5).

Interviews and Conversations

I used both interviews and conversations as tools of data collection. The former were planned, following requests in person and followed up by email. Conversations were spontaneous and the 'data collection' aspect was a secondary consideration even if informal chats were often very revealing.

Interviews

Overall, I interviewed 24 people for between 15 minutes to 1 hour although most interviews lasted approximately 30 minutes. This seemed to be the amount of time that teachers were happy to give up from a planning and preparation (i.e. non-teaching) period. A list of all interview participants, their roles and date of interview is included as Appendix C. All names are pseudonyms as explained later in the chapter.

Interviews were almost always preceded and followed by informal conversations. Both became embedded into a way of researching in the school because staff were extremely open and giving of their time so a social chat would often turn into a conversation about space and also because I saw conversations and interviews as part of the iterative cycle of researching explained in relation to observation. Consequently, conversations and interviews often stemmed from observations, analytic memos that resulted were then added to Evernote and these fed back into further interviews or I went back to the original interviewee to check interpretations and facts. Being in the school over an extended period meant that interviews were therefore not the closed and discrete things they sometimes appear as in the literature.

All interviews were therefore semi-structured since I felt this was an easier way to learn 'from the respondents what the different significances of circumstances are for *them*' (my emphasis, Sayer, 2010:165). Without a schedule but guided by notes from the analytic memos, there was also a greater possibility of 'to-and-fro' in recognition of the fact that both 'interviewers and interviewees co-construct the interview' (Walford, 2007:147) even if that 'co' was asymmetric: I had asked for the interview, I had topics I wanted to learn about; they had knowledge I did not. This was also a strategic, pragmatic decision since I

knew that I could return and ask follow-up questions or clarification later if needed: more structure might have been necessary had I not been engaged over such a long term.

Interviews changed from person to person and as the research developed. At the very beginning my questions were more fact-based and informational to get a sense of how the school worked. Soon, however, they were much more oriented towards finding out how participants understood and felt towards the spaces. At this stage I also experimented with vignettes, as described below.

An example semi-structured schedule is given in Appendix D. This is from early in the fieldwork and so is a little more 'closed' than most.

I recorded interviews with an app on my phone and a small microphone. As I explain in a later section on Ethics, voluntary informed consent formed the basis for all interviews. I transcribed the recordings myself, a useful part of the 'interpretative process' (Kvale, 1996:160). As with observation data, interview analysis is explained in Section 4.5.

Vignettes as a Research Tool

After a year of researching in the school, I experimented with using vignettes in interviews. A vignette is 'a focused description' (Miles and Huberman, 1994:81) or a 'short stor[y]' (Finch, 1987:105). In social research vignettes are used in two main ways depending on audience and purpose. They can be a form of presenting data to a study's readers and so help to contextualise discussion (eg Jacobsen, 2014; Miles and Huberman, 1994; Erickson, 1986). Alternatively (and this is how I used them), vignettes can serve as a research method in their own right to elicit a response from participants in the study and so *generate* and frame discussion (e.g. Finch, 1987; Barter and Renold, 2000; O'Dell et al, 2012). In this second application:

> Vignettes are typically short stories about a fictional character or fictional scenario appropriate to a particular study. The story places the behaviour of

> the character in a concrete context and allows the researcher to explore participants' views on the issues arising from the situation (O'Dell et al, 2012:703).

The vignettes I wrote were short (approximately 300-word), composite stories, recomposing things I had observed and heard as well as initial interpretations I had made from events, chats and more formal interviews across the school. One example is Appendix E. My vignettes were fictional but also inspired by events I had seen and heard. As such, they were rhetorical tools, juxtaposing different knowledges, close to what was going on in the school at the same time as positioning a narrative at certain distance and so perhaps creating a space that might encourage responses.

I used the vignettes towards the end of interviews so as not to lead the initial questions and discussion. I asked participants to read the text and then followed up with questions about the extent (and the ways in which) they recognised (or not) the scenario. The vignettes therefore also served as a form of respondent validation (or member-checking), a way of checking my interpretive claims (Torrance, 2012:114). In the process, they also served to make my interpretations explicit and to reflexively 'test their limits and to assess alternatives' (Hammersley and Atkinson, 2007:17).

However, I was reminded of Jennifer Mason's cautionary note:

> [Y]ou cannot expect the practice of asking research subjects to check your interpretations to be a quick-fix to the problem of interpretive validity (2002:194).

I accept this but suggest Mason's point can be broken down. For example, I am not arguing for a strong form of respondent validation in the way that Hugh Mehan did in his 'constitutive' approach to educational ethnography, characterised by the 'attempt to obtain convergence between researchers' and participants' perspectives' (1978:37). A weaker form of validation is possible. At times a checking of facts and, at others, a further exploration of my and the participant's interpretations, using vignettes in this way was also a tool in provoking on-going exploration of ideas rather than simply and solely a form of 'quality control'. They therefore had a formative, not summative, purpose. The

emphasis was on the process rather than aiming at a valid 'product': 'The evaluation of interpretations involves the *cross-checking* of one concept's sense and reference by another's… (my emphasis, Sayer, 2010:149). I understand that 'cross-checking' as part of the cyclical process of ethnography and not an arrival.

Conversations

Conversations are one of the main sources of data in ethnography (Hammersley and Atkinson, 2007:3) and that was certainly the case for this study. In contrast to interviews, conversations were much more 'serendipitous' as McGregor (2004:71) describes them in her ethnography of school and space. However, I attempted to encourage serendipity by turning down the office space I was offered and opting to spend time writing up fieldnotes in the staff café where people often gathered in their breaks or worked during free periods. This helped as a way to 'bump into' people and proved to be an unexpectedly useful method of research as I encountered a range of people and opinions that would have been impossible using only pre-planned approaches. People also seemed to be more relaxed outside of lessons and in the more informal environment of the café and this might have helped conversations to be freer.

Questionnaires

I had not initially thought of using questionnaires in the research. However, the school expressed an interest in finding out how students felt towards the learning spaces and if there were any broad patterns. A questionnaire therefore seemed appropriate and could also help my research, even if I was concentrating on teachers.

There were some important considerations, however. Time was key – whatever structure was chosen it would have to be simple and quick to complete. One questionnaire type for the whole school would also be easier to manage and so would have to be accessible to

all students, across the age range. I designed a questionnaire for teachers too in the hope that while students were completing theirs, teachers might also have time to respond. The student questionnaire is attached as Appendix H, the one for teaching staff as Appendix I.

I therefore opted for a questionnaire design with a series of statements and Likert items followed by an open response box where students and teachers could respond and explain their choices if they had time. However, researching how best to construct the questionnaire it became clear that an order bias (Malhotra, 2006:87) might mean that respondents tended to prefer whichever Likert response was visually closest to each statement (Johns, 2010:10). As a result, I opted for a split ballot approach where half of the questionnaires had the statement reversed as shown in Figure 4-2 where the terms 'bases' and 'classrooms' are switched:

	Please circle one response per statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I prefer to have lessons in the classrooms	1	2	3	4	5
	(Please explain why)					

	Please circle one response per statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I prefer to have lessons in the bases	1	2	3	4	5
	(Please explain why)					

Figure 4-2 Screenshot showing statement 1 of both questionnaire versions

A very small mark in one corner of one version helped to separate returned questionnaires by type for analysis. The questionnaire was piloted with a small group of adults first, refined, and then a pilot group of 30, Year 7 students (the youngest in the school, to check understanding). I revised the questionnaires after piloting and followed a similar process with the teachers' questionnaire although among a smaller group of pilot respondents.

Various: Documentary Sources; Emails

In this section I have grouped two data collection methods that were ancillary but nevertheless important to my research: documents and email. Their availability was *ad hoc* and came into being by virtue of my being in the school and using the site and contacts I made to understand the school more. They were useful to 'throw light' (Hammersley and Atkinson, 2007:3) on the design and use of spaces and so included on that basis.

Documents

Besides the background literature to national BSF produced by government and other agencies (discussed in Chapter 2 and elsewhere, which I do not treat as collected data), I was given a number of documents relating to the design of PTA by the sponsor of the school. A full list is included in Appendix A.

In my initial research design, I had not expected to include documents as a significant source of data. However, these documents became important in three ways. First, it soon became clear through interviews with the principal, architect and sponsor that these documents worked their way into the actions and thoughts of the participants much as Atkinson and Delamont describe: 'Texts deserve attention … because of the uses they are put to in their production, circulation, and consumption' (2005:823). They came to bear *causally* on what happened at PTA. In relation to buildings, Markus and Cameron argue that documents are especially important since they can 'condition the architect's decisions' and ultimately 'affect how the building will be experienced and used' (2002:14).

Second, they were of analytic interest in their own right, presenting particular ways of understanding school design as a tool for transforming education as will be shown in Chapter 5.

Finally, the documents served as a counterpoint to what I observed and so offered a tool to appreciate the dislocation between a building 'in theory' and the one I saw, in use. As Hammersley and Atkinson argue, such 'descriptive accounts may contrast present conditions with an ideal, pointing up the discrepancy' (2007:161) and documents are therefore often used in ethnographic research (ibid).

Email

I occasionally used email to follow up on interviews. This was particularly useful in the case of four visiting School Direct student teachers I interviewed in person at PTA towards the end of January 2015. As their placements at PTA were only temporary and they were shortly to move back to their 'home' schools – all with traditional classroom layouts – I was curious as to their subsequent reactions. An epistemological and methodological point raised by Frankham and MacRae (2011:34) reflected my readings of Massey and Hertzberger and was relevant too, namely that people's actions and words are 'entangled with many other 'worlds' and words' (ibid). These may not be immediately accessible but we can at least try to 'gain insight' (ibid). Email afforded a way to attempt that, although it also raises further questions about when and where the boundaries of a research site have to be drawn (an issue I return to in the Methodological Limitations section, below). The email is included as Appendix F.

4.4 Methodological Limitations

This section discusses how the research was limited. Sometimes I had to make decisions that were trade-offs: no ideal outcome could be reached and I made (or thought I made)

the best decision I could at the time. Others (such as anonymity, explored below) I had perhaps not done enough work early in the study to appreciate or foresee the extent of ongoing effects.

Extent of the Research Site / Single Case Study

As with most ethnographies, this research project explored one case in depth. The 'case' here was partly influenced by the studentship created before I joined and partly by what was useful in terms of providing adequate explanations of flexibility within the resources of time available. As already cited, 'causality is analysed by examining actual connections' between people and other resources (Sayer, 2010:164). The focus is therefore concentrated on those relationships and connections that seem to have most explanatory value for understanding why the events that happen, happen in the way they do. In this sense, the case as a site is shaped by where those connections are. It is for this reason that I emailed the School Direct trainee students, went for walks in the area surrounding PTA and occasionally to the pub with teachers after work on a Friday. A causal powers approach therefore tends to lead 'backwards' (in space and time), retroductively, in the first instance to explore what seems to be producing an event and following that line of enquiry. The extent of those connections had to be decided on that basis of what seemed to be most productive given the resources available.

Similarly, the decision to explore one case in depth rather than to adopt a comparative research design was shaped again partly by the arrangements of the studentship but also by an epistemological point. A comparative design may have been revealing at the level of causal powers which, as necessary properties of entities are generalizable to other, similar entities, but not at the level of events which, in an open system are rarely generalizable (discussed further in 4.5). However, researching across two or more cases would have limited the extent to which I could have come to know either case and reduced the possibility of exploring the connections that were causally productive in

both. Given the nature of this study, it is likely although impossible to say with certainty, that my understanding of both sites would therefore be limited.

Anonymity as a Methodological Limitation

Anonymising PTA and participants was explained briefly at the beginning of the thesis and is discussed further in 4.6, in respect of ethics. However, the decision to anonymise invoked methodological limitations which are explained here.

First, anonymising the school and participants in the research limited the way in which readers and researchers can 'respond to or challenge the account' (Nespor, 2000:551-2). There is no way to mitigate this other than to testify to the fact that I collected and analysed data in an honest way and as ethically as I could. This does not resolve the issue I realise and below I suggest how I might have researched PTA non-anonymously.

Second, the anonymization of places and settings can have 'ontological effects in helping decouple events from specific locations and facilitating their use in certain kinds of theoretical claims' (Nespor, 2000:546). Jessop et al (2008:392) raise a similar point, stressing the value of 'historically specific geographies of social relations'. Anonymity limits reference to these geographies and so risks representing PTA as a *world apart* and effectively deleting the history and culture of Pottisham. Ironically, my thesis attempts to draw attention to context and the role of space, time and process. As a result, I have become particularly aware of these risks and though I can say with some confidence that I have mitigated – as far as is possible – their effects, the 'anonymous PTA' remains a problem.

Third, some of the information that I have deleted or obscured is meaningful. If x says "XXXXX", it may have mattered who x was, for example, if they were a teacher who was also a Department Head or a Union Rep for example. I included as much information on

interviewed participants as was useful without compromising their right to anonymity. This trade-off is explored further in the section on Ethics.

Fourth, I have not included some (possibly identifying information) that might have been useful including, for example, photographs of the building's exterior or surrounding area. Again, this trade-off is explained in the Ethics section.

Whilst knowing they would not be named might have encouraged participants to speak more freely, this is only a hypothetical comfort. In hindsight, I would have explored the possibility of conducting the study openly, perhaps by conducting a few 'pilot' interviews where participants were told honestly that their accounts *might* be published and the school named. It would have been relatively easy then to move from non-anonymous to anonymous; the opposite journey is not available.

4.5 Analysing the Research Data

The analytic processes I followed and techniques I used during the fieldwork period and after are explained and justified here. They were integrated with the research as a whole: in spite of many disagreements, ethnographers appear united that 'the analysis of data is not a distinct stage of the research' (Hammersley and Atkinson, 2007:158).

I begin by showing a summary of the types and sources of data I collected – a data 'audit trail' (Thomson, 2014a:online). Next, I explain my use of a fieldwork journal and analytic memos as my main formal tool of analysis throughout the research. This is followed by an account of the steps I took to move from making connections between the data to answering the research questions by drawing on realist theorists and the work of ethnographers from a range of perspectives.

Data Audit

Table 4-1 shows a breakdown of the data collected by method and/or form of observation (refer to the individual sections on data collection, earlier, for further details). The table excludes conversations and more general participant observation. In addition, interview participants (anonymised) are listed as Appendix C.

Table 4-1 Data Audit

Data Source and (Type)	Number	Amount
Days in PTA	71	
Lesson Observations	35	62:50 hours
TLC / Mentoring	8	03:30 hours
Interviews	24 people	13:01 hours
Department Meeting Observations	6	04:40 hours
Other Meeting Observations	16	20:00 hours
Questionnaires (Student)	400	
Questionnaires (Teaching Staff)	30	

Fieldwork Journal and Analytic Memos as 'Sense-Making Tools'

As noted in the data collection section, observing, interviewing and simply being in the school gave rise to connections, hunches and further questions. These often happened on the spot in which I case I wrote them in my fieldnotes. However, very often a thought came to me during transcription or during the 'meaningful interaction' (Wolfinger, 2002:87) between writing down in the field and writing up at home. It was these connections (and sometimes discrepancies) between accounts or observations that formed the 'analytic memos' of my fieldwork journal (Hammersley and Atkinson, 2007:150).

Miles and Huberman (1994:72) explain their role:

> Memos are primarily conceptual in intent. They don't just report data; they tie together different pieces of data into a recognizable cluster, often to show that those data are instances of a general concept … They are one of the most useful and powerful sense-making tools at hand.

My memos were written directly into Evernote (both an app on my phone and web-based workspace which I tended to use when transcribing or writing up fieldnotes). This helped to store, manage and organise information including photos of sketches I had drawn of a classroom layouts, for example. Figure 4-3 shows a screenshot of the web-based version of Evernote.

The Evernote fieldwork journal containing these memos was therefore aiding the 'review and development of analytic ideas' (Hammersley and Atkinson, 2007:150). I came to see it as a 'bridge' to retain coherence, trigger connections and record puzzles or conflicts between data collection, analysis and theory. It became key to my research and Sara Delamont's injunction helped me to see it as part of the cyclical *process* of researching: 'It is absolutely fatal to separate analysis and writing up from the fieldwork' (2008:53). In fact simple 'memos' sometimes became extended writing some of which, much edited and knocked about by subsequent observations and memos, form parts of this thesis.

In Evernote, 'Notes' (in my case the analytic memos I made) sit inside 'Notebooks' so functioning a little like categories and themes although their use at this stage was far more exploratory. Notes could be 'tagged' and, within a note, phrases or words hyperlinked to other notes outside of a particular notebook so allowing 'horizontal' connections too. In this way I could retain an archival independence of interview data from, say, fieldnotes whilst using html 'hyperlinks', tags and the search function to draw similarities and differences across data types. These also helped to retrieve particular phrases and names. In addition, this became a helpful way to connect my reading of research literature and theory with my empirical findings. Figure 4-3 shows an annotated screenshot.

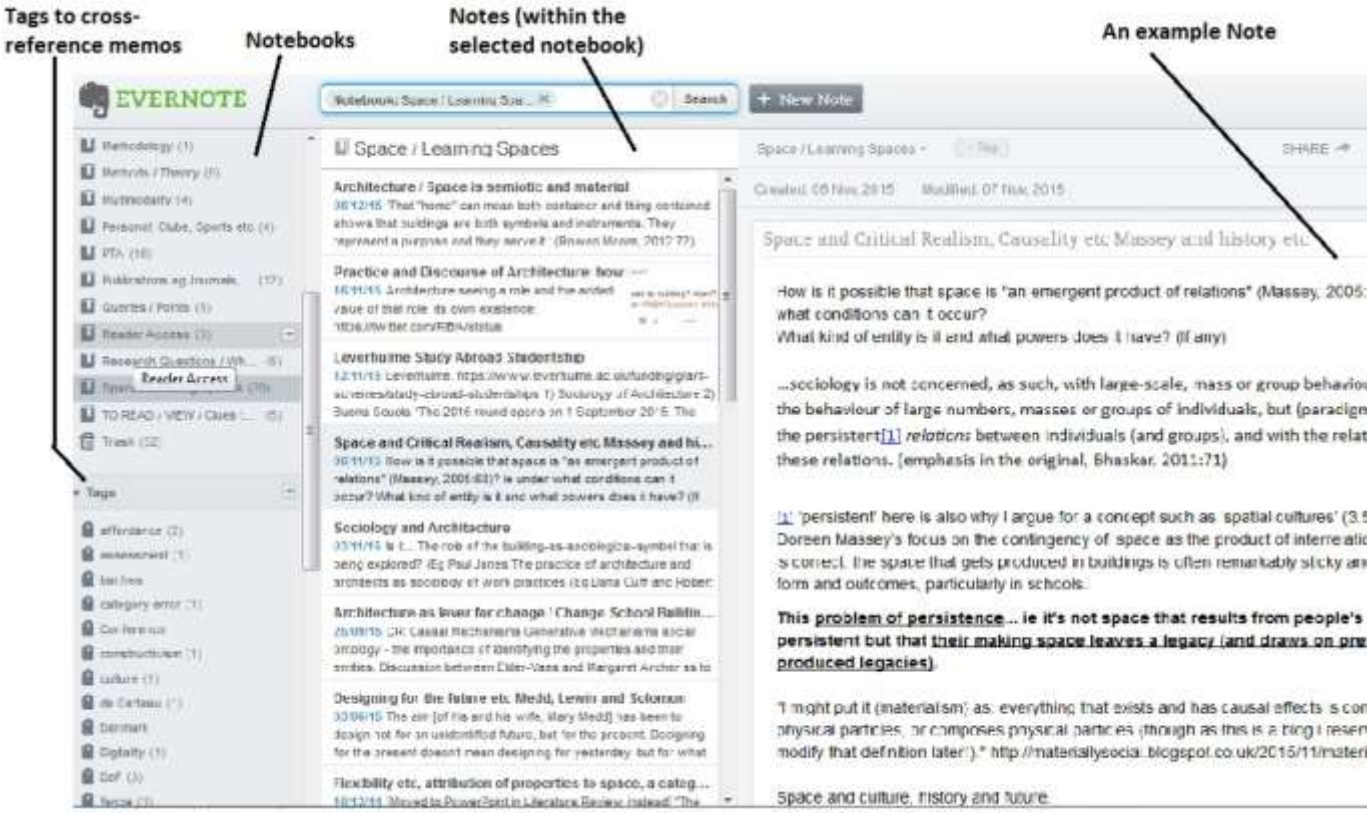


Figure 4-3 Screenshot of Evernote as Fieldwork Journal

I began the project with a very different understanding of what ethnographic analysis is – I had assumed analysis happened at the *end* of research and applied to a complete 'body' of data, rather than an integrated, iterative process throughout. As such, I had planned to analyse my collected, complete data using the thematic networks method of Attride-Stirling (2001). I had read this paper in the first year of my PhD and was impressed by its stated ability to 'enable[] a methodical systematization of textual data' (ibid:386). But if, as Silverman and Marvasti (2008:379) point out, 'false leads and dead ends are just as worth reporting as the method eventually chosen' then it is worth noting that this is not what happened.

In fact, as the research progressed it became clearer that there was a danger in such a method for the kind of investigation I was undertaking: such a technique could impose an order in response to the perceived want of one and predetermine the existence of themes 'in' the data as if independent of the process of analysis itself. It seemed too that it encouraged a focus on 'finding the answer' at the end – in fact, being in the school

while analysis was ongoing was so much more helpful as I could speak to people, test ideas and feed them back into (a now adapted) research design and cycles of observation.

Rather than deny the iterative nature of analysis, I should exploit it, I decided. Evernote therefore became much more than a storage and linking facility for ideas and perhaps closer to a Computer Assisted Qualitative Data Analysis (CAQDAS) program although used in a more formative rather than summative manner. As with a CAQDAS program, tentative ideas as memos could be expanded or disregarded as research continued in way that mirrored categories being transformed, and data organised and re-organised (Hammersley and Atkinson, 2007:153). As a result, Notes and Notebooks were often re-named and Notes (analytic memos) moved from one Notebook to another as themes emerged and changed.

However, it became time to *arrive somewhere*, in explanation terms. Towards the end of the project, I had clusters of ideas and connections and contrasts with the literature that enabled me to start answering the research questions. In short, it felt as Howard Becker describes it:

> You will just want to be sure that when you do stop, the interviews and observations you have and what you want to say coincide, your data supporting your conclusions and your conclusions not going beyond what your data can support (2012:15).

This marked the entry into a more formal phase of the analysis. Looking back, most of my analytic thinking had been done in and through Evernote but I was still missing some kind or orientation and selection of the material.

Explanation, Retroduction, Retrodiction and 'Tracing Back'

This section recounts the more directed part of the analytic process, more oriented to explaining what happened in the spaces and why. What happened next then was about being selective, recognising that any analysis is ultimately 'intrinsically incomplete'

(Geertz, 1973:29). Elder-Vass too acknowledges that any explanation will 'always be partial' (2013:28), requiring 'subjective decisions about how far to follow the causal chains and which ones to prioritise' (Elder-Vass, 2010:178).

I drew on a range of sources regarding retrodiction and retroduction (e.g. Lawson, 1997; Bhaskar, 1998b and Elder-Vass, 2010 and 2013) and methodological 'tips' from researchers (Goffman, 1986:8; Wolcott, 1999:69; Lofland et al., 2006:154-155) as discussed earlier in the chapter. These were therefore both questions guiding the course of my research and its analysis – the two, as I have already noted, being integrated. At this stage, however, I formalised the questions into a series of stages which helped me think through the already organised memos and data in Evernote:

1. Identify the causal powers of separate, relevant factors influencing the lesson/what others cite as reasons that are related to Research Questions 1-3.
2. Explain and argue for the mechanisms generating those causal powers and through which they act.
3. Identify how these causal powers relate and interact to work with and against each other to frustrate the teachers' and students' readily flexible use of the learning spaces-in-use. That is, 'reintroduce[] the complexity that is abstracted from when we focus on identifying individual causal mechanisms' (Elder-Vass, 2010:176).
4. Confirm as best I could the validity of an account by seeking alternative explanations that might more effectively explain what happened.

The selection and reduction of data involved in the course of this process made me want to see (physically) all of the data I had. Interview transcripts and fieldnotes had long ago been entered into Microsoft Word, printed off and annotated, and I now printed all of the Evernote notes (the analytic memos) and their associated tags, links and their 'home' Notebooks.

More work and thought than I realised had already happened between the annotation of transcripts and fieldnotes on the one hand, and analytic memos and their groupings on

the other. I opened a new Word document and spent a week organising and selecting memos which appeared to answer the research questions into one column and their associated data into another. Over the next six months that document grew in length and 'outwards' as clearer themes more strictly tied to the questions emerged and the questions themselves transformed to meet what the data could 'support' as Becker puts it.

The document became a 20 page, heavily condensed, account of my research focus and the bones of what would become my arguments in response to the three main research questions. Printed and spread out, it also allowed me (in a variety of ink colours, by hand) to bring back in some of the connections that had been lost or that were now more obvious. An example of coded data from this document is included as Appendix J. The document as a whole (i.e. showing all of the Group and Theme-names but without raw data and relations shown between themes) is attached as Appendix K.

Assessing the Quality of Data, and Knowledge Claims

My process with and through the data explained, the purpose of this section is to turn a lens on the strength of the knowledge claims I make in Chapter 5 onwards as well as on the quality of the data that grounds those claims.

Assessing the Quality of Data

Using vignettes in questionnaires and interviews, and a range of data collection methods with different people throughout the project were all ways of building data-checking into the research design. This was important because just as the researcher can erroneously believe something to be the cause of an event or someone's behaviour, so can others. For example, one teacher said in an interview:

> I can walk through [the base] and see a child misbehaving and just deal with it as I'm walking past and the teacher doesn't feel like I've intruded or anything like that and doesn't take it negatively (Interview, English Teacher Jane Hawkins, 16/7/15).

This a knowledge claim about someone else's knowledge. Regardless of its truth, it is interesting in itself because of how this person understands the space and assumes (or knows how) others also feel about the space. Because I have the rest of the interview, I know that they are presenting their beliefs about shared responsibility and authority, territoriality vis-à-vis the ownership of space, and also linking these things (causally) to the openness of the learning spaces. True or not, it is interesting they understand things in this way.

But they might be wrong. 'The teacher' *might* feel intruded upon. In which case the above example becomes more problematic but also, in a way, more interesting. As a consequence, collecting data was also an ongoing checking of data against other data or corroboration (Sayer, 2010:165). This is not simply a sense of triangulation to arrive at one definitive answer – indeed who 'the teacher' above *is*, is problematic: is it all teachers in the department, most, or just one or two? The problem cannot be resolved simply by asking everyone either since they may not want to say. The only practical means then is to assess data on an ongoing basis by getting a range of responses through a range of different means and to return the interpretations of new data to interpretations already made such that:

> The meaning of each part [of an interpretation] is continually re-examined in relation to the meaning of the whole and vice versa (Sayer, 2010:149).

Of course, this process cannot provide a guarantee of definitive data quality but only increase the likelihood that the data do support the interpretations made. This is a formative process of establishing knowledge claims rather than a summative conclusion of their veracity therefore.

Assessing Knowledge Claims

A similar process applies to my own knowledge claims but where the responsibility is now mine to 'make transparent how it is that [I] got to [my] interpretations' (Mason, 2002:192). I understand knowledge to be:

> a variety of belief and thus a property of individuals, but there are social reasons why we credit some of our beliefs (and not others) with the quality of being knowledge (Elder-Vass, 2013:208).

Knowledge is therefore 'essentially normative because it depends on [justified] beliefs being authorised as knowledge' (ibid:214). Beliefs need to be justified which happens through 'appropriate processes' (ibid) and appropriate-ness is itself the judgement of those licensed within a community to pass such judgements. These can be eventual readers of this thesis and of course its examiners but within the research project itself, they can also be participants. Just as 'likely validity … is determined by relevant research communities' (Hammersley, 2007:295; see also Scott, 2010:53) so it must be for knowledge claims within the *researched* community unless we are to have not just different standards but *kinds* of knowledge for different communities.

To be sure, this is not an automatic happening since the 'intelligibility [of interpretations] is an *achievement*' (original emphasis, Hammersley, 2007:291). As already discussed, asking participants for their opinion on an interpretation is not 'a quick-fix to the problem of interpretive validity' (Mason, 2002:194) although it can and, I would argue, should be one part.

In essence, this is my justification for treating knowledge claims in this way. It is not unproblematic. For example, after one teacher, Amy Shoesmith, had read a vignette towards the end of an interview, she responded with:

> No everything sounds like there's nothing surprising except one where the kids seemed quieter - I think sometimes it just seems way too noisy erm (Interview, Maths Teacher Amy Shoesmith, 2/12/14).

My interpretation (expressed in the vignette) that the students were very quiet in lessons was at odds with hers and so prompted further exploration.

Consequently, I see validity not as a quality that a project simply has or not. On this point, I disagree with Denzin's reasoning but support his conclusion that it may be more helpful to think of validity in terms of 'legitimacy or authority' (1997:28).
Validity/legitimacy/authority in this sense is a continuum. Working towards the 'quality' end of that spectrum via the continual re-examination that Sayer suggests, was helped by an iterative research design and engaging with participants on the substance and nature of interpretations.

The Possibility of Generalisation

In realist philosophy (and many others not explicitly realist), events and outcomes in the social world are the results of multiple determination – many causal powers have interacted in particular ways to contribute to what has happened (Bhaskar, 2008:112). Further, the openness of the social world means that the things which constitute it can feed back and affect other things. For example, teachers change their spaces or develop workarounds to accommodate for an inconvenience. And other things happen too, with their own causal powers: fire alarms; problems at home; snow falling outside the window; Ofsted. The particular events and conditions that I researched under will almost certainly never occur again. Even if they did, people, being people and not billiard balls, would respond in unpredictable ways. This necessitates a particular approach to what has traditionally been called generalisability.

At the level of events and outcomes, this research is unlikely to produce generalizable results. Nor should it. In fact, to expect it to do so would require a model of the world and all of its interactions as a closed system and the observer to be impossibly fixed in a space impossibly the same for all (Massey, 1994:3). The end result is that 'the hallmark of theory is not the formalization of regularities in empirical events but conceptual analysis' (Sayer, 2000:136). Sayer also notes:

> What causes something to happen has nothing to do with the number of times we have observed it happening. Explanation depends instead on identifying causal mechanisms and how they work, and discovering if they have been activated and under what conditions (Sayer, 2000:14).

As such, this research has explored how and why the social world of one school (and any effects of the architecture made for it) is complex. That has involved establishing at (a theoretical level so far) that because causal powers are often *interpreted* rather than directly experienced, they can have (potentially) any number of effects: 'Actual concrete patterns and contingent relations are unlikely to be representative' (Sayer, 2010:164). However, at a level of causal powers, generalisation is not only possible but a *necessary* consequence of things being the things they are (Sayer, 2010:164). In practice, this means that (because of the open nature of the social world, and because people do not have only causal powers but desires and vulnerabilities), this thesis's account of *what* events happened at PTA is unlikely to be generalisable. 'Particularity is universal' (Fine, 2010:356) and so it should be acknowledged and dealt with rather than ignored. But, at the level of *how* events happened (or did not happen), some generalisation *may* be possible. For example, if the particularly high stakes assessment culture limited the way a learning space could be used at PTA, then one conclusion is that such a culture *could* affect learning spaces elsewhere, not that it *will*. As such, it would be legitimate to at least consider the possibility.

4.6 Ethics and Anonymity

I was guided to research ethically by four domains of practice. First, I adhered to the British Educational Research Association's (hereafter BERA) *Ethical Guidelines for Educational Research* (2011). Second, the Ethics Committee of Manchester Metropolitan University (hereafter MMU). Third, a contract between Pottisham Technology Academy and MMU. Fourth, my experience as a teacher.

BERA's guidelines provide that 'the norm for the conduct of research' (2011:6) is voluntary informed consent. This was formalised in the Study Information Sheet and Informed Consent Form (Appendix G) given to participants at the beginning of interviews. It explained what the research was about and how findings would be used. However, I wanted to make sure this was meaningful rather than tokenistic and so whenever I asked people for interviews, I always explained more informally why I wanted to speak to them. I also explained their right to withdraw at any point and that people's names and the school's name would be anonymised (anonymity is discussed in more detail in the separate section, below). Observations were conducted with verbal, voluntary informed consent, checking with both Heads of Department and particular teachers whether they would be happy for me to observe. Data from interviews and elsewhere was stored securely or, if electronic, password-protected.

Towards the end of the first year of my PhD, I applied for and was granted ethical clearance to research by MMU subject to their advice and stipulations, and to which I adhered.

My studentship was a collaboration between MMU and PTA that involved a financial contribution from both parties. My responsibilities were regulated by my own studentship contract with MMU and via the contract of collaboration between MMU and PTA that included the financial agreement. At no time did I compromise any of these agreements and I have always had freedom, even encouragement, from PTA to write and publish what I wish. In terms of a return contribution to PTA, I provided regular reports on my research and findings. At the end of the studentship I collated and analysed all of the questionnaire data from staff and students and presented that with a final report. The gate-keeper, Paul Carruthers, provided the specification in terms of what would be useful to the school and also asked for a podcast to accompany the report. Paul has since said that the report has been used to consider how the bases might be adjusted acoustically. Separate to this, I also a mentored a trainee teacher in my first year of fieldwork which I believe he found useful.

Most significantly in personal terms, researching ethically meant considering how my actions and thoughts met with participants' own feelings. This was an understanding of my responsibilities that was closer to an 'ethics of care' (Piper and Simons, 2004:58) and more 'situated' too so regarded less what I *had* to do then what I felt I should do or not do in each particular context of interacting with people in the school. This was brought home by one, very experienced teacher:

> It's the most insecure time we've ever been through I think as teachers where you feel really iffy about who's watching me and who's evaluating me…or – 'What are they saying?' (Interview, Humanities Teacher Geoff Walker, 1/10/14).

I was extremely careful then about how I observed, being friendly and positive but also where to look if a student made a cheeky comment or when to wander quietly off if a lesson went badly. Researching over such a long period also meant these were decisions and feelings that derived from being part of a social community rather than simply injunctions of proper ethical conduct. As such, they were also often spur of the moment decisions, conducted in what I took to be the most appropriate way at the time.

Anonymity and Pseudonyms

My intention behind anonymising the school's and participants' names was primarily to protect participants' right to privacy and secondarily to open up the range of topics I could discuss with them. This section discusses the ethical reasoning for that. Section 4.4 discusses research strategy implications.

I was faced with some difficult decisions regarding anonymity because I wanted to use documents relating to the design and planning of PTA that were or could be put into the public domain. This is a growing concern in terms of ethics and research outputs as Thomson notes (2014b:online) because developments in information retrieval technologies and online storage of data mean that the researcher needs to consider future as well as current scenarios.

The tension pulled in three ways: by the desire to cite from documents which were meaningful in relation to the study; by the need to anonymise participants and the school; and by the desire to reference fully for the sake of readers' and other researchers' retrievability of information. This was felt personally as well as being a response to the regulations of this university where the purpose of referencing is 'to enable others to find the information that [I] have used in [my] assignment' (Patel, 2015:6).

A decision was made in consultation with my supervisors and guided by a related piece discussing this issue in the American Psychological Association Style blog:

> In this clash of principles [i.e. 'retrievability versus confidentiality'], which one should triumph? The value of protecting participants' confidentiality must always win out (Lee and Hume-Pratuch, 2013:online).

I therefore decided to keep an anonymised list of documents referenced (Appendix A). Because of their anonymization, they do not allow retrievability but protect the identity of Pottisham and PTA. Any citations from these documents have been checked beforehand to ensure the phrases could not be found in an internet search by someone else.

Conclusion

This chapter has described the research strategy used in the study and accounted for its appropriateness to the questions asked, the site and focus of study and, ethically, to the participants involved as well as the wider research community.

A key part of that strategy was the integrated nature of the data collection, analysis and writing and the continuous refinement of interpretations. Ultimately, this means that there is a significant amount of work that will not appear in this thesis. What appears in

the following chapters is necessarily selective then and focusses on what is the most useful in supporting the claims I make.

There are three main chapters that follow (Chapters 5, 6 and 7) each responding to a relevant Research Question. Chapter 5 therefore provides an introduction to the academy, its environs and members of its leadership team in terms of how their experiences provided particular definitions of learning. As the chapter progresses I focus more on designed spaces and their organisation. Chapter 6 concentrates on the learning spaces and what the idea of flexibility meant for teachers. Based on that and on theory, it proposes an alternative way for thinking about flexibility. Chapter 7 relates PTA and flexibility to the policy climate in which BSF and PTA happened, and to the politics and ethics of school design more broadly. Finally, chapter 8 concludes, drawing together the findings from the previous three chapters in order to demonstrate the thesis's contributions to knowledge and describing potentially useful future research.

Chapter 5 The Building of Pottisham Technology Academy

This chapter sets the scene of PTA. It interprets the school in relation to the policy, education and architectural background in which it developed. It has two objectives therefore. The first is to assist the reader in understanding what the school was like, and to ground and contextualise subsequent findings and discussion chapters. The second objective moves beyond description in order to explore *how* the school came to be as it is and so its development out of people's work, its architecture, and wider discourses and policies of educational transformation. Fulfilling these two objectives, the chapter therefore responds to Research Question 1:

> **RQ1**) How does PTA's design draw on and operationalise ideas of transformative, 21st century education?

I start with an account of PTA's biographical details: its location and key developments in its construction in **5.1**, then, in **5.2**, its social and historical context. I relate these sections to the wider environment of political interest in educational transformation and improvement. I use two types of data here – documents (Pottisham County Council (PCC) strategy papers and presentations on its BSF and Academies Programmes[13]) and interviews. This part of the chapter is essentially historical (PTA opened in 2010, my research began in 2013). The three people (the sponsor, principal and architect) who were present at or close to the beginning of the project are most relevant here. The scene is then set for a more detailed focus on PTA's actual design in **5.3**. Here I illustrate how the school's organisation and architecture were often used together to achieve certain definitions and promote particular educational practices. This draws on interview data and on my observations as a participant observer.

5.1 Pottisham Interprets BSF and Academies

[13] As stated at the beginning of this thesis, these documents are anonymised and listed in Appendix A.

In Chapter 2, I discussed BSF as a national programme, and related its main aim, educational transformation, to the means and conceptions of space used to achieve it. I now explore these issues in more local terms. I turn to PTA and situate its design in the local and national contexts of BSF programmes in order to show how the design 'backstory' mobilises some senses of learning and obscures others. I give an overview of how the school came into being and then detail how contexts, actors and actions appear to have causally influenced the ways in which the school took shape.

There is a lot of information to present to the reader before I can begin to provide analysis. To manage that, I give a very short introduction immediately below to the sponsor, principal and architect. Table 5-1 then provides an overview of key events in PTA's story and leads into a discussion of the data from interviews with all of three of the above people.

Key Actors, Events and Dates in PTA's Creation

As explained in Chapter 2, the earlier generations of academies had sponsors responsible for overseeing the school's performance and management. These sponsors also appoint Head teachers (DfE, 2014:online). PTA's sponsor was a large technology company represented by Pauline McDonal who was involved from the very beginning. In 2008, with funding for the new school agreed and planning underway, Pauline sought and recruited a Head, Di Reynolds. Di was an experienced leader and became the principal (the title used) of PTA two years before the school opened, the early appointment providing the project with educational experience. It also meant Di would also be able to work with Duncan McGregor, the architect, to adapt design ideas which had been produced by PCC, an educational consultancy and two large architectural practices (including the one which Duncan worked for). Those ideas included the 'Large Learning Area/Flexible Learning Zone' (at times also 'Agile Learning Zone') which I cited in Section 1.4.

Table 5-1 uses these data to provide an overview of key events, actors and dates in PTA's planning and operation:

Table 5-1 Overview of key dates in PTA's planning and operation

Year	Main Actors	Events	
1997	National Government	A Labour government comes to power with Education a priority in its manifesto.	
2000	National Government	Academies Programme begins.	
2003	National Government	Building Schools for the Future begins.	
2006	Pottisham County Council (PCC)	Pottisham applies to national government for funds for school building and refurbishment but is rejected.	
2006/7	PCC Sponsor	Pottisham tries again, now incorporating Academies into their bid and the support of sponsors from the local economy together with the local authority and is successful.	
2007 - 2009	PCC Capital Programmes PCC Sponsor Anonymous Education Consultants Architects	Outline design principles established with educational consultants. Sponsor researches school designs, curriculum ideas and also visits schools. Architects translate PCC and Anonymous Education Consultants' ideas into concept of 'Agile Learning Zones' – essentially large, open, flexible learning spaces. These will be called 'bases'. The building's footprint is established.	
Sep 2008	Principal	Principal, Di Reynolds, appointed.	
Dec 2009	Pottisham BSF	Final Design Statement submitted to PCC Planning Department.	
Sep 2010	Whole School	PTA opens to a Year 7 cohort of 210 students.	
Sep 2011	Whole School	Year 7 & 8	
Sep 2012	Whole School	Years 7-9	
Sep 2013	Whole School	Years 7-10	**Fieldwork**
Sep 2014	Whole School	Years 7-11: School now complete	
Aug 2015	Whole School	First GCSE results	
Dec 2015	Whole School	End of Fieldwork	

As indicated in the table, PCC had previously made an unsuccessful attempt to obtain BSF funds. However, in a new attempt with a different approach aimed at academies *and* BSF, it was successful:

> Pottisham as a Local Authority came up with the idea of incorporating academies into their BSF bid and their model … was different because they went out and looked for corporate sponsors who would support them in building academies and the corporate sponsors were linked to economic growth sectors in the city (Interview, Principal Di Reynolds, 1/7/14).

PTA's sponsor, Pauline McDonal, explained the school-economy link further:

> They [PCC] wanted the academies to improve the connection between the education of students and the needs of the local economy so actually growing the sort of skills that were required around particular industry domains (Interview, Sponsor Pauline McDonal, 21/1/15).

As stated, the local authority was closely involved in PTA's origins, set-up and indeed its ethos. The interview extracts above show that understandings of the needs of and role for education are tied directly to the economy, at least at a senior level within PCC. The educational needs of students are defined by demand-side 'needs of the local economy' and the skills Pottisham's academies should grow appear to be instrumentally valued. Industry domains define the 'sort' of skills needed and so one way to see Pottisham academies is as vehicles for improving labour market efficiency. This instrumental reading of education is not the only one possible but is consistent with others, for example, Sotiria Grek for whom the:

> ideological messages for education systems in the twenty-first century… [are that they] connect … learning directly to labor market outcomes and human capital (2014:274).

In addition, Mahony and Hextall argue that BSF was part of how 'Labour's social justice agenda … was expressed within a Third Way, neo-liberal ideology' (2013:857). I will return to this in Chapter 7. In terms of this chapter and its focus on how design draws on and operationalises contemporary ideas of education, it is important to note that even before bricks have been put in the ground, education (including learning) has already begun to

be defined. Buildings and architecture, I shall now show, are expected to be key mechanisms in further refining the definitional parameters within which education can be said to correspond.

Transformation through Difference

A significant part of Chapter 2 explored how innovative school designs (and learning spaces in particular) assumed and *produced* innovation – and under what terms. Parting from the norm facilitated (or was assumed to facilitate) transformation of educational practices. But being different also attracts attention to what is being done and helps to signify financial and political investment.

When an academy building was designed to be a 'visibly different school' (DfES cited in Curtis et al, 2008:40), they instantiated and symbolised 'new, bold and different thinking' (Ball, 2007:172). In Pottisham too, this seems to have been the intention as PCC's *Strategic Education Design Brief* suggests:

> The schools in the programme will be expected to relate to and transform the unique spatial identity of Pottisham's neighbourhoods and buildings. Schools are often the largest civic buildings that are seen and visited regularly by the community, and are important in setting aspirations and ambitions (2007:3).

As well as claiming the causal power to transform education, a school building is here expected to act on the spatial identity of other buildings. One of the key mechanisms portrayed as helping to achieve that seems to be *difference*. Difference is often put to work in these documents and in what people told me in two ways, often used together. There is often evidence of a synchronic difference from other, co-existing schools and designs, and a diachronic difference from previous, or more traditional school design. I understand these forms of difference as heuristics being used to indicate and emphasise apparently innovative features rather than exclusive categories. I therefore use them to flag up how difference is being emphasised rather than as discrete analytic types.

Both forms of difference emphasis are found in Figure 5-1, an extract from Pottisham County Council's *Education Design Brief for Academies* (2008):

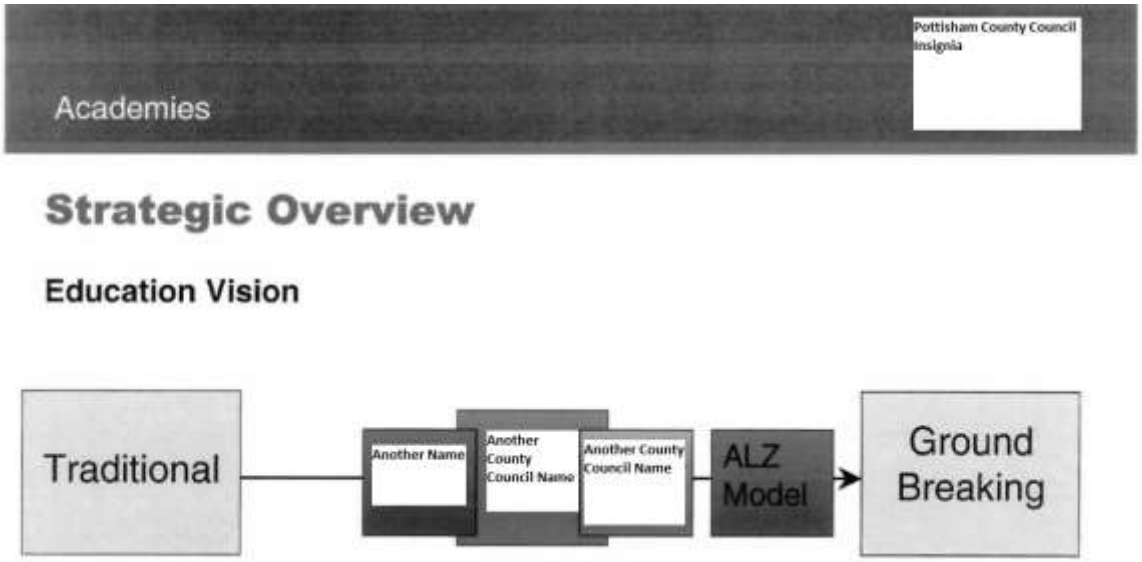


Figure 5-1 Extract of Education Design Brief

'ALZ Model' refers to the 'Agile Learning Zones' of the design discussions and which became first 'Flexible Learning Zones' and then simply 'bases' in everyday use at PTA. The movement from 'Traditional' to 'Ground-breaking' in this case uses both difference from what else is around (hence the names of other county councils' projects) and future-looking progression, different from the traditional past.

A similar process seemed to be happening in the way the Principal understood new learning space design. For example, she told me that: 'in teaching in traditional classrooms, it's still basically the "cells and bells" approach, really, of the Victorian era' (Interview, Principal Di Reynolds, 1/7/14). Here classrooms are historicised as static continuities 'still' from the 1800s. The present is linked to the past but, because the 19th century designs and practices 'still' exist, there is a sense that today's classrooms are nevertheless part of the past.

The imagery of enclosure and limitation, above, via 'cells' (i.e. spatial enclosure) and 'bells' (i.e. temporal enclosure) is associated with the past (or present-past) too. Duncan, the school's architect, sees the future at risk or thwarted by classrooms. Here they are shown to act as a 'brake' or limitation on the future:

> Roland Barthes said er...something like a classroom is four walls around... around the future. Now I suppose the whole concept of classroom is being challenged, I mean, as an outsider I see that education is going through a revolution, isn't it? (Interview, Architect Duncan McGregor, 29/9/14).

In the same interview Duncan recognises this as an issue that goes beyond design: 'it's recognised in the educational world that the old model is obsolete in terms of teaching in just one way.' It is not architecture *per se* therefore, but the entwining of architecture and teaching practices that seem to matter. Later, Duncan explains that school architecture has become frustrating since funding and design scope for new school buildings were limited after the cancellation of BSF:

> Me: Ok so it's sort of gone back to an engineering model of construction as opposed to er design?
>
> Duncan: [Drawing on paper] That's what we're building now...corridor, classroom, classroom, or cells, cells, cells, it's the same (Interview, Architect Duncan McGregor, 29/9/14).

His reading and production of classroom-as-cell belongs to and feeds a network of other signifiers. As such, this is a form of ongoing classifying (Fairclough, 2003:88) and connection work, and perhaps a way to make sense and meaning out of the vague ideas of 21st century education presented by government (Chapter 2). Terms such as: old ↔ obsolete ↔ classroom ↔ cell ↔ time boundaries ↔ tradition ↔ Victorian can be seen to stand in a mutually supporting relationship (hence the double arrows signify a two-way relationship). They join too with the ways of languaging space that I drew attention to in Chapter 2, where high profile commentators discuss the classroom as 'obsolete' and it being 'time for something new' (Nair, 2011:online) or where the social space of a classroom is fetishised, reduced to being a 'box', and where the task is to escape it and possibly discard it: 'Once we are "outside the box", will we still need it?' (Heppell, 2006:64). Many of these presentations of *forms of space* (such as the classroom) are tied in with *temporal signifiers* making them belong, in this case, to the past.

Often, an opposing set of terms, for example, new ↔ more valuable ↔ open learning space ↔ openness ↔ freedom from time ↔ revolutionary ↔ 21st Century stand in counterpoint and is referenced more or less explicitly. This second group helps to clarify, stabilise and naturalise the first (and vice-versa) as a 'rhetorical resource' (Douglas, 1986:49).

So, differentiating PTA's design – making it different – happens partly through a process of reflecting certain kinds of futures against pasts (or presents) such as those elaborated above. This is a familiar trope in architecture (particularly in the modernist period) and could be said to be part of architecture's existential work, its giving itself a reason to *be* in particular ways. For example, Frank Lloyd Wright, one of the key scene-setters for modernism promoted openness and critiqued the *room*: 'I could see little sense in this inhibition, this cellular sequestration that implied ancestors familiar with penal institutions' (2005 [1943]:142). PTA's design too is associated with openness, the future and the freedom from restrictive norms, all helped by being set against a past that is read and discussed sometimes explicitly, sometimes implicitly, as closure, denial, prison and so forth.

This differentiation is most powerful when it happens synchronically and diachronically, as if in contrast to what else is *here* (now) and to what was in the past. In early design meetings with sponsors from the other Pottisham academies, Pauline McDonal recalled thinking and saying:

> 'Well actually looking back at the past isn't that helpful – we need to look at the best of research across the world' and I know I did quite a lot of work on what people were doing in Australia and Scandinavia (Interview, Sponsor Pauline McDonal, 21/1/15).

The past here is contrasted only *indirectly* with the future via 'research' which implies a forward-facing perspective. More explicit, however, is the juxtaposition and contrast of 'the past' (time) with 'across the world' i.e. *elsewhere* (space). That time and space can be opposed might appear strange at first but in a conceptual framework where difference coordinates the signification and values between binaries but also *across* a conceptual

framework, it makes sense. In fact, the semantic field can continue to 'accept' new entries that refer to very different objects as long as their common-ness can be produced and flagged up in some way. For example:

> a lot of the research at the time talked about changing spaces and particularly talked about 'transformational learning' and a lot of the research particularly coming in from countries like Australia and America was about having large, open learning bases (Interview, Principal Di Reynolds, 1/7/14).

As in the excerpt from Pauline McDonal's interview, *here* is contrasted implicitly with *elsewhere*. Elsewhere is a place (Australia and America or Australia and Scandinavia) but it is also a (future) time (of 'research', of 'transformational learning' and 'changing spaces' and 'large, open learning bases') and so, by extension, on the right side of history perhaps. The here and now is historicised; certain places of the elsewhere are scripted into (and so help to constitute) a local, nascent discourse of transformation. This discourse provides ideological and linguistic resources in the declarations of changed futures and improvement where they can be used normatively to show the direction in which PTA's design should move.

Although the 21st century has begun at this point, it still needs to be made. Just as the programme *Building Schools for the Future*, if taken literally, means building schools for no present nor anyone alive today but an endlessly deferred, never attainable investment and future, so efforts must be made to relocate elsewhere (the future) in the present. In practical terms, this is how Di Reynolds saw Duncan's work:

> I think for him it was like matching [in worked-up designs] this theoretical vision of transformational, 21st century education which was the sort of hype (Interview, Principal Di Reynolds, 1/7/14).

On this account, there is real work to be done in materialising a discourse of transformation in designs, drawings and ultimately bricks and mortar. Di Reynolds is an experienced and savvy principal who knows that much of the conceptual and linguistic presentation of educational initiatives can be overexcited: *she knows hype when she sees it*.

The following from Pottisham's *Strategic Education Design Brief* shows how these semantic fields are linked to others such as competition 'outside' of the immediate discussion regarding new school buildings:

> Achieving a transformational change in the way education is delivered is central to the BSF/Academies Programme. lt seeks to move away from the old traditional notions of schools, challenge them and champion a new way of thinking. Old ways and methods will be questioned and tested against new ones to be introduced to facilitate the major change to education that the 21st century demands (PCC, 2007:9).

The passage connects 'notions of schools', 'way of thinking' and 'methods' to a discourse of competition exemplified by 'challenge', 'champion' and 'tested against'. As such, a logic of doing education in a new and different and winning way gains ground; the old is put into battle against the new and it is clear who will win.

A series of figurative moves helps to portray the new ways and methods as the best. Firstly, the personification of both 21st century (it 'demands') and BSF/Academies Programme (it 'seeks to move away'; 'challenge them'; 'champion' etc…) perhaps renders these two alive, dynamic and urgent against the static, pre-academy Pottisham of the then present. Secondly, this present is effectively erased by being repositioned *as* the past and so provides a sharper, discrete past set against a new future. There is the old and there is the new but nothing in-between – as if it is now a more *binary* binary. The lack of middle ground means that a contemporary conception of school (i.e. of 2007) has the triple curse of being both 'old', 'traditional' and a 'notion'. Whatever 2007 (and so undeniably 21st century) ideas of education are, they are either not 21st century enough or the wrong kind of 21st century and so disavowed and consigned to history.

The discursive resourcing of transformation is a joint effort; architecture, language of here and there, the past and the future, competition and so forth are all put to work in a mutually reinforcing coalescence or as Kress (original emphasis, 2010:113) puts it, a 'conjoining of discourses into complexes as *ideology*'. This ideology is then further supported by the emotional and ethical management of the school through the academy

ideals, formalised as five ‘Core Values’ in a list of ‘Staff competences’ (PTA, no date). These too help to promote discourses of innovation and develop a vernacular that draws on Pottisham and national discourses of transformation and reconstitutes them within PTA. Managers use these values in recruitment as ‘an attempt to make sure “we're right for you - you're right for us”’ (Carruthers, 2016:email) as well as guiding the process of performance management for existing staff.

One of the five is ‘Inspiring: Be remarkable and fail graciously’ (PTA, no date) for which two exemplars, ‘Challenge existing thinking’ and ‘Embrace new ideas from everywhere and everyone’ (ibid) illustrate how innovation is made to sit at the centre of PTA’s existence and expected to reside too in the actions and feelings of staff.

Hence it is not the case that these semantic fields simply remain as repositories of related words. They become used or promoted as ways to see, feel and act in the world and portray it to others. They provide resources for communication and thinking about what the school is and simultaneously frame how it should be thought. To the extent that ‘transformation’ is an example of moderate social constructivism (see Fairclough, 2005:916; Scott, 2010:10 and Elder-Vass, 2014:55*ff*), it happens partly through discourse resourcing and feeding forward into the ways in which schools can be thought about.

A sketch of these fields, simplified, could be represented by what Sayer (2010:15) calls a ‘framework of oppositions’. My framework follows his:

Here	Elsewhere
Past and Present-as-Past	Future
Pottisham	Australia, America, Scandinavia
Victorian era	21st century
Classroom	Learning space
Cells	Open
Walls around the future	Boundary-less future
Traditional	Ground-breaking

Table 5-2 Future-reaching through difference, a framework of oppositions

In their use and re-use, these terms are promoted and perhaps even guide what the school can become – if people take them up and choose to align their values with them. They are not organised in such a crude oppositional form as I represent here. In fact, this is partly an artefact of my analysis although the evidence does suggest that binary oppositions were a real support to making meaning about what reaching for the future and, substantively, the 21st century meant for people involved with PTA.

There is a sense that the terms above can act as a team with shared, leveraged values and occasional substitutability as properties not available to the individual words outside of the semantic field. Sayer notes that the dualisms in the framework

> do not operate singly but in parallel, providing mutual reinforcement, so that in the vertical dimension of the diagram, meanings or associations 'leak' from one term to the next (Sayer, 2010:15).

Oppositions are not only matched pairs, therefore. 'Past' can stand in opposition to 'across the world'. The terms help constitute a discourse of transformation where the 'engine' of transformation is difference, as suggested and as it was in PCC's opening to the *Education Design Brief for Academies*: 'To deliver education transformation, the designs of our schools will be different' (2008:2).

The above showed how discourses provided ways of thinking and acting about the school's design and its character. Together, as an ideology, they are a set of fairly cohesive and consistent ideas about what the future and past mean, what they consist of and therefore how movement from one to the other is possible. They seem to narrate and operationalize transformation through a rejection of the past and opposition to it. Ironically then, the past seems to guide what the future should be.

Partly justified by the above definitions of what the past and future are, and how movement from the former to the latter is possible, the design 'solution' to educational improvement was conceptualized as being achieved by difference. This may be rhetorical management:

> By aligning dualisms or binary oppositions in parallel it is possible to polarize whole fields of debate or characterize historical change as the supercession of one coherent block of characteristics by their opposites (Sayer, 2010:179).

Curiously, the transformation-through-difference that was to be achieved by openness, large learning areas and 'Flexible Learning Zones' was not any old supercession, however. Open-plan spaces were part of the past as Saint and others I drew on in Chapter 2 showed. Perhaps because that past is sufficiently far away though (or allowed or encouraged to be forgotten), flexible learning spaces can be rehabilitated as innovative and new. This raises the question of what 'new' in educational, spatial design really means.

The lack of definition provided by the DfE in terms of what 21st century education was, and that was criticised by the Select Committee and cited in Chapter 2, seemed to reappear at a local level. When I asked the academy sponsor where the idea for the flexible learning spaces had come from, her response reflected a similar vagueness about policy intentions albeit in terms of design:

> It wasn't really coming from I don't think the education domain in a sense. It was coming from this construction... Capital Programmes [a department of PCC] were looking at this er they'd got this awesome sum of money from the government I mean if you say this academy cost £32million, you've got 6 of those to build … Um but they had the opportunity to do some really interesting things so they *were* looking to do something different I think. Um and this just happened. I really don't know (Interview, Sponsor Pauline McDonal, 21/1/15).

The sense of wanting to do something different was felt at the local level as it seemed to be nationally. In keeping with the national picture, rather than a clear philosophy, things 'just happened'. When Partnerships for Schools advised on transformation, they noted that 'If what is proposed is low risk, it is probably not pushing the boundaries of the possible far enough' (PfS, 2009:5). But if boundaries are pushed, they need to be pushed by something, some 'content' or substantive ideas for what the innovation will consist of. Rather than a positive definition of that content, it seems in Pottisham to have been a negative definition, that is, a reflection of the past or present-as-past.

That leaves a lot of work for teachers and managers. In the polyvalence that Hertzberger describes, there is content, an intention to 'incite'. Here there seemed to be little in the way of semiotic resources for use and transformation (beyond reflection of the past), nor an aim of developing a social sense of space. Difference is what seemed to matter.

Section Conclusion:

The uncertainty at a national level regarding BSF (discussed in Chapter 2) and what it was supposed to do (e.g. Mahony et al., 2011:346) or what 21st century education is (e.g. House of Commons Education and Skills Committee, 2007:4; Jacob, 2015:online) seemed to exist also at a local level in Pottisham County Council's vision for education and in the architectural response. Nominally oriented towards the future, the flexible learning zones (as a concept) appeared to rest on what was simply different from before. It was hard to understand what precisely was being offered by the designs and their discursive operationalisation. Even by 2007, the 21st century appeared not to have started but was something deferred, to be aimed for although again it was unclear what, substantively, that meant in educational terms.

The above discussion was somewhat removed from the actual school in order to explore the discursive background to its creation. That perspective now shifts. I briefly describe the school's social context in 5.2, immediately below, and then illustrate the school's design and its spaces in 5.3.

5.2 PTA: its social context

This short section provides a few of PTA's biographical details by way of orientation and also to explain some of the school's freedom for movement – PTA was a new school and, with an intake that was below average for many key indicators, it may not have had the breathing room of a long-established and already-recognised successful school. This is partly speculative. I do know, however, that the school put a tremendous amount of effort into caring for its student population who were faced, by statistical indicators at least, with many outside-school challenges.

PTA is a happy school as I experienced it. Its students were friendly and staff too were very friendly and helpful. It serves an area of the city and indeed a region of the country that has traditionally been underprivileged in socio-economic terms. Nevertheless the school has a strong focus on its community's assets and works to engage people from the local area in its activities. It pays to be cautious when using FSM (Free School Meals) data to characterise a school (Hobbs and Vignoles, 2007) but as a descriptive account rather than explanatory variable it may provide some sense of the school's population. 38% of PTA's students were eligible for FSM in the 2014-5 academic year against the English average of 15.2% (DfE, 2015a:online). For the same school year and using the same Department for Education data for further comparison in parentheses, PTA differs from a nationally aggregated picture in many respects. Its percentage of students with English as an Additional Language (EAL) was 27.97 (15%), who self-report as having a minority ethnic background is 51.21% (26.6%) and who have an identified Special Educational Need (SEN) is 25.37% (15.4% in DfE, 2015b:online).

5.3 Defining a School

In this section I work from the outside of the school, in. Firstly I discuss the building's physical situation in the local area and how the relations between its siting and immediate context are managed spatially and temporally. Position, height, colours, the materials with which the school is built and their differences from their surrounding

equivalents all function, I argue, as semiotic resources to establish this school as new and distinct both from the other buildings around and as a new and different type of school.

I then explore the relationship between the exterior and interior both architecturally and what that architectural perspective signals in terms of the ideological organisation of the building taken as a whole, the relationship between its parts i.e. its articulation and the role of these in contributing to – or attempting to contribute to – a fixing of PTA's message. Next, I focus in a more detailed fashion on the inside generally before finally concentrating on the learning spaces themselves.

In this section, I rely primarily on data from participant observation, interviews with the architect and principal, and policy documents. I am mostly interested in what these people think the building is communicating and how they seem to manage that communication in order to define a particular sense of 21st century education. The perspective of teachers takes on a much more significant role in the following chapters.

Any narrative describing a field site presents a particular perspective that risks presenting a trope for the place itself (Atkinson et al., 2008:146-156). I have chosen to present this narrative in a similar way to someone arriving at the school and entering. This cannot be a neutral perspective but it at least follows how most people, including staff and students, enter the building and so is therefore faithful to the temporal and spatial 'paths' they follow.

Environs and Exterior

To help retain anonymity, I avoid showing images of the public-facing exteriors. However, they are similar to the internal elevations shown in Figure 5-7.

To limit the effects by which anonymity 'dislodges' people and organizations from history and geography (Nespor, 2000:550, discussed earlier) and because histories and

geographies are so important in my perspective (that is they have causal powers, see Archer, 1995:11), I discuss here the immediate urban and architectural surroundings of PTA. There are three immediate aims: firstly to limit the extent to which I 'abstract' (Sayer, 2000:109) my forthcoming analysis of PTA's learning spaces from the other kinds of space (e.g. the school building, this part of Pottisham) in which they exist physically and to which they contribute both physically and semiotically in defining the school; secondly to provide a richer understanding for the reader of PTA's 'feel', appearance and context; and thirdly to explore the coherence (and sometimes contradictions) between educational aims, the design of learning spaces and the architectural design of the school and its articulation.

PTA is new in many senses. It is new in an absolute sense (opening in 2010) but new relatively too when compared with the surrounding Victorian-era commercial premises. The juxtaposition of new and old help to mark this building as different. What newer buildings there are in the area belong to a recently constructed housing estate.

The houses there are smaller than PTA, have lower elevations and, because of their position slightly downhill, are lower anyway. PTA's materials, colouring, architectural styling, large size, well-kept order and cleanliness and the addition of some landscaping also serve to differentiate it, especially from the Victorian shopfronts and private businesses opposite.

The school is on the corner of two busy roads and as a result, the above distinctions have the potential to be communicated widely and so help to both signal difference and attract attention to itself *as* a signifier of difference. This seems to have been a conscious decision since the Planning Application (Pottisham City Council Planning and Highways, 2008:no page numbers) claims that the siting of the building 'will give an important urban presence', 'a focal point' and act as an 'urban landmark' helping this part of Pottisham to be recognised as an 'important gateway'.

However, at the same time that PTA's architecture and setting stage-manage a clean break from its surroundings, the building's large square volume with sharp, square angles,

plentiful use of glass and bold detailing colours against a plain façade evoke other academies built in the period 2005 onwards. PTA's *difference from* the local is therefore expressed at the same time as its *similarity to* national examples of new academy schools. Individually as a token, and collectively as a type, the above features express a different way of doing education using architecture to identify both this academy and academies as 'otherwise' (Ball, 2007:172).

Before leaving the public-facing areas of the school, it is worth noting a first contradiction between design and aims. Gislason (2010:128) argues that 'a design's success rests largely on how well it supports a given educational program'. I think this 'success' is problematic and I return to it in the conclusion. However, if we accept the general sense for the moment, then PTA shows a marked contrast to the existing urban fabric of this part of the city. Yet, in terms of social geography, the school works hard to tie itself *into* the community and the community into it. For example, it has two senior members of staff with responsibilities for community links and a team dedicated to running the community programme. It rents out its sporting facilities at below-cost rates to local groups, runs adult education classes, makes an effort to employ local people and encourages employment and skills-training for its students in the local economy as discussed above. However, the emphasis on new-ness and difference, whilst helping to advertise the school's presence and signal both investment and a new way of providing education, may also threaten the 'codifications' that Eco, cited in Chapter 3, maintains are vital for making a new building function. The building, at least externally, is less a 'reconciliation of a house with the world' (Hertzberger, 2009:8) than an attempt at a decisive break from the world.

The building's accent on difference can be thought of in mutually reinforcing spatial and temporal terms that operationalise a new and different concept of school and education. The distinction from what else is *around* is produced by a contrasting space, contrastingly arranged and decorated. But this is also an announcement of a temporal shift: difference is asserted as a signal of *change*, a statement about and attempted realisation of the future and innovation. If schools are 'designed spaces that, in their materiality, project a system of values' (Burke and Grosvenor, 2008:8) then in this sense PTA both valorises and

projects (into time and space) a *particular* vision of the future. In this, the building is coherent as the organisation of the entrance and interior suggest and to which I now turn.

Entering the School

There is one main entrance and all but staff with cars and bicycles use this. For the visitor and student then, there is no choice; the main entrance is *the* entrance. Organisationally, this facilitates control over who can enter and enables the school to fulfil its moral and legal safeguarding duties. Semiotically, there being only one entrance perhaps helps to limit the ways in which the building can be interpreted. This imposition of entrance (also the only exit) is a temporal as well as spatial control since it establishes the order in which the buildings' spaces can be experienced: first here; then there; not school; school.

The entrance itself is a glass vestibule projecting some 10 feet from the rest of the building's façade and approached by a short flight of steps shown here from the interior looking out:

Figure 5-2 A view of the atrium with the vestibule centre right

The vestibule's projection, the glass separating but visually connecting the exterior and interior and the approach from below are *intentionally* put to work as a sign as the principal explained:

> …we were very conscious that the atrium would be an entrance and it needed to be imposing because it was sending out a message about what this building was about (Interview, Principal Di Reynolds, 1/7/14).

This relatively simple piece of architecture has an important role in communication. It provides part of the building's narrative – what it is 'about' – and so also what it *is* or at least what it is claimed to *be*. It is an architectural attempt to operationalise a discourse:

> it [making the design work] was about the flow of the buildings so able to work out for a child what that might look like, you know, and that also impacted on things like not having things like assemblies in the morning or registration, going for electronic registration, so that it was almost a seamless

> thing, you come in at the front entrance, you go to your learning, that's what the place is about (Interview, Principal Di Reynolds, 1/7/14).

The principal's claim for the school's essential definition is of course open to challenge. As a semiotic object used to communicate, its message can be interpreted in different ways since meaning is produced by both the 'readers' of signs as well as their physical makers and because space itself is up for grabs:

> All attempts to institute horizons, to establish boundaries, to secure the identity of places [are] *attempts to stabilize the meaning of particular envelopes of space-time* (original emphasis, Massey, 1994:5).

Nevertheless, the Head is in a unique position to exert control over both the physical, architectural properties of the sign and how organisational practices should respond to or complement it. In an attempt at achieving a 'hegemonic' (Fairclough, 2005:933) organisation of meaning, that is promoting and maintaining *the* definition of what the school is about, these organisational practices are vital to the support of the architectural signification and vice-versa.

For example, that students and visitors enter at the front and only this entrance, the decision to have electronic registration rather than assemblies and 'not having things like bells because they were disruptive to learning' (Interview, Principal Di Reynolds, 1/7/14) – these are all important ways of achieving the 'flow' that the articulation allows. In this sense, practices and architecture cohere; obstacles to flow have been organisationally removed and architecturally facilitated. Increased 'flow' is a result of this dialectic where practices support architectural aims and vice-versa.

But flow in itself is of little import. It is a means to achieve something else. The 'system of values' the building and its architecture project (Burke and Grosvenor, 2008:8) can also be thought of as an ideology in semiotic terms (Kress, 2010:113). Values expressed in discourses become part of a system-like ideology and where flow can now be converted into an increased efficiency of learning: 'you go to your learning [more quickly], that's what this place is all about.'

Of course, x saying something is 'so', does not necessarily make it so. Learning is not named into being and 'putting out a message' is not the same as everyone getting that message, hence the importance of speaking with and observing others whose interpretation may be very different. At best, the architecture and organisation here are framing devices employed to shape – or employed in an *attempt* to shape – the meanings of the rest of the interior spaces and the activities that go on there.

However, understanding these meanings cannot be reduced to space only but must involve time and the ways in which architecture and organisation entwine the effects of time and space together. So, returning to Goffman's question cited earlier: 'What is it that's going on here?' (1986:8), that 'here' is also a 'now' as he indicated elsewhere with 'space-time manifold' (1956:66). Time is key to the ability of this atrium to communicate a spatio-temporal message – the atrium area is also the first and last *event* in the longer narrative of school.

The organisational obligation to pass through at the beginning and end of the school day gives the atrium space the first and last word: students and visitors have to pass through it and only *after* can they go somewhere else. Book-ending their experiences in the rest of the school, and signalling the difference between what happens inside from out, the atrium and its organisation structures time as well as movement through space. As such, the architecture, together with temporal management, can be seen as an '*attempt[] to stabilize the meaning of particular envelopes of space-time*' (Massey, original emphasis, 1994:5). It is a way to make meaning and an example of how the operationalisation of space and time is used to move 'organizations in particular directions' (Fairclough, 2005:933) by attempting to define the experience in ways that cohere with the aims of its leaders.

This atrium is also an attempt to define the role for students, staff and others. It serves as a threshold, a 'boundary between two spaces, where the antagonistic principles confront one another and the world is reversed' (Bourdieu, 1990:228). The laughing and chatting, mocking and shoving now need to be tamed. Again, the architecture requires

organisational work to be effective (and vice-versa). In the morning, standing centre-square in the doorway but slightly into the building were usually two, sometimes three male members of the behaviour team, checking uniforms and looking out for students they want to have a quiet word with, the first people to be seen when students arrived.

An apparently simple mechanism has therefore been employed. Beyond the threshold, after *this* space, that *other* is the world of learning. *There* you are a learner, before and in that other world you are a young person. Hertzberger takes a less clear cut version of the threshold space perhaps because his structuralism has moved on a little from Bourdieu's early work. He emphasises its role in 'connection between areas with divergent territorial claims' and 'dialogue between areas of different orders' (Hertzberger, 2001:32). The question to be answered here is to what extent PTA's atrium and thresholdness *is* a space of dialogue or, as Bourdieu has it, its offering of a space and moment where the 'world is reversed'.

The principal has given one definition of the school. It is about learning. There are other interpretations – in Chapter 7, for example, I discuss one member of the leadership team referring to the school as 'a vehicle through which we can deliver social justice' (Fieldnotes, 13/10/15). Nonetheless, there is an asymmetry in terms of whose 'say' can count as official. As Andy Hargreaves noted in respect of time in schools, 'Administrators … have the greater power to make their particular time perspective stick' (1990:318). Here at PTA, the principal perhaps has the greater power to make her perspective of *space* stick. Ultimately, I am less interested in which perspective is *the* definition of the situation, but instead to recognise the 'intellectual importance of our trying to find out what this *apparent* consensus consists of and how it is established' (my emphasis, Goffman, 1986:9). What learning *means* in this school (and indeed if there is consensus as to its definition) is one of the interests of this thesis. Just as important, however, is the 'how' any meaning is established. So far, I have argued that the school's physical position, its difference temporally and spatially from other buildings in the area, and its use of architecture together with organisation are forms of discursive management (including both built and verbal language discourses) that help to establish the school as *being about learning*.

This atrium is a threshold but also a sorting mechanism. Doors close off the corridors that lead to teaching rooms, the canteen and the playground, and can be opened only with a security pass that teachers and other adults have but students do not. As a sorting mechanism it helps to keep the school secure. It also reasserts the validity of the categories of people in the school and assists in the naturalization of those categories. In this way, the use of the atrium and its management of time and space is integral to establishing a particular kind of schooling. It perhaps helps to 'harden' categories of teacher and student and reinforces different statuses, privileges and roles. It can therefore be seen as conflicting with a sense of open-ness and flexibility by emphasising rigidity and subordinating time and space to the aims of defining students as learners and the place, as a whole, about learning.

The final use of the atrium is as a registration point. Students press their thumbs to one of three scanners in the atrium area and this registers their attendance at school.

Figure 5-3 Thumb scanner with text 'Place registration finger on sensor'

Individual lesson attendance is then performed by teachers in a given lesson. I will discuss the thumb scanner later in this chapter.

Feel, Atmosphere and Open Architecture

In terms of atmosphere, the school appeared to me as friendly but professional. The staff are young by comparison with other schools I have visited or worked in and that interpretation was confirmed by many people I interviewed. The sponsor felt that enabling the school to evolve and change as well as be innovative:

> was helped by the fact that we've got young staff who are up for that. They're also more technology savvy and they haven't got a huge amount of history (Interview, Sponsor Pauline McDonal, 21/1/15).

Together with the obvious youth of the students and a building that opened only three years earlier at the time I started my research in 2013, the overall impression was of a dynamic, young and lively school. Staff dress smartly in business-like attire and the large amount of glass, especially in the atrium, recalled for me a professional, slightly corporate organisation.

Architecturally, the school felt open with many double-height areas including the atrium and a mirror equivalent 'Student Services' area to the rear of the building as shown in Figure 5-4:

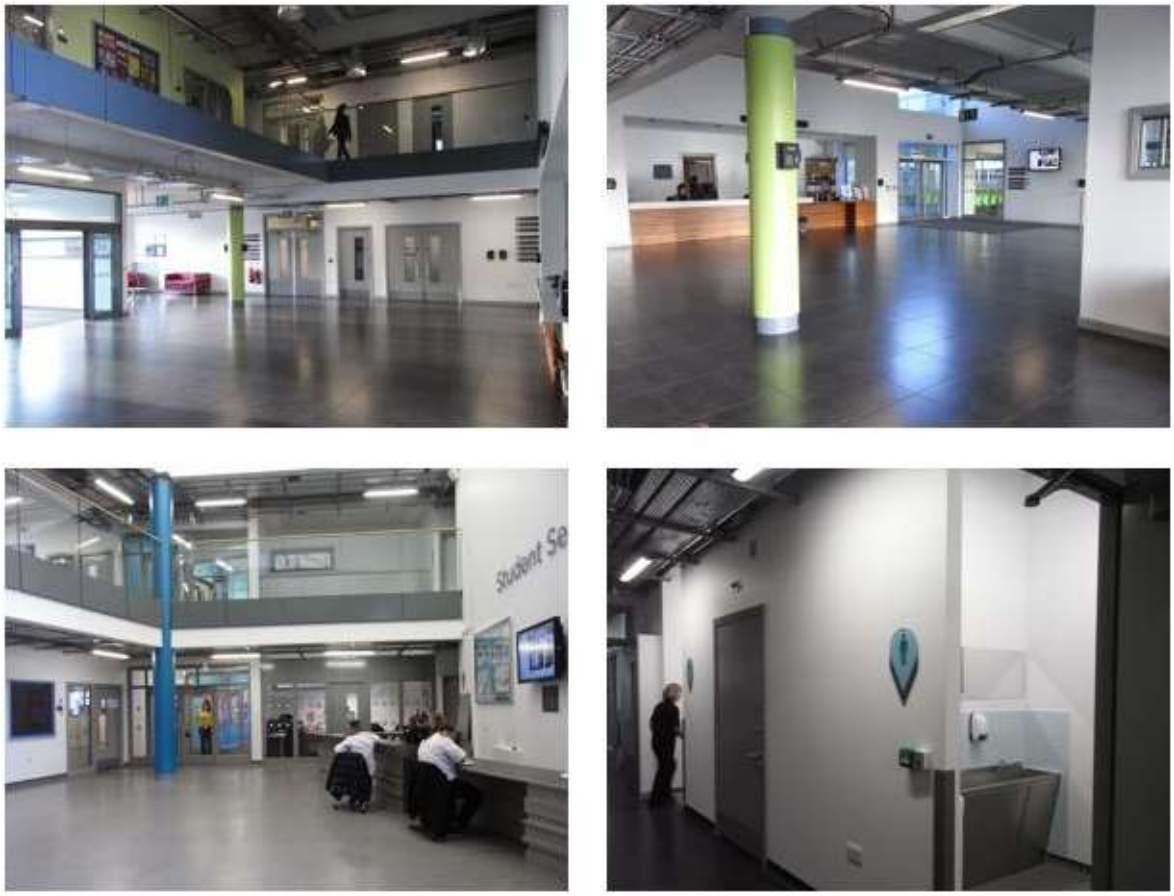


Figure 5-4 A composite image showing the Atrium, Student Services and Toilets

Figure 5-4 shows clockwise from top left: a view towards the school entrance from within the double height atrium; the opposite view looking back into the atrium and the long, integrated reception desk facing the automatic doors of the school's entrance; the Gents' and Ladies' toilets adjacent to the staff café area are also open to the 'corridor' with only cubicles having doors – as one (male) staff member put it when we stopped for a chat outside these same toilets, 'I was really shocked the first time, there was a female member of staff and there I was, having a chat with her and she's basically in the loos, putting on her make-up!' (Fieldnotes, 15/9/14); and finally the 'Student Services' area to the rear of the building.

The openness is therefore not a 'one-off' but is carried through much of the building's design and indeed its organisation. Individual departments have a high degree of operational autonomy within the school. This was intentional as the principal felt it was

key to job satisfaction (explained in Interview, Principal Di Reynolds, 1/7/14). In interviews, staff confirmed that they felt free as a department. The architectural 'logistics' help with this. For example, in the *Pottisham Academies Sponsor-Led Task Group: Education Large Learning Areas* document (Pottisham City Council and [Anon] Education Consultancy, 2008) it is suggested that Pottisham academies could gain space for the learning areas where departments were based. However, departments/learning areas would have to remain within the overall spatial allocations of Building Bulletin 98[14] (hereafter BB98). The method chosen was to 'decentralise[] functions'. This meant not having a dedicated assembly space or a library / Learning Resource Centre since these functions (and their share of the spatial 'budget') would be devolved to the ICT rooms, learning spaces or internal email systems since school and staff announcements happen electronically rather than face-to-face. The distribution to the periphery in both spatial and organisational terms of what, in a traditional design would have been centrally-located resources, perhaps help to align the school with a more functional mission. This was the impression I understood and one strengthened by the thumb scanners and decision to have no assembly, for example – both of these making the school day begin more quickly but also orienting the school more definitely towards learning.

Figure 5-5 shows further images of the interior and general open styling:

[14] Building Bulletins are produced by or sometimes for the Department for Education with the participation of experts from the construction industry. They provide non-statutory guidelines regarding a range of technical, school building issues. However, they are also political and social documents reflecting changes in the educational ideas, funding and priorities of governments (see Seaborne and Lowe, 1977:195). For example, BB98 published in 2004 at the dawn of BSF revises BB82 published in 1996, the final year of a Conservative government. The superseding, Labour-promulgated document notes on its first page that 'the recommended gross area of secondary school buildings has been further increased to an average of 18% above the maximum in 1996' and 'The Government's continuing commitment to education is reflected in the recent sharp increases in capital funding for schools' (DfES, 2004:1). Discourses and, later, built realities of space, politics, transformation and improvement are therefore entwined in technical documentation.

Figure 5-5 Composite image of corridors and other spaces

Figure 5-5 shows clockwise from top left: a view from a corridor across to a breakout learning space; a view down the 'corridor' that is open to each learning space in the English area; a raised corridor with senior management offices to the left and canteen on the floor below, right; a 'closed' corridor with doors to more discrete learning spaces (ICT on the left and Science labs on the right). Note also the lack of false ceiling so exposing the ducting. This was a feature common to much of the school and helped to give the building a slightly 'techy' feel.

The Articulation of Internal Space and Institutional Organization

This section bridges the discussion of PTA, until now seen as a whole or via its entrance and corridors, and the last main section of this chapter where I introduce the learning spaces themselves.

I show how the articulation of the school at a structural level (in terms of storeys, walls and doors) is integral to understanding both what the school means and how it is likely to be used. In one sense, the school conforms to a tradition of secondary school design in England with separated subject departments. However, the design also attempts to transform ideas of sociality with communal staff spaces reduced in size and distributed to department areas. The following organisational flow chart, Figure 5-6, presents an abstracted view of the school – sociality cannot be divided from learning in the way I suggest here. Nevertheless, it provides some clarification of spatial management – of Massey's 'space-time envelopes'. The dotted boxes represent staff areas generally off limits to students. The boxes with vertical lines on the other hand indicate spaces for both staff and students:

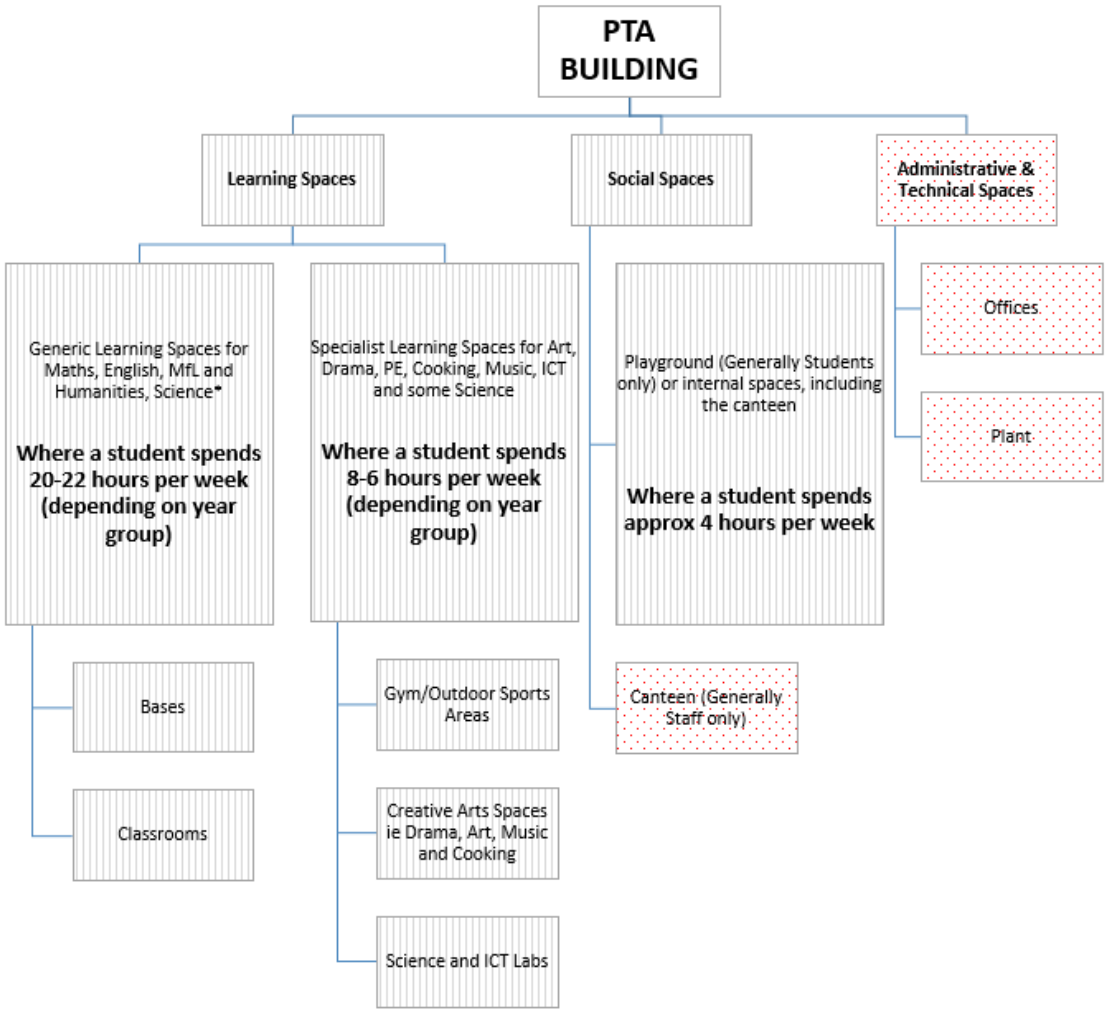


Figure 5-6 An organisational view of the school

In Chapter 3 I argued that time and space are integrated phenomena and that Hertzberger's articulation could be usefully extended to refer to the ways in which spatial ordering affects (or is assumed to affect) people's temporal experience and the narrative of a building. For example, PTA's design was intended to be 'seamless' and have 'flow' in the principal's words. In addition to the decisions not to have assemblies and choosing electronic registration, further attempts to achieve seamlessness led to:

> …certain principles around minimising movement, maximising space and the assets you would have, um, not having things like bells because they were disruptive to learning (Interview, Principal Di Reynolds, 1/7/14).

These design and organisational decisions (made by the principal together with the architect, Duncan) reflect the complexity of the phenomena they deal with – they are irreducible to either time *or* space alone.

Figure 5-7 shows a wing of PTA, its three storeys vertically distinguishing a shared architectural and organisational division of space, management, curricular content and personnel via: departments of English (Ground floor), Maths (1st floor) and Humanities and Languages (2nd floor). As well as the vertical distinctions shown in this image, transversal spatial separation is used to distinguish departments.

Figure 5-7 View across play area to English, Maths and Humanities

These divisions, whether in the form of storeys (e.g. upstairs or on the 2nd floor), walls and doors (eg next door, down the corridor) act as boundaries in forms of meaning-making. PTA's spatial and organisational divisions follow the previously-established pattern that secondary schools in England have distinct departments so drawing on and reproducing that tradition. In turn, this reinforces a *secondary school* type of teaching and knowledge from a *primary school* type of teaching and knowledge where time (e.g. the literacy hour or numeracy after break), rather than time-and-space, is the predominant signifier and organiser of different subjects.

This time-and-space spatial/knowledge division requires that students move at coordinated intervals. The heightened role of time in organising the 'proper' functioning of this system and the movement of 900+ people therefore imposes further considerations of safety and efficiency of movement. Space for corridors, elevators, stairs, open areas, fire exits and regulatory and insurance requirements regarding their position, size and capacity add more constraints on the articulation of space and time that do not exist where the student body remains in a home room and teachers move (e.g. primaries or some secondary school cultures in Europe, for example).

Histories and cultures of school design have normative powers where things tend to stay the way they are. Complexity increases as knowledge and curriculum, time, movement, safety and efficiency all come to be mutually implicated. The principal saw her role as one of navigating and re-thinking these constraints with the aim of adapting first the architectural plans before they were set in stone, and then regulating the organisational practices once the school was populated: 'the idea was to really try things out and see what worked'. In spite of the tendency for things to stay the same, she tried to innovate for her vision of the school:

> the building regulations from the DfE … lumped together Design & Technology and Food Technology even though they were two subjects and two learning experiences that were quite disparate. So I was able to talk to the architects about we want a Health and Wellbeing Faculty which incorporates Cooking because it's about fitness and healthy eating so the two Cookery rooms were shifted to be part of the Sports Hall … so there were moves like that (Interview, Principal Di Reynolds, 1/7/14).

The categories supplied and promulgated by the DfE in BB98's building regulations proved to be adaptable through the principal's efforts and the work of the architects. Cookery – a form of technology – would become a technological tool oriented towards health, its re-categorisation here helping to change what cookery *means* as well as its specific ends by changing its location relative to the standard school design.

Opportunities for transforming educational traditions do exist therefore as a further example, now of temporal (and so inevitably also spatial) articulation, confirms. PTA has 3, two-hour lessons per day: Lesson 1 as school opens, then break, then Lesson 2 followed by lunch and Lesson 3 in the afternoon. As a result, there are no real lesson changeovers. Students leave lessons to the play area or lunch but they are not moving across the building, against traffic, to get to other lessons. This saves approximately 90 minutes each week. Flow is promoted here by organisational means, a re-thinking of standardised articulations in time.

The following, final section of this chapter turns now to the learning spaces themselves. Here, where students and teachers spend most of their time in any given school day, is

where, quantitatively at least, the bread and butter of schooling happens. Influenced and framed by the rest of the school building and organisation, these spaces are nevertheless where projections of what the school is about, are adopted, rejected and transformed. It is therefore important to hear other voices and different perspectives regarding what education is and how it is made to happen.

The Learning Spaces

The learning spaces at PTA are significantly apart from the rest of the school, forming the fringes that lead off from the public space. They have their own toilets, small kitchen areas, photocopiers and departmental offices, and the immediate team of colleagues takes over as the *de facto* organisational and social unit for teachers.

With no assemblies, no whole-staff meetings and communications routed via email, you could, if you wanted, spend all day in your teaching area and have all the resources you need. As one teacher put it, 'You're very compartmentalised in your department' (Interview, English Teacher Paul Walsh, 23/9/14), reaffirming the indivisibility of the social and the spatial.

'Compartments' is a useful way of understanding how departments are organised spatially. Except for those spaces which use wet materials (Art), chemicals (Science Labs), or have potentially loud sound (Music, the Theatre and PE Hall) or food (Cookery), the general pattern is that each department has an open wing with very few doors. Figure 5-8 shows a plan of half of the English department (the other half is a reflection of this). It includes student and staff numbers during a typical lesson. Although this varies, the total for a wing is approximately 220 students, 10 teachers, 8 teaching assistants and perhaps 4-5 School Direct trainee teachers depending on the department.

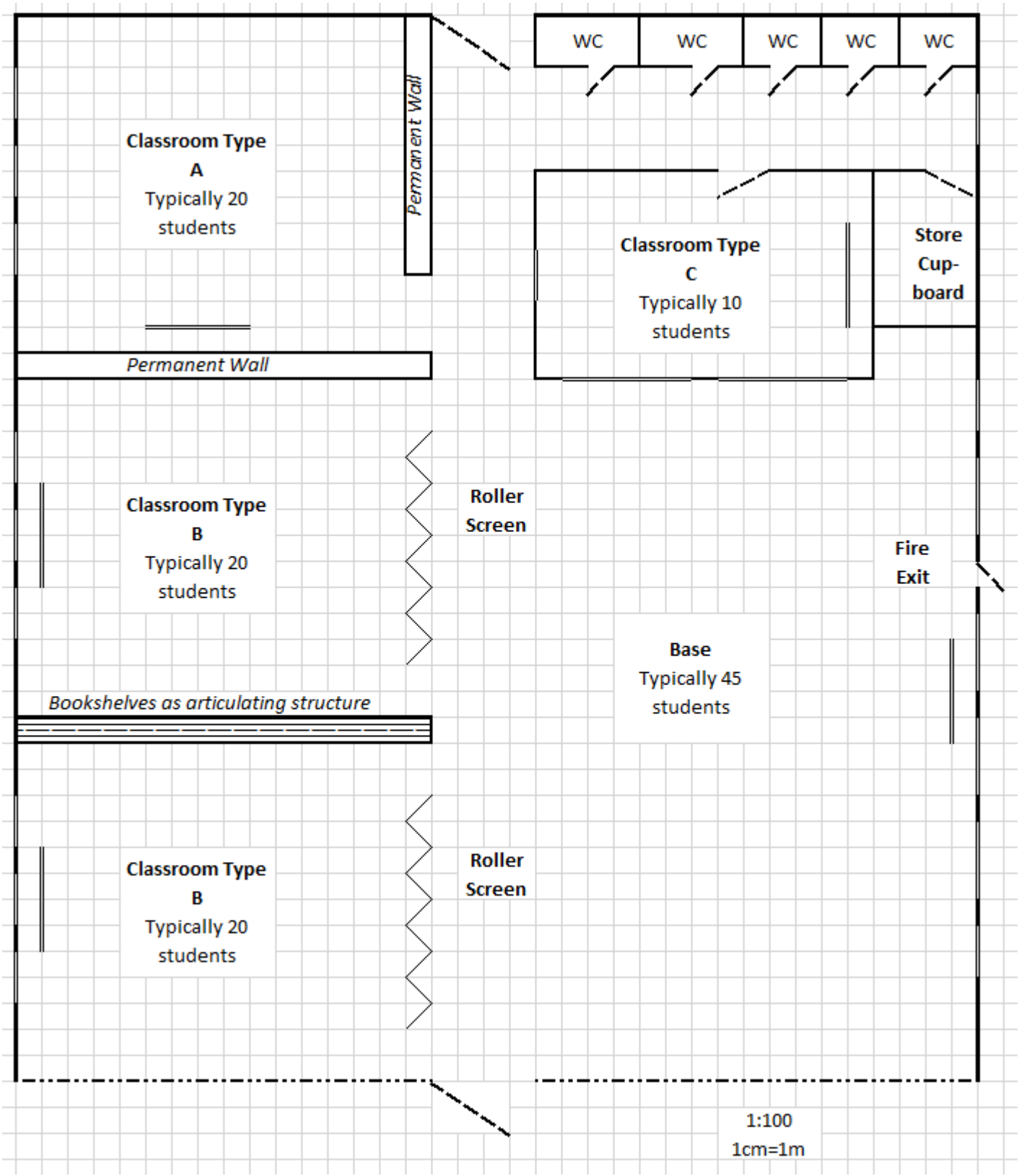
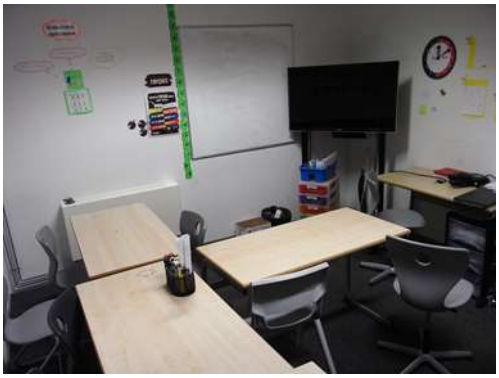


Figure 5-8 Plan drawing of half a wing

Each wing has four types of learning space as shown in the plan Figure 5-8 and Table 5-3:

Table 5-3 Four Types of Learning Space

Name and Description	Image
Base: Two classes are usually taught here during a lesson. The base is open to the 'corridor' that runs the length of the wing and so very little material articulation. 8x14 metres. Typically 45 students.	
Classroom Type A: Articulated by walls, these are very similar to traditional classrooms although there is no door and instead an opening approximately 1.5 metres wide. 5.5x8 metres. Typically 20 students.	The entrance to these classrooms is angled, and between lockers and the smaller classroom (Type C, below) – a meaningful photograph was not possible.
Classroom Type B: Articulated by bookcases or lockers on each side. Open to the 'corridor' but with a roller screen (see image) usually pulled across when teaching. 7x8 metres. Typically 20 students.	
Classroom Type C: Articulated by walls, these are small, completely enclosed spaces with doors. Used less than the other spaces and usually for a small support group. 4x6 metres. Typically 10 students.	

The individual, smaller images in Table 5-3 shows some of the resources used to articulate spaces including, obviously, walls but also the large roller screens that teachers pulled across the entrance to Type B classrooms at the beginning of lessons. The spatial unit therefore comes and goes, an 'envelope of space-time' as Massey, cited earlier, calls these fixes of meaning that are used here to signify (and make) *lesson-ness*.

More informal means of articulating space derived from how a photocopier was oriented – providing a visual and material rupture between spaces – or the direction of chairs and desks so that students' backs indicated what was 'off stage' and where a centre of interest was or should be.

Seating plans varied between departments and between sets within departments. In Maths and MFL, more circular patterns around individual teachers were common; in English chairs and desks tended to face 'forwards' that is towards the IWBs (Interactive Whiteboards) and where teachers stood at what has then become the front.

Conclusion

As well as offering an introduction to the school, a key objective of this chapter was to respond to Research Question 1 and provide an account of how PTA's design drew on and operationalised ideas of transformative, 21st century education.

Some of that work will continue over the next two chapters but as an initial interpretation, the chapter showed that what 21st century education *was*, seemed vague at a policy level with broad design briefs focusing on their being different and new. As such, they appeared to offer little in the way of incitement or vision. The principal, sponsor and architect worked hard to 'translate' some of the transformational hype into an educational and architectural vision. This blank canvas was certainly an opportunity although the ideas for the large flexible learning spaces were inherited by both principal

and architect as the result of decisions made further upstream – by Pottisham County Council and their consultants. No-one seemed to know how those particular design decisions had been made but the original goal – educational transformation – was interpreted as learning and so making things work involved orienting the architecture and work of the school to learning, possibly at the exclusion of other possible educational purposes. There are three points to make here which I will re-address in Chapter 7 with a broader focus.

The first is simply that learning was seen as the existential reason for and work of the school. The following is not intended to criticise the efforts of all involved with helping that happen. However, while learning is ultimately a process, it was not always clear what that process was oriented towards other than attainment. There is a risk that this becomes a self-certifying process, justifying its own existence on the basis of its ability to achieve particular ends. To be clear, this appears to be a general problem with education, as Biesta's 'learnification' attests. It is a problem that precedes and is found beyond PTA.

My second point relates this to architecture more specifically and raises questions about the contribution of architecture as tool of learning-maximisation that has the effect of crowding out other senses of what education is. In an interview I conducted with him in 2015, Biesta explained:

> If you say 'We redesigned the school as a place for learning', then it looks like anything is possible but quite often there are very strict definitions of the *kind* of learning that should actually happen. And those definitions are often much stricter than what I think education should do so a lot of it ends up in producing results that can be measured in terms of academic achievements (Wood, 2015:online).

As a heuristic exercise, PTA could be said to stand in contrast to another PTA that might have been possible – although as I explore in Chapter 7, it is uncertain, given the structure of the English education system how achievable alternatives really are.

The third and final point is that this is not simply an educational question but an ethical and political one since 'moral questions arise when the categories of the powerful

become the taken for granted' (Bowker and Star, 2000:320). By this, I do not mean any individual but rather the way a policy and educational culture comes to be funded and promoted by those with power.

At this point, I move the discussion elsewhere. In the following chapter I focus explicitly on the possibility of flexibility and the interaction of factors that seem to facilitate as well as inhibit its activation including noise. The above has shown how the definition of learning is subject to many kinds of redefinitions by many different 'actors'.

Chapter 6 Learning Spaces and the Possibility of Flexibility

Whilst the previous chapter set the scene of PTA and prioritised perspectives of the building and institution as seen by policymakers, its architect and leadership, I now turn to how PTA is used by teachers in its day-to-day life. This is a shift in viewpoint in at least three ways: from the intentions of the design to the actualities of its use; from those charged with a macro level of organisation to those 'at the chalkface' as one participant put it; and from the ways in which the building was used to make meaning to the ways in which people act in the learning spaces.

My aim is to answer Research Question 2 and three sub-questions which were developed to help further specify the focus of the study:

> **RQ2**) What are 'flexible learning spaces', what facilitates or inhibits their flexibility and how do these factors relate?
>
> **2a:** How do PTA's teaching staff use the flexible and other learning spaces? What enables and what hinders their work/flexibility?
> **2b:** How does the architecture of learning spaces interact with curriculum and assessment needs and other constraints in the case of PTA?
> **2c:** What additional factors facilitate or inhibit flexibility?

I concentrate on how the learning spaces provide opportunities and limitations for teachers' work and in particular on what facilitates and inhibits their teaching flexibly. To achieve this I use the data from interviews, questionnaires and observations to support explanations of how flexibility is present (or not) and on what it depends. This will be a necessarily incomplete account: 'a good explanation will seek to focus selectively on the most relevant causal factors' (Elder-Vass, 2010:178). What gets to count as 'most relevant' was established throughout the course of the research and the iterative process of analysis, interpretation, feedback, and consequent observation and interviews.

The chapter is divided into sections: **6.1** *People and Spaces*, **6.3** *Noise*, and **6.4** *Time (and Space)*. These provide the most valuable points of focus from an explanatory perspective. However, I also include an illustrative 'case' (section **6.2**) that analyses a fire exit because

its role in limiting flexibility was intrinsically interesting and because it serves as a tool to explore representations of space and the fragility of flexibility in more depth.

Organising the chapter into these four sections clarifies the role of particular causal powers but risks obscuring their interconnections. Curriculum and assessment, for example, seemed to shape what could and could not be done in lessons and so I weave in discussion throughout the chapter. Similarly, it initially seemed sensible to focus on the bases and classrooms separately and comparatively. However, given the weak articulation discussed in the previous chapter and the passage of sightlines and sound across and through the spaces, such a division hindered explanation.

The chapter closes with a Discussion section (**6.5**) exploring how the various causal powers interact allowing me to provide a theoretical but empirically grounded account of flexibility and flexible learning spaces.

6.1 People and Spaces

This section explores how people used and felt towards the learning spaces, and how the learning spaces helped and hindered what they wanted to do. It also examines how the discourse of flexibility is operationalized (Fairclough, 2005:934), that is, how flexibility is transformed into new: ways of acting and interacting ('enactment' for Fairclough); ways of being and new identities ('inculcation'); materializations, for example, 'changes in the structuring of organizational space' (ibid).

However, as discussed earlier, flexibility is also more than the discourse that appears in BSF and PCC policies and design plans. I was interested in how people's own range of actions could be limited and enabled, seeing this as an expression of their agency and, therefore a possible counter-discourse to others offered.

Shared Spaces: Flexibility Gained and Lost in Organised Social Relationships

The title for this section reflects the dual nature of the discussion. Working in both large open learning spaces and classrooms without doors involved being physically present, and visible and audible to others. It involved sharing space and supporting colleagues. But it also involved a high degree of organisation and planning. In terms of flexibility, these can be thought of as two sides of the same coin. Working with others gave teachers some freedoms they would not have had as individuals but in order to work effectively together, many individual choices had to be limited.

There was a strong sense across the school that the space within a given department is common space especially since teachers did not have their own classroom:

> Me: you were saying before with classrooms [in other schools], the whole concept of intrusion is going in to somebody else's territory, right?
>
> Jane: Yeah
>
> Me: But here, there's no sort of…
>
> Jane: No, it's just English territory [laughs] (Interview, English Teacher Jane Hawkins, 16/7/15).

And in Humanities:

> Here everything's totally shared and it's got a lot of advantages in that sense, we are in…there's an interrelationship, an inter-responsibility, isn't there? (Interview, Humanities Teacher Geoff Walker, 13/10/2014).

People often thought of the bases in contrast to other schools they knew (usually with classrooms):

> I think the big advantage of those [the bases] is that the teamwork they encourage because there's so many people around and there's huge elements of teamwork. I've worked in places where you have your own classroom and it becomes very isolated, I think that's avoided here (Interview, English Teacher Paul Walsh, 23/9/14).

For many, this teamwork became an extremely supportive resource and enabled them to do things or to get by in ways that would have been more difficult without it. For instance, for some there was a 'flexibility of team teaching' (Questionnaire, Computing Teacher, Male). During one English lesson I observed, a teacher had a personal incident of some kind and had to go quickly to the toilets. She 'called' over another teacher by signalling with her eyes and the students were unaware until they looked up that they had a new teacher. Whilst this was made possible by an open space, it was clearly not only *because* of the open space. It required additional available staff, trust and recognisable signals between colleagues and so forth.

Many felt that this team-teaching (which was the norm for the bases across the school) was a way to learn from others, the following being a fairly typical remark in questionnaires and in interviews: 'it [the base] is a great space for trainees to learn from their colleagues and develop teaching strategies' (Questionnaire, English Teacher, Female). In the classrooms and bases alike, there was therefore a sense of distributed ownership and mutual support although the extent of this varied significantly between departments. Where it was present, it seemed to help people face challenges collectively too given the constant upheaval in the education system internally because the school was growing and developing but also because of the external changes happening to curriculum and assessment (discussed in Chapter 2). In addition, teachers had no individually assigned spaces. This was a source of aggravation for some as I show below. However, one effect seemed to be flexibility as a necessary development of working together. This raises an ethical point which I return to in Chapter 7. For now, however, it is sufficient to say that flexibility emerged from the social relationships engendered by the need to work collaboratively. Hence space in this sense 'as the product of interrelationships' (Massey, 2005:9) rather than *ex ante* geometric space was what seemed to enable flexible teaching.

The making of a shared space, one of interrelationships, required responsibility but did not automatically produce it. Difficulties sometimes appeared to be minor and unrelated to teaching, for example: 'People have different standards of tidiness and I can't deal with

that' (Interview, Maths Teacher Amy Shoesmith, 2/12/14). Over time though, they could create more serious grievances: 'Bases are left untidy and equipment is always being moved around which creates stress which is unnecessary' (Questionnaire, Health and Wellbeing Teacher, Female). The extent to which lack of responsibility failed to engender cooperative working varied between departments.

In one department (anonymity retained to avoid identification), the Department Head framed responsibility as what might be called compulsory cooperation:

> The space forces teachers to be at their best in terms of erm sharing best practice, in terms of everything being open you know you have to be at your best and that's probably a very cynical way of looking at it to say that being open base makes sure that the staff erm are as effective as they can be (Interview).

and later in the same interview:

> I think one of the main challenges is to get your head round the fact that you *have to* plan collaboratively all the time … the nature of the space … forces you to share ideas and share planning.

The power that this department head assigned to the space is curious and I will discuss it later. It was sometimes connected to ways in which people were always seeing and being seen. There were few complaints about this (noise was a far greater concern). Nonetheless, the constant co-presence with others was often felt to be limiting:

> There are times when you miss your own classroom, there are times where you feel – if the eyes were off you a little bit – you could be a bit more creative and you can always hear someone over there or over here and they can always look over and see what you're doing (Interview, English Teacher Paul Walsh, 23/9/14).

Being with others sometimes made people more cautious, a pedagogical and social effect recognised by Hertzberger:

> The shared domain has a more conservative nature than private domains, in that whatever falls under 'shared' calls for a wider consensus (2015:84).

Compulsory cooperation, caution and consensus seemed to subordinate individual actions and desires to the wider community's. For example, because people did not have their own spaces in order to set up for an upcoming lesson, they needed to plan ahead, clear away quickly after themselves and set up quickly too. For Lauren in Maths, this meant limiting your own options in order to make things easier for others:

> You can't put your tables up how you want because someone else is using the space afterwards so then you're kind of set in that layout (Interview, Maths Teacher Lauren Coyle, 15/7/15).

Lauren illustrates how individuals' decisions could have a 'chaining' effect. The tables stayed set in a layout that was sub-optimal for any particular individual but established a form of compromised efficiency for use by successive individuals.

For some the combined effects of having to think about individual and group needs was tiring as well as a source of shared enjoyment:

> Things definitely feel more collaborative teaching in the bases. And free periods/before/after school can feel more social. However, it can also make things feel overwhelming at times – with teachers/students always around. You definitely self-censor and feel less inclined to be creative (Questionnaire, Humanities Teacher, Male).

The feeling of being overwhelmed were experienced by Jenny Martin too:

> There is a moment in everyone's day when you just need two minutes to yourself. Because as you can imagine, because it's open, if you've got a full day it's just constant noise from walking through the door to leaving (Interview, Maths Teacher Jenny Martin, 15/7/15).

When I recorded these comments, the school was at capacity – it was a busy place. Size did seem to make a difference with it being felt by some that more formal procedures were necessary. The 'challenge of the possibility of living together' (Massey, 2005:149)

grows and it becomes harder for social spaces to reflect all their members' wishes (Hertzberger, 2015:85). Massey's thoughts on '*attempts to stabilize the meaning of particular envelopes of space-time*' (original emphasis, 1994:5) and Mary Douglas's work (1987:48) too suggest that perhaps, as the size and culture of this institution developed, its spatial procedures became settled, acquiring a certain patina. Every department in the school setted students (i.e. taught them in ability-based groupings) although few teachers knew why. Setting seemed to develop its own logic albeit a buried one and so a form of causal power: we set because we have setted. However, when asked, Jenny Martin was clear why:

> Because everything these days is measured these days and you're compared constantly to external sources, constantly on levels of progress made and everything, it is easier for us to have children working in a similar ability in front of you because then you can push to get the right levels (Interview, Maths Teacher Jenny Martin, 15/07/15).

Physical space was used to classify, to assert *particular envelopes* as the components of an organisational, spatialised logic that helped make the system more manageable. Without this fixity, when socially-produced space became too complex, things broke down:

> We don't use laptops as much because now there's more staff and more teachers so there aren't enough laptops like the logging on's a problem, people plugging them in after a lesson's a problem, you know that's really why. You know, it's just the logistics of having enough trolleys and responsibility of who's looking after them (Interview, Science Teacher Lucy Parkins, 2/12/14).

The spaces began to feed back on organisational practice so that certain skills or attributes were perceived as necessary: 'Staffing issues can be an issue as we only want to put strong staff in the bases' (Questionnaire, Maths Teacher, Female). Not only students but staff too were now subject to what seemed a naturalised, classifying power:

> I think it must be very difficult [to work here with the openness] if you're not an outgoing person and are a little bit shy. It's certainly something I thought about when I was interviewing the other day, one young lady was very nice

> but very quietly spoken but one of my thoughts was 'How will we ever adapt you to work in this environment?'… … I mean she's not coming anyway but it was a thought in the back of my mind, 'How am I going to adapt you to work in this?' Very, very quietly spoken manner, perfectly nice, will make a lovely teacher somewhere. But I doubt she'd ever be able to cope with this environment (Interview, Maths Teacher Jenny Martin, 15/7/15).

Here it is not the spaces that are perceived to be (in)flexible, but a person. The spaces are perceived in this case to have a determining power.

Discussion

For the remainder of this chapter, I integrate discussion with the data and then, at the very end, have an extensive discussion section returning to the concepts and points raised across the course of the chapter as a whole. However, before continuing, I use this space to highlight three points.

First, the data here and elsewhere suggest the school has changed over time. This is to be expected. Accepting approximately 200 new students each year meant that the school doubled in size in its second year, increased by 50% in its third year, by one third in its fourth year and so on with staff increasing proportionately. My contact with the school spread over more than 2 and a half years so I experienced some of this change and staff who had been there longer explained how they experienced it. It felt like a dynamic organisation. In an interview with the sponsor, she made it clear: 'It will continue to evolve, we'll come across things or we'll change things' (Interview, Sponsor Pauline McDonal, 21/1/15). That definitely rang true from what I had observed – I said, '"Evolve" is kind of an ever present…' and she replied, 'Well, it should be.' Change here is normative, about evolution, getting better. As a new school it wants to experiment and learn and grow. This does, as the data suggest, at times lead to difficulties for some people.

More specifically, in regard of space, one of the many ironies appeared to be that nominally open and flexible space was – or became – one of the key stabilising features of

school life and I admit to not fully understanding why. Perhaps it was the association of space with physicality, it being easier to recognise socially-produced space by the artefacts left behind in social action or perhaps because physical space (in concert with norms that were developing) came to be used as a tool to establish order. Physical space certainly seemed to become normative and, against my earlier critiques of determinism, it was (at times) expressed as determining: 'Space forces…', 'You have to plan collaboratively…', 'You're kind of set in that layout.' '"How am I going to adapt you to work in this?"'

However, what determinism there is, has developed in ways that were not predictable. I suggest that this speaks as much of how the curriculum was perceived to need coverage and having stable systems in place, than anything inherently spatial. It was therefore less that the space *per se* determined but that the space became used in determining ways *in concert with the social and educational aims developing within the school*. If space were truly deterministic, its effects would be predictable and as I show in the remainder of the chapter, this is not so. Instead, space seems to have become a tool with its causal powers deriving rather from the *particularity* of the envelopes which were assigned it – and these were principally organisational and social, not spatial assignments, particular to the context of the school.

A final note. Alterator and Deed (2013:327) and Leiringer and Cardellino (2011:929) have noted a relationship between open plan and aligned 'teacher traits' (ibid) similar to the one suggested by Jenny Martin, above. It implies that there are ethical questions regarding the use of designed space as a lever of transformation if it means that only some teachers can or will want to work in open plan schools. I return to this question in the next chapter, however, when I discuss the ethics of using design as a lever at all.

6.2 The Case of the Fire Exit and Flexibility

This section explores what seemed at first to be a trivial detail: fire exits in some of the bases. I use it to focus on one causal power in particular and to show how something as apparently simple as a fire exit in fact belies – and is supported by – a complex interaction between how spaces are represented and how they are used.

I was oblivious to their existence until an interview with Jane Hawkins where we discussed what the spaces' flexibility means for teaching. Jane points out that it depends on more than just the amount of space available:

> It also depends just how the desks are laid out. We've got a problem because we've a fire exit right down the middle of both bases.
>
> Me: Do you mean the corridor?
>
> No, just to the side of the whiteboard.... there's a fire exit that runs right down the middle so we can't put the desks or have anything blocking so that does stunt us a little in terms of how much we can spread out if you know what I mean (Interview, English Teacher Jane Hawkins, 16/7/15).

The fire exit is fairly unremarkable:

Figure 6-1 Photograph of English Base with Fire Exit

The base was articulated in two halves by a clear space through to the exit itself indicated in Figure 6-1. To make that space, desks were arranged into two shallow horseshoe formations.

I have not read about fire exits in any academic literature on learning spaces and flexibility. In the written planning documents for PTA to which I had access, there is much discussion of flexible design and the educational transformation that would result but no mention of fire exits. My inevitably limited research suggests that in one sense then, fire exits are invisible – they are beyond the threshold of conceptual detectability (including mine until one was pointed out to me).

The invisibility of fire exits in the literature contrasts with their very real presence in everyday use which is, as Jane says, 'stunted'. As such, fire exits signal dislocations between designed space and space in use, between the imagination and theory of flexible learning spaces on one hand and, on the other, the practices of those who use them and who have to literally and metaphorically work around them every day. They also offer evidence of a dislocation between an imagined design future and a lived teacher's present.

Shortly after the interview with Jane, and puzzled by what the exits *were*, I revisited the architectural plans and found them, adding circles to the scanned image, Figure 6-2:

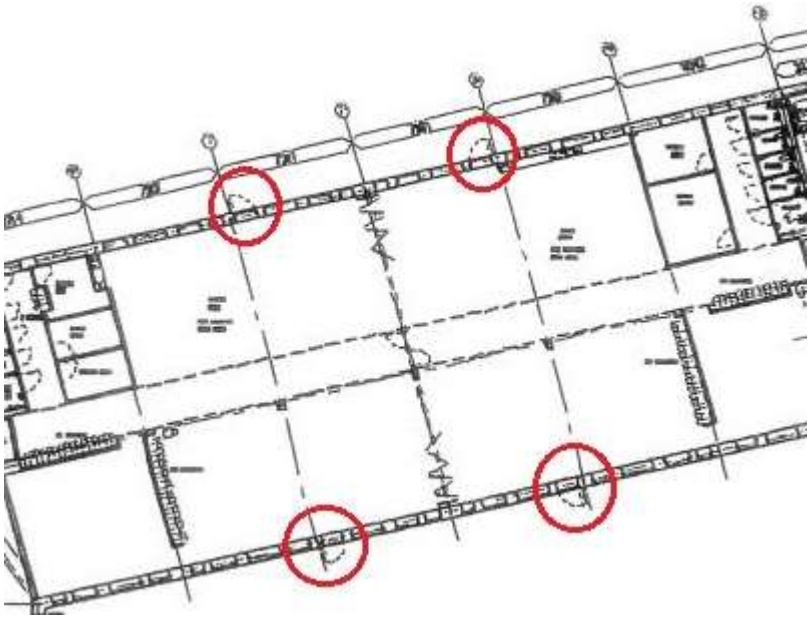


Figure 6-2 Detail of the English Learning Area

The top right exit is the one shown in the photograph of Figure 6-1 above. The architect did have the fire exit within their threshold of detectability and indicated them with the appropriate symbol, a few dashed lines:

Figure 6-3 Detail of a Fire Exit

The dislocation between what Figure 6-3 means and what it means in built practice as shown in the photograph (Figure 6-1) is significant[15]. Specifically, the fire exit in the photograph is hard to 'capture' and perhaps goes unnoticed because it is a social entity. A fire exit has been operationalised in the layout of the room, that is, the representation appearing in the architect's plan has become embedded socially and materially 'in new ways of acting and being and new material arrangements' (Fairclough, 2005:931). A

[15] I acknowledge that in one sense the photograph is 'just another representation' and so offers a different particularity, showing this world from my height, a certain angle and so forth. But it is this particularity which makes it interesting as opposed to, say, the particularity of 1:100 scale architectural drawings: they offer different kinds of abstractions with (potentially) very different effects.

photograph can show the door and the space between the two horseshoe formations of desks but it cannot show (and neither can architects' plans or city council's policies) the social and economic practices that do the work of making it a fire exit with the causal powers to 'stunt' teachers' use of the space. There is so very much more behind the representation of fire exit that goes unnoticed. Representing space would be easy if all space was, was 'that business of laying things out side by side' (Massey, 2005:27). The bits that are left out of the representation and left out of the thinking on learning spaces are bits that matter, bits that have effects.

Behind the photograph so to speak is the site manager who checks that teachers do not put desks in the way. For the school to operate legally, a public liability certificate is required issued by an independent inspector validating the school's insurance policy by periodically checking things are as they should be and that the site manager has been doing their job:

> …the character of a region, or the economy of a place, is a product not only of internal interactions but also of relations with elsewhere (Massey, 2007:20).

And there are internal interactions: the school has fire drills and the teacher exercises their own power in *choosing* to follow and contribute to the norm of dividing the room in half – even if the free extent of that choice is uncertain. In short, a 'real life' exploration of learning spaces in use shows them to have various causal powers that are difficult and often impossible to know and represent beforehand because they are emergent: they do not exist prior to the school being open and inhabited, and norms and rules about where to put desks established. The fire exit is more than a door. It has the power to prevent what a teacher would otherwise like to do with the room not by virtue of its door-ness but because the entity of 'fire exit' is a result of it being all of these 'parts' *and* the relations between them. As with emergence generally, the power of the fire exit

> is emergent at the level where the parts of the entity possessing it would not themselves have the property if they were not organised into this sort of whole (Elder-Vass, 2010:73).

The operationalisation of this fire exit requires ongoing maintenance. More problematically for a deterministic architecture, the ability to predict which and how particular wholes will come into being and what their effects will be on users is unclear. Fire exits are probably among the simplest of emergent wholes in a designed space which is why it will serve to illustrate and explain four points.

First, a fire exit as represented in an architect's plan is clearly not the same thing as a fire exit in real life. In use, it is a social and material 'thing' that requires people in order to function and it feeds back and affects those people – they cannot just sit where they want. The teacher is limited and has to work (or concedes to work) less flexibly than they desire. The fire exit appeared with these properties only when the room was in use. It did not appear in county council planning documents (at least in relation to use of the building and educational aims). Hence this unexpected emergence of a fire exit with these causal powers is unforeseeable. The discussion of learning spaces as so often in discussions of learning spaces generally is one that has been ontologically airbrushed and 'relations with elsewhere' far beyond the threshold of detectability.

Second, if in this case flexibility has been shown not to be a property of a room in the sense that it is *there*, a result of the architecture alone, but can be defeated by a fire exit then flexibility cannot be such a property.

It is perhaps for this reason that OECD's (2006:6) definition in Chapter 2, '*Flexibility* is … understood to mean that buildings or grounds are adapted to new forms of learning and research' not only deletes the agent but also time, taking place in a strange, unlocatable present-past. The removal of process and time results in a spatial fetishism that appears to make the concept 'flexibility' more generalisable. It becomes nonsensical, however. If something needs to have been adapted in order to be flexible then the outcome is both banal and tautologous: this 'flexibility' has no analytic value and cannot explain what flexibility is.

Third, it might not be helpful to reduce the above argument to, simply, context matters, people matter or that flexibility is a social construction if we want to be able to design

spaces that can be used flexibly. A prison cell cannot be used flexibly for a range of activities desired of any occupant. Both materiality and sociality matter. Hence the continuing work of this chapter will help to move towards a more precise way of thinking about what context means and who and what it involves.

Fourth – and this is a more speculative point – what strikes me as interesting in this case is the banality of fire exits on one hand and their relatively great power on the other. Of course, fire exits are important for safety but in terms of their visibility (both as noticing them in a room and in respect of thinking how they might make a difference to how a space can be used) they are unremarkable, even boring. They belong to the domain of architects, planning and fire regulations, and Building Bulletins and responsibility for thinking about them also lies within that domain. At least until a building is occupied and then its inhabitants find the full force of all the invisible features and their effects brought to life.

In part this is a problem of knowledge and representation. Fire exits are unrepresented in academic and professional texts on learning spaces and nowhere are there photos of happy learners leaving a room through the fire exit: fire exits are anonymous. A learning space appears far more flexible when we do not have to think about a fire exit. Perhaps the more that learning spaces appear as fetishized containers of space, the easier it is to avoid thinking about the messy life of inhabiting them and what that really involves.

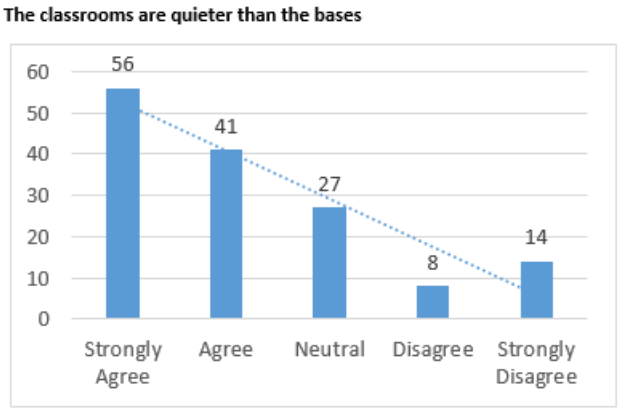
6.3 Noise

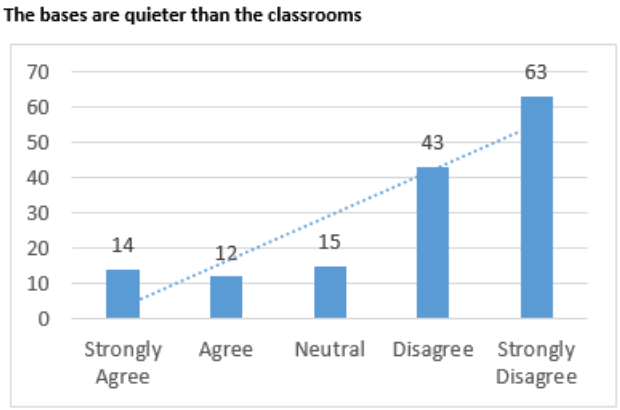
Noise is a recognised issue in open learning spaces and has been ever since the modern school was invented as *The Belfast Monthly Magazine* of 1814 attests (203-4). For Bennett et al. (1980:36), noise remained an 'adverse factor in the opinions of teachers and pupils in open plan schools' of their 1975-8 research and it was a problem too in PTA in 2014-5.

Whilst sound and noise refer to the same physical phenomenon (Hansen, 2001:23), for the purposes of this discussion, I follow Hansen: 'Noise can be defined as "disagreeable or undesired sound"' (ibid). Because articulation involves the orientation of vertical surfaces such as walls and screens to divide spaces, they also have acoustic effects since their orientation influences both the reflected direction of sound and its power (ibid:39). In addition, what these surfaces are made of affects the 'relative amounts of acoustic energy reflected, absorbed and transmitted' (ibid:40). Spatial articulation is therefore intimately linked with acoustic articulation although does not feature strongly in Hertzberger's account.

Noise needs to be accounted for, however. Sound leaking from one learning space to another is a problem – it becomes noise – for teachers at PTA. When the systems we use work well, we tend to forget the mechanisms that make them work. When they break down, their workings or non-workings, their *construction*, become more obvious (Bowker and Star, 2000:2; Gitelman, 2008:6; Sayer, 2010:87). I think noise was so keenly felt by teachers because it always made itself noticed and threatened the spatial classification work that at PTA was so integral to ability-based setting and the kind of teaching activities used (as will become clear in this chapter). In fact, across interviews, conversations and questionnaires, noise stood out as the single greatest cause of concern and influence on teaching.

My interest is primarily in how noise affected teaching. However, it is worth noting that student questionnaires showed a clear response in terms of where they felt there was less noise:





The reason for using two versions of the same question (with the terms 'classrooms' and 'bases' reversed) is explained in Chapter 4. The results are fairly conclusive in respect of perceived volume. The charts do not show whether this was a disturbance. Returning to teaching, however, noise certainly did disturb.

In all of the areas I researched, teaching was organised in specific ways to cope with noise. I will call this organisation *mitigation work*. The key feature of mitigation work is that things did not get 'back on track': changes to teaching (whether pre-planned or spontaneous) were not *repairs*. With 26 – 50 students, a teacher could not just drop everything there and then. They had to work to mitigate the effects of the noise, to choose an alternative, often 'sub-optimal' course of action, for example:

> Me: How does teaching or what you're teaching fit or not fit with the spaces?
>
> Jenny Martin: It comes more from what topic you're on. So for instance, in Maths we teach probability. You can do a fair bit of getting children up, measuring things, throwing dice around, doing that kind of activity. It is what you need to do but it can be loud. Now if I was in a classroom with a wall but no door, I would probably still do that. But if I was in an open base with 48 children, the noise that would be created from that would be phenomenal so I would choose a different activity that was quiet. And it might be that they're doing some kind of experiment using the computers or just working in pairs … So it limits you in some sense but fortunately there's enough resources and enough ideas in my head and out there I think for us to be able to adapt. But it is about adapting what you're going to do cause you can't have children missing out, they're all entitled to the same curriculum, it's just that you would have to do it slightly differently cause you've always got to have conscience of what everyone else is doing (Interview, Maths Teacher Jenny Martin, 15/7/15).

Jenny's mitigation work depended on her access to resources and her own experience and skills. Though the space reduced options, she exercised her own flexibility by choosing from other options available.

Other teachers were less experienced. Geoff Walker in Humanities explained that in his role as a mentor for School Direct trainees, he was often asked how to deal with noise:

> I'm working as a mentor as well and they're [the trainee teachers] obviously a little bit unsure about the use of media. So, 'Shall I show this film?', 'If I show this film, how loud can it be?', 'Am I going to do it so the people at the back can't really hear but it's not going to interfere with the other bases?' (Interview, Humanities Teacher Geoff Walker, 13/10/14).

Jenny could come up with mitigated alternatives but those resources were not available to all. But for both experienced and unexperienced teachers alike, the bases appeared to increase work. Mitigation work, either done individually (in Jenny's case) or through consultation with others (as with Geoff's trainees), was an additional activity.

For Geoff, the noise affected the students directly:

> I wonder sometimes, I get a sense that there's um almost a sense of deprivation, that they are straining to hear over the sounds from the other work areas (Interview, Humanities Teacher Geoff Walker, 13/10/14).

Mitigation work was therefore morally and professionally obligated, as with Jenny's 'you can't have children missing out'. It seemed to spring from a sense of equity: 'they're all entitled to the same curriculum', and is perhaps therefore also a form of emotional work.

Mitigation work happened across subjects, to varying extents and with different effects. It seemed to limit most those activities involving oral skills, group work and physical activity. A consequence was therefore to avoid those activities:

> I think it is just the noise and the distractions in there [the bases] and I mean you can get them to work in silence but do you want your children to work in silence all the time? (Interview, Maths Teacher Lauren Coyle, 15/7/15).

In one Modern Foreign Languages (MFL) lesson where the students were spending a lot of time completing worksheets, the teacher told me afterwards: 'There's lots of noise in fact we're trying to develop more independent learning' (Fieldnotes, 30/9/13). Similarly, Jane Hawkins in English highlighted the relationship between noise, student activity and particular skill development: 'Noise is also a problem when we do speaking and listening … And the only other thing [that is difficult] is reading erm in the base' (Interview, English Teacher Jane Hawkins, 16/7/15). In English, once reading, speaking and listening activities are rendered difficult, not a lot is left.

In fact, the English department invested a lot of time in especially sophisticated mitigation work: teachers recorded podcasts at home which students then listened to individually on laptops and headphones in school; audiobooks were 'read', again on headphones and lessons were more likely to be planned around writing or silent reading in the bases. These activities required charged, fully functional laptops that had to be organised in advance adding extra levels of complexity – especially for a group of up to 50 students.

On one occasion a combination of bad luck, slow wifi and a large PowerPoint file of 27MB (the podcast was embedded with the slides) all meant that for many, the lesson took 30 minutes to start. The students were instructed to listen to the podcast which gave some social and historical background to the novel *Of Mice and Men.* This would help them to situate the novel culturally and to hit the assessment criteria for their eventual GCSE which required them to demonstrate awareness of the novel's context. Students were struggling with the batteries on some laptops or waiting for the PowerPoint file to download when Pete Ainsley, the teacher leading, came over to me:

> It'd be nice to read it as a class but then you can't, not with these rooms. But this is annoying, I spent hours doing this on Saturday and now they can't download it (Fieldnotes, 9/6/14).

The delay in starting was exceptional and unrepresentative. It does, however, illustrate some of the behind-the-scenes work that is often only revealed when systems break down, more likely as complexity increases. Such moments are therefore of potential analytic value because they are unrepresentative (Bowker and Star, 2000:2; Gitelman, 2008:6; Sayer, 2010:87). The episode revealed the extra layers of consideration that the English team invested to make the lesson *work*. 'Work' here has three senses for me. First there is the 'behind' work – Pete's Saturday of thinking about and responding to the lessons of the week ahead with a podcast, a form of invisible labour perhaps since it took place not in public but beyond the scope of others and the established hours. Second, there is a sense (to which I will return in the next chapter), that 'things *have to* work'. There is so much money, so much responsibility, such a wealth of investment of time and care, and such important potential outcomes for all concerned that *not working* becomes impossible. The third sense relates more explicitly to my position as a researcher.

This moment stood out because it held personal significance and, as Ian Barron in his critical realist ethnography (2013:121) notes, such events can force their way to the front of the researcher's consciousness. This may be so for all research but it seems particularly appropriate to 'declare an interest' here because I continue to present it now.

I taught English and also taught *Of Mice and Men* with classes that were predominantly non-white. The novel provided opportunities to explore the partly enlightening, partly reductive way that Crooks (the only black character in the novel) was represented by Steinbeck, the author. As a class novel, it helped (I thought) to connect the classroom space to spaces and times elsewhere. It also helped to question the basis on which 'thresholds' get made – both in the physical/cultural sense of the Bullock Report and the socio-spatial senses of Massey and indeed Hertzberger, that is threshold as: 'the meeting and dialogue between areas of different orders' (2001:32). What *works* means that the terms of 'working' have to be considered. In this lesson at PTA, with many non-white students too, I was uncertain how the format of listening individually to podcasts and the audiobook of the novel worked to unpick some of the problems with the novel or to relate them socially to other contexts.

In English, students had 2 hours in the base each week and 2 hours in the classrooms where I was told discussion was more likely although I never saw a class discussion. During an activity outside of school focused on the future and technology which I attended, I spoke with a Year 10 student. Of the school in general (i.e. not English), she said, 'They say that it's all about communications here but all they give you is technology, there's no talking.' It is an impression that fitted with my own observations as I also very rarely saw group or paired talk. My understanding (although I am still uncertain) is that these bases did *work* in English. These teachers worked hard and creatively to mitigate the problems of noise. Yet, one way to see the bases would be as particularly inflexible spatial forms, interpreted by teachers as requiring – in order to 'work' under these terms – a highly organised system of teaching that was necessarily also more complex (involving podcasts, laptops, internet, PowerPoint) and possibly more closed to other worlds.

One last note on this particular scene. The students were told to listen to the podcast and audiobook individually, with headphones. Two girls sitting next to each other broke the rules and shared an earpiece each. It was a reminder that space as an 'emergent product of relations' (Massey, 2005:68) has ways of overcoming the articulating and articulated envelopes of space-time imposed by others. Despite attempts to fix spaces as *learning* spaces and the nature of the school as *learning*, what happens will be subject (to some extent) to people's own redesign.

I was reminded about teachers' creativity when I received an email reply from a School Direct trainee back at her 'home' school after 2 months placement at PTA. I had emailed her and other trainees when they left, asking if they would tell me about their thoughts on space and teaching, and contrasting their home school with PTA. (Explained further in Research Methods. My email to them is Appendix F.) Krissie replied:

> I am using the classroom more creatively than I did at PTA as I like students to be out of their seats and making noise (as long as it is relevant noise!). The learning bases would have lent themselves very well to this style of learning had there not have been other classes taking place around them (Email, 4/3/15).

There were many similar comments. I have selected this one because it illustrates an irony that features most explicitly here, namely: spaces designed to be flexible were felt, because of the noise, to be more constraining than traditional classrooms. Krissie identifies the dislocation between theory and use that I have shown in this chapter, Chapter 2 and will return to in Chapter 7: the bases 'would have' been good, '*had there not have been...*'

And yet, teachers remained generally positive about continuing to try. In an interview with Jake Hollins, he explained to me that his teaching in the bases was more contained in an effort to keep things calm and make less noise: 'I keep everything simple – I'll teach you this, you do that, I'll teach you this, you do that…' Nonetheless

> I make the most of it though I mean I do try my best in there. But it's more the case of making the best of a bad situation than thriving in a different situation - do you know what I mean? (Interview, Maths Teacher Jake Hollins, 7/12/15).

The data above were drawn mostly from interviews and observation. In questionnaire data (30 responses), although no question was asked about it, 21 responses mentioned noise specifically as a negative, direct factor shaping how they planned, taught or organised groups.

On the basis of all the data, it is reasonable to conclude that the issue of noise was extensive in terms of its effects. The weakly articulated space and/or insufficient sound insulation contributed to a number of knock-on effects and mitigating work by teachers. In particular, I have shown that people's mitigation work was far-reaching as evidenced in what people taught and how, and, perhaps of most significance, how and what they did not teach.

6.4 Time (and Space)

In Chapter 2, I showed that flexibility is closely related to time – whether in the immediate, short or longer terms, reference to the timescale over which flexibility is intended would help to clarify the meaning of flexibility and on what and who it depends. This section does that clarification work by exploring how people used the learning spaces and how time bore on that use. It concludes by offering a breakdown of flexibility into four category timespans so contributing to the literature on school learning spaces and helping to understand the temporal opportunities of and limitations on flexibility in PTA.

Flexibility can refer to the ability to make changes to a space's layout in the immediate and short-term (CABE, 2007:7) for example, now in this lesson or after break. To be flexible means having that time. This is therefore a way of seeing time as an amount, a 'finite *resource* or *means* which can be increased, decreased, managed, manipulated, organized, or reorganized in order to accommodate selected educational purposes' (original emphasis, Hargreaves, 1990:304). As such, there can be enough of it or not enough of it as this teacher explained:

> You wouldn't change that classroom cause it's set up really for two separate classes which you need for your GCSE classes so they are meant to be flexible bases but they're not really cause you've got to have boards [IWBs – interactive whiteboards] and chairs, you know, that you wouldn't be able to change easily during break-time. I said that to Doug once, you know, 'We could quickly change it round at lunchtime or break to fit the group' and he was just like 'But you know it would take the whole of your lunch if not longer' and it's just not really do-able (Interview, Science Teacher Lucy Parkins, 2/12/14).

The possibility of re-allocating time was raised but its perceived finiteness and scarcity meant that adding time for one activity meant subtracting it from somewhere else, in this case lunch. Lunch and suitable classroom arrangement became competing demands. This raises important design and ethical questions for architects and policymakers. If designs assume claims on teachers' time in order to be enacted then the claimed properties are

not independently capable of existing. I return to the ethical question in Chapter 7 and the ontological one at the end of the current chapter.

However, things might have been different with more space. What appeared to be the root of Lucy and Doug's quandary – time as finite and scarce – is in fact inseparable from space. The relative availability of time and space matters because if both teachers had had additional space in which to have alternatively arranged seating, they would not have needed to switch between two layouts that were mutually incompatible at the same moment in time. Jane Hawkins, a teacher in the English department, showed how:

> We've got the benches round the outside [of the base] rather than just the desks so you might just say to someone, 'Can you sit here?', and it's quite flex.... oh I was going to use that word! [laughs] Quite *easy* to move someone round (Interview, English Teacher Jane Hawkins, 16/7/15).

The extra space and the alternatively arranged furniture provided her with resources that increased her freedom to act in the classroom. She would not have needed to spend time to actualise these resources. The flexibility-in-use they would have enabled derived from their being immediately available in time and space. That, in turn, derived from the extra or 'redundant' (Forty, 2004:144) space that allowed for the co-existence of alternative seating. In one sense, time was therefore swapped for space. Rather than independently acting contributors to flexibility, their relationship is closely intertwined and bear causally on each other. In turn this further strengthens my argument that neither flexibility nor architecture can be reduced to space and that any analysis in fact demands consideration of both.

The size and nature of the group being taught also matters. Lucy and Doug did not have the time (or space) to re-arrange things after their large GCSE group but Jane explained that one of the teachers in her department does:

> in terms of changing the tables around erm Paula always sits her Year 7 class round in a little circle, every time (Interview, English Teacher Jane Hawkins, 16/7/15).

When teaching groups are smaller, time might indeed be found to use a space in flexible ways since moving fewer chairs and tables takes less time. Other things being equal, smaller groups are both spatially and temporally more flexible. However, other things were not equal. Above, Lucy pointed out that the classroom formation was one 'you need for your GCSE classes'. As students progressed through the school, what they did was increasingly perceived as work-like. The pressure on results meant that there were extra considerations on how and where to teach to the extent that in Lucy's case, she felt it determined how a space could be used. For Paula's Year 7s, still two years from beginning their GCSE study, the reduced pressure (as well as their smaller group size) perhaps meant that the room could be changed more easily. The literature rarely points up this difference – perhaps because academic pressures are extreme in England at the upper secondary level. It *is* reflected in different building and space regulations between primary and secondary but again, once we deal with secondary school students, design is assumed to be capable of doing all things for all people equally.

A further example is provided by one teacher on the receiving end of this 'rationing' of flexibility. Here his Year 7 groups had to give way to the GCSE-age students. At the end of his lesson in a base with 36 Year 7s, I spoke with him and asked if he used any of the classrooms with the same student group.

> No, they've [the teachers of the Year 10 and 11 GCSE groups] taken the rooms over there [classrooms] and just split the kids up, 10 and 12 each so we're left with this [the base]. They've taken the flexibility away from us (Fieldnotes, 15/12/14).

Here flexibility appeared to be understood as something that teachers can *have* – a freedom. It was not the property of a single space nor a particular kind of space, but a freedom deriving from the ability to use a variety of spaces. As a result of dedicating spaces to particular groups at the same time that others were being taught, that freedom disappeared.

Flexibility understood as variety in this way was the least commented on form of flexibility when I collected data. Nonetheless, it flags up further evidence of its 'fragility'

that could have important effects for users. The issue of being able to use a variety of spaces came up again in relation to the Discovery Room. This was a small space with wall-to-wall and ceiling-to-floor projection screens. However, Jane Hawkins notes, 'As we got bigger, it got more difficult to timetable the children going into that space' (Interview, English Teacher Jane Hawkins, 16/7/15). The physical school was still the same and the Discovery Room itself was in the same place but people's ability to use that resource was stymied by the growth in organisational complexity. The existence of resources alone was not the problem frustrating this type of flexibility, therefore and I return to this in the discussion section at the end of this chapter.

To return to the issue of exam pressure affecting flexibility, it became apparent that time was perceived not only as a resource in the immediate term but over longer periods too. GCSEs formed a horizon defining the boundaries of what it was possible to do making it a spatio-temporal challenge to cover the necessary ground by June of Year 11. Lucy described how they used to have a 'little library corner set up with um chairs and stuff' to the side of one of the bases with the idea that:

> …people will just wander in, access the books, take them back to their classroom or sit there and do the work and it just… and that's a really nice thought but it just doesn't work like that and maybe it's just because of their age and um and because you've got to get a certain amount of content in there so the pressure's on (Interview, Science Teacher Lucy Parkins, 2/12/14).

As Andy Hargreaves noted, for teachers it often seems that 'Time is the enemy of freedom' (1990:303). Flexibility is a type of freedom – as will be explored further in the discussion section. If actualised, flexibility provides choice, the opportunity to select from alternative courses of action *b*, *c*, *d*…*n* as well as *a*. But when the 'pressure's on', options *b*, *c*, *d*…*n* revert to being 'really nice thought[s]'. Flexibility was a fantasy in Lucy's case because of the amount of content demanded by the exams within the time available.

This shows firstly the interconnections between flexibility as a property of a space and time and process but secondly acts as a reminder: is designing for flexibility designing for the real world or one that exists only in imagination? The 'promises' which Alexi Marmot

wrote of (2002:252) were pregnant with agency but when in use, 'architecture is a mess; not an aesthetic mess but a much more complex social and institutional mess' (Till, 2013:xii). Living and teaching in that mess can mean 'finding' limits to flexibility and agency that went unnoticed in the design and policy framework which gave rise to the school since real life was never accounted for in the tidy depictions of a closed system, determined world where transformation was an inevitable outcome. Flexibility was *only* a promise.

Time-based Categories of Flexibility

In many different ways, time came to matter for how PTA teachers could use their nominally flexible learning spaces. It had an importance and bearing on their lives that did not feature in the design and planning documentation. Partly because this appears to be a general problem since architects have 'insistently separated' (Till, 2013:117) space and time and also because users of a school building are to some extent at the mercy of the policymakers who commission school buildings, I sought to understand how time might better be represented from the perspective of teacher-users.

Table 6-1 is therefore an attempt to further disaggregate CABE's (2007:7) 'short-term' and 'long-term' senses of flexibility. It starts with the assumption and perspective that the logic of time categories should more helpfully reflect the perspective of people using spaces as well as those designing. For example, using a space for a drama activity after lunch or the following day can be seen as involving different investments and resources from an immediate change in use during a lesson – if a teacher suddenly decided that rather than pairs, having students discuss an issue in a group of 4 might be more productive.

Hence in addition to short and long-term, I define 'immediate' and 'medium-term'. Doing this has a number of additional advantages. First, it becomes clearer who is 'responsible' for or affected by different forms for temporally distinguished flexibilities. The 'actor'

changes over different timescales. Second, it is easier to see that the resources required for flexibility to happen tend to be different over different timescales. Resources, we have seen are key to potential flexibility becoming real-life flexibility. Especially in longer term flexibility, these resources may also be financial. Third, the impact and duration of flexibility is also likely to be different over different timescales. Some adaptations are immediately reversed, others remain for longer. These advantages could be helpful if the assumption holds that the actual flexibility of designed space has a greater value for users than promised but unrealised flexibility. In that case, there would be an effectiveness and moral argument to increase the likelihood of flexibility happening.

The four categories are drawn from the literature and analysis of all of the data collected at PTA. Further disaggregation into more time categories might also be helpful but would likely suffer from reduced communicability. Table 6-1 was shared with PTA teachers during November 2016 via a private page on a website. There were very few responses – only five – although all were favourable. One questioned the need for a distinction between ‘immediate’ and ‘short-term’. I intend these categories as heuristics: whether they remain meaningful beyond PTA would need further testing beyond the immediate capability of this project.

Table 6-1 Four time-based categories of flexibility

Timescale to which flexibility refers	Description
Immediate: now, this current lesson	**Tailoring the lesson space on the fly** These are ad hoc changes and adaptations that the teacher can make in the flow of the lesson without relying on others or additional resources. **Actors:** Class Teacher **Duration:** likely to be short-term i.e. changes will be switched back **Resources**: None (beyond existing)
Short-term: after break/lunch	**Adapting the lesson space for a specific, upcoming group** These are changes and adaptations that require some informal planning but can still be enacted by the class teacher in a short space of time e.g. a test or drama activity **Actors:** Class Teacher **Duration:** changes likely to be switched back again after use **Resources:** Existing + small time investment e.g. what I can do but still get a lunch break
Medium-term: tomorrow, next week	**Re-organising space for multiple lessons** Planned and likely to affect multiple teaching groups perhaps in response to a shift in pedagogy or short-term change in curriculum eg a project day or school-wide exams **Actors:** Class Teacher, possibly colleagues **Duration:** Changes may be switched back but could also be first step experiment in longer-term changes **Resources:** Existing + significant investment of time perhaps also involving colleagues and their lessons
Long-term: next term; next year	**Overhauling spaces for significant, long-term changes in pedagogy, curriculum or students** Long-lasting changes to existing spaces or expansion. Highly planned and considered, likely to involve groups of teachers, management and where building work is done, architects, engineers and builders. **Actors:** Class Teacher, colleagues; management; architects etc **Duration:** Permanent or semi-permanent **Resources:** Existing + significant investment of time; colleagues; consultation; intensive planning; finance

6.5 Discussion: Re-thinking Flexible Spaces and their Causal Powers

Flexibility is a problematic word and concept as I showed in Chapter 2 and as the findings reported in this chapter further suggest. The aim of this discussion is to bring the findings in to play with a theoretical focus on what causal powers and their interactions might be responsible for flexibility and therefore shaping what kind of 'thing' it. This should help to clarify thinking about flexibility and also make it a concept that can apply to used space rather than theoretically flexible learning spaces.

In realist terms, this is an attempt at a retrodictive explanation – a reintroduction of some of 'the complexity that is abstracted from when we focus on identifying individual causal mechanisms' (Elder-Vass, 2010:176). The section is therefore about what real-world flexibility means and who and what it involves.

I start by reconsidering the findings that were divided up in the chapter and then move on to a conclusion about the kind of thing that flexibility would have to be in order for it to be coherent with the empirical findings above. There are two parts then, a reintegration of the findings and an ontological proposal about the nature of flexibility.

Reintegrating what Facilitates and Inhibits Flexibility

Across the data and highlighted in the analysis presented above is the importance of appreciating the complex interrelations between life and space in school if lived architecture itself is to be understood. Seemingly little things such as a fire exit, a class watching a film, people not tidying away, the age of students in a class come to have real effects on the way that a space can be used and social relationships. Rather than brushing that complexity aside, however, I have shown how it is useful and necessary to see school spaces from a perspective which sees them as situated in a wider, open system.

In this way it can be understood how the causal powers of particular things or people do not operate in isolation and tend not to have regular effects in the world. This makes predicting process from spatial form a theoretically questionable exercise and one with likely empirical failings too. There are ethical implications which I discuss in the next chapter.

The key conclusions from the above analysis in terms of reintegrating what facilitates and inhibits flexibility are the way in which relations between resources matter, making the local, immediate context an important focus of attention *and* the way in which this local context is itself situated in a broader educational culture. Very often there was a 'making do' with the spaces because what was perceived to be necessary curriculum-wise overrode what was theoretically possible spatially. Noise, time and the way space was shared were also key to how the spaces might be used *but* departments developed a variety of strategies to mitigate the worst effects of these factors – often by relying on teachers' extra work or time. Hence the only 'non-negotiable' factor that could not be mitigated appeared to be the pressures resulting from assessment that shaped the *de facto* curriculum.

As a result, the space of the learning spaces did indeed appear to be connected to 'elsewhere' even when it was an attempt at making a new, transformative space. This produced several conflicts or ironies. For example, to be flexible required being highly organised and it required effective sharing, there was compulsory cooperation. This sometimes limited other forms of flexibility such as spontaneity. Further, as the school got bigger and developed over time, teaching flexibly became harder because the practices and organisation of teachers' work had a feedback effect onto their possibilities of agency. In crude deterministic-speak, the dependent variable (or teacher behaviour as output) became independent over successive time periods as these practices solidified into established routines and work arounds.

This prompts questions that will be explored in the next section and chapter but bears also for future research, namely, what kind of flexibility is it that insists people are and do things in certain ways? To what ends is flexibility a means?

The Ontology of Flexible Learning Spaces

'Flexible learning space' and similar formulations are ontological propositions. The causal power of flexibility is packeted up with the space itself regardless of people, time and process. In this way, the design of the space can be presented as necessary *and sufficient* for flexibility to happen. Treated as such, flexibility appears to be independent of the world and operable in a closed or open system alike, but this is wrong.

The root of the problem is metaphor. To be flexible, to have the property of flexibility means to be able to *flex*. This is one thing for a material and quite another for a designed space. When the sense of the word is transferred from a physical, material substance and attributed to a space, that is, metaphorised, it is clear that it now means something different. Spaces do not flex.

A plastic ruler can flex by virtue of the particular molecules that constitute it and the relations between those bonds. In realist philosophy, that ability or power to flex is variously named a disposition, capacity or liability – it makes little difference which. Liabilities are:

> simply a variety of emergent causal power – a power to change in certain ways in response to certain kinds of stimulus (Elder-Vass, 2010:47).

None of this means a ruler *will* bend. If one end is pushed when it rests on a table, the causal powers of that table – its liability because of the materials *it* is made of – will counteract the pressure and the ruler will not bend. Metaphorically, the same is true for a designed space. It may be used in different ways but other things might intervene to prevent it from being used in different ways. This is where the similarities end.

The 'system of interest' (Sayer, 2010:83) of physical, unmetaphorised flexibility is a closed one, that is, the relationship between stimulus and response is constant and changes in

constant ways (Sayer, 2010:123) – or is imagined to be. The system of interest of metaphorised flexibility as in a flexible learning space is open – but often treated as if it were closed. Flexibility here is only ever part of the social world but seen as mechanistic and so the cause of many conceptual, ethical and political problems because spaces are treated as things they are not, ontologically excising the work and resources required for them to be flexible.

An example from the literature will illustrate the problem. Forty suggests that flexibility has been used as a 'political strategy' of resisting functionalism. With this, I think he is wrong but on the right track by acknowledging that use, implies a social, open system. So, flexibility 'is not a property of buildings but of spaces; and it is a property which they acquire through the uses to which they are put' (2004:148, note this is not necessarily his belief but an approach to flexibility that he illustrates). But, if spaces acquire a property when they are used and do not have the property when they are not used – *they do not have it*. A blue wall does not have the property of being blue before being painted. It gains its blue-ness, the property of being blue, when and only when it is painted. It is true that a space may be transformed through use (because we assume an open system) and so be given new properties but they are exactly that – *new* properties. Use cannot retroactively confer a property onto a space. Instead, it is perhaps more useful to see a space's potential to be flexibly used – as if it is there but 'hiding', an unrealised capacity or liability.

If we accept that spaces are part of the social world and therefore necessarily open, time and process and so people have to be acknowledged as integral to that open system. Process, time and people need therefore to be brought in not just to the ontological understanding of what a space is but how, empirically, we treat it. How can that happen, philosophically?

Brian Ellis provides some insight. The first step is to see flexibility as a disposition or liability of a space as has been stated, then:

> It is plausible, therefore, to think of a dispositional property as a relationship (of potential instantiation) between an object (its bearer) and a natural kind of process (the kind of causal process involved in its display) (2008:82).

It is therefore the relationship between space and people and people's resources which we should pay primary attention to. Clearly, this involves consideration of what properties the space has, just as we need to consider whether teachers have sufficient time (for example) to instantiate the latent flexibility of the spaces they are in. Thinking in this way leads us from a spatial fetishism of the learning space as the necessary *and sufficient* source of all flexibility towards a more complex but closer-to-real life understanding of what happens in schools.

However, depending on the circumstances, even this may not go far enough. It probably matters very little to a teacher if spaces are theoretically flexible. What counts for them is whether they can actually use the spaces flexibly – if they can do what they want to do.

For Lucy, the library corner was a 'really nice thought' but it remained only a thought because of the 'amount of content' she felt necessary to cover in her GCSE classes. For Pete and *Of Mice and Men*, it would have been 'nice to read it as a class', but he couldn't, not with the rooms he had and his need to keep the noise down for colleagues teaching around him. For Jane, the fire exit stunted how she could use the base. Nigel Mehan was categorical:

> …a flexible learning base for me is one you can change backwards and forwards and you use it for your own particular ideas of that week … This one that we've got now isn't a flexible learning base, this is just a learning base, you can't change it at will or anything like that (Interview, Science Teacher Nigel Mehan, 13/10/14).

From a user perspective, what matters with space is what you can do with it. The proof of flexibility for these teachers is in the pudding, not in the ingredients. With this in mind, I now consider a more useful perspective for understanding flexibility and to do this, I return to the interview extract with Jane Hawkins:

> We've got the benches round the outside [of the base] rather than just the desks so you might just say to someone, 'Can you sit here?', and it's quite flex.... oh I was going to use that word! [laughs] Quite *easy* to move someone round (Interview, English Teacher Jane Hawkins, 16/7/15).

I think the reason Jane laughs is because we had earlier talked about flexibility and I had said that it was often unclear what it meant. Some 20 minutes later, she is in mid-flow about what she finds useful about the spaces. She starts: 'it's quite flex…' but then seems to force herself to translate that unfinished 'flexibility' into a meaningful alternative. Her translation – 'quite easy to…' – helps, however, to understand another way of understanding flexibility. For her, at least in this case, 'flexibility' seems to mean 'is easy to…'.

This might seem very simple but what I think Jane has done is point up the importance of all of the above arguments. She has taken emphasis away from the building's design and turned the analytic focus towards what people are able to do in spite of and because of the design, curriculum, time, redundant space and so forth. Hence the 'it's quite flex … quite easy to move someone round' seems to mean (by expansion): 'it [the extra space and the benches have made it] quite easy [for me] to move someone round.'

Here ontology, perspective and ethics come together:

1. what matters (i.e. what is personally valuable in terms of flexibility) is what I as a teacher can *actually* do and therefore;
2. it should be understood and evaluated by the extent to which I can do what I want to do (because theoretical flexibility will, by the above arguments, be valued less than actual flexibility); and
3. it is important to me because it gives me greater freedom (understood as an increase in the real capability of choosing among options).

This understanding of flexibility coheres with approaching the flexibility of flexible space as a dispositional property of the object and its relation to process: the test is whether

the teacher can do what they want to do with a space. It leads to a shift in focus on what people can really do with the resources they have based on their needs and wants and so provides an ethical advantage. Their agency is now the focus of attention rather than people as the output of a determining conjunction of events. Based on the evidence in this chapter, this is closer to real life. It is also more helpful I suggest because if real life flexibility is to be valued more than theoretical flexibility then making the former the object of empirical enquiry has the potential to produce knowledge that is more valuable.

There are two parallels that I would like to draw on to support this argument. The first comes from Gert Biesta and his discussion of the trend towards 'what works' in education research, an approach that favours apparently highly generalizable evidence as a basis for reforming education and improving teaching and/or learning:

> The problem with evidence-based education … is not only that it is not sufficiently aware of the role of norms and values in educational decision making; the problem is that it also limits the opportunities for educational professionals to exert their judgment about what is educationally desirable in particular situations (Biesta, 2007:20).

On both counts, deterministic design shares common ground with evidence-based education. First, the model on which PTA was designed and with which much school architecture is discussed, obviates or reduces the role of values. The input-output discourse of determinism merely says what will follow as a result of a design. The building is now seen as an 'intervention'. People are dependent variables and as such are both prisoners of system effects and, because the system is closed, have no means of feeding back and changing the means of their imprisonment. Second, an approach to flexibility of the kind I suggest empowers people to exert their own judgements and actions about 'what is educationally desirable in particular situations' based on what they find meaningful. As such, it provides the means for restoring teachers' values in the process of using designed space.

The second parallel is with the capabilities approach of Amartya Sen. This represents a shift in focus in philosophy and development economics from judging wellbeing as the

extent of *provided* resources towards a focus on the opportunities people have and the obstacles they face in *using* those resources – how they can convert them into opportunities they think valuable. It is a challenge to traditional accounts of equality.

For example, a table that weighs 10 kg is equally 10 kg to all but could provide a very different degree of freedom for one teacher vis-à-vis another in terms of switching a classroom layout during break – some teachers are stronger, larger etc than others. Tables with wheels might help to ensure a more equitable opportunity for them to be moved *and* make it more likely that they would be. Attention must be given to people's ability to *use* the resources available for ends that they desire:

> Equalizing ownership of resources or holdings of primary goods need not equalize the substantive freedoms enjoyed by different persons, since there can be significant variations in the *conversion* of resources and primary goods into freedoms (original emphasis, Sen, 1995:33).

As a result, people's capabilities 'depend on the extent of their opportunity set *and* on their *freedom* to choose among this set' (my emphasis, Stiglitz et al., 2010:15). In moving from the opportunity set of resources to the ability to select from that set, context becomes not something that can help to ground findings but an integral part of what it means to be able to choose *or not*: 'Sen's conception of freedom is one where the capability or power to achieve must be a real possibility' (Martins, 2006:673). Flexibility too must be a real possibility. If not, it is condemned to being merely a promise – a hollow one at that. Seen in this way, flexibility is not just the provision of options for teachers to use space in different ways but demands that attention be given to their capabilities to exercise those options.

To return to PTA then, taking a class to the Discovery Room or the use of laptops were options Jane and Lucy could exercise when the school had only 200 students. When the school grew, timetabling and other constraints meant that although the 'opportunity set' of different learning spaces remained the same, teachers no longer had the real capability to choose among the options available. In the base, Jake could do what he wanted *in theory*. In practice, he could not and so felt more 'adventurous' in the classroom. There,

he had the real capability to choose among options. It is this capability that made the classroom more flexible.

While the immediate findings of PTA at the level of events will not be generalizable to other schools for reasons already given, a focus on capabilities might help to redirect attention to what counts in other local situations. Ultimately, a focus on the provision of resources (including flexible spaces) alone and without consideration of capabilities risks underestimating people's real ability to teach in ways that they want. Understanding flexibility in this way has the additional advantage of providing ethical and even political direction: it focuses on what people are able to do and what they want to do. It is ontologically more coherent. It is also a more 'valid' conceptualisation since it acknowledges the openness of the social world. Finally, it has the potential to increase the likelihood of achieving outcomes that are desired – flexibility is more likely to be achieved.

To recap briefly and then move forward, the flexibility of a designed space is most usefully seen as a type of causal power, a latent disposition. A space has this disposition by virtue of what it is. So, the flexibility of a designed space may come about because the space is particularly large, because alternative seating co-exists simultaneously and so forth but this flexibility must be understood in relation to the processes that take place in the space. There is no guarantee of a space being flexibly used nor is it theoretically tenable to identify an independently flexible learning space because causation is the result of multiply determining causal powers. In the case of teachers using a particular space, the design of that space is *only one set of causal powers.* These must – if we are to have a meaningful understanding of flexibility at all – be understood in relation to processes that take place in the space and so to the properties and potential casual powers of the resources that these processes require. For teachers, *instantiated* flexibility is what counts, not theoretically available flexibility and this requires the consideration of people's real capabilities to instantiate it. This in turn necessitates an understanding of the resources of time, curriculum and so forth which allow flexibility to be instantiated, and so help to understand people's agency, their desires in terms of what they want to achieve in the classroom and how these are variously frustrated and enabled.

The flexibility of a learning space is a property that is ontologically coherent and conceptually valuable only when people's causal powers and real possibilities to exploit a given space's disposition of flexibility are related.

Implications

There are implications for approaching flexibility in this way. The following is not exhaustive but discusses some key points in relation to Research Question 2 and earlier work (Chapter 2 especially).

It follows from the above that exploring the resources available to teachers is necessary but insufficient to understand what options are really actionable. This, from Blackmore et al., is a useful start:

> Unless teachers are prepared and are provided with the necessary professional skills, tools and resources to change their practices, then new built spaces will not move them to innovative pedagogies (2011a:38).

If, however, the amount of curriculum content or the number of students in the school prevents teachers from using resources then flexibility is as good as dead in the water – it matters little that it remains potentially instantiable in a parallel world. The above is helpful, therefore but a residual determinism in the space *moving* teachers 'to innovative pedagogies' obscures how capabilities rather than preparation or provision of resources is, in the last analysis, what counts.

The approach I described above appears to complicate the relationship between architect and user. If the ontology of flexibility is now more integrated with process, time and people, it certainly becomes more complex. Indeed, a great advantage of determinism as a thinking tool is the simplicity and certainty it appears to provide – the world shorn of complexity. But if, as Jeremy Till argues, architects need to 'engage with others in their messy, complex lives' (2013:61) then co-involvement in this complexity might help to

think about the relative roles of design and use. Hertzberger's 'spatial opportunities' (2008:11), for example, can be understood as a non-determining, necessary (but insufficient) contribution to people's freedom for the same reason that Blackmore et al.'s 'resources', above, is also useful but insufficient – people need to be able to use opportunities and resources. They need capabilities. This may also be helpful, however, since drawing attention to people's capabilities is a way of recognising that architecture is necessarily insufficient and it cannot therefore be summoned as a silver bullet for 'problems' such as the 21st century.

Conclusion

This chapter has argued for a reorientation of the concept of flexible learning spaces towards their use, with design being one feature among many others: time, social relationships, curriculum, teaching group size and age. It has also argued that the flexibility of design *per se* is of less value to teachers than their ability to use spaces flexibly. What resources are available for teachers is a necessary but insufficient part of considering whether space can indeed be used flexibly. It is insufficient because, as I showed by drawing on Amartya Sen's work, teachers' *capabilities* to use resources in ways that they want is what counts.

In contrast to a conception of flexibility that relied on spatial fetishism and a deterministic, closed system model of the world that obscures people's work and resources, I showed how a more theoretically tenable approach to flexibility could also increase the likelihood that spaces can be used flexibly. I argued that this is also a more ethical approach.

In the following chapter I move away from the intricacies of the classroom to consider school design and flexibility from the broader perspective of policy and what they mean for people's roles in relation to educational transformation.

Chapter 7 The Policy and Ethics of Flexibility and School Design

In this final main chapter of the thesis I draw on observation and interview data from Pottisham Technology Academy (PTA) to think more broadly about how people are conceptually framed in debates on school design and how these relate to wider social and political changes. PTA is just one example of a new school but it did not simply fall from the sky: it was *designed*; and designed in a particular period of time; for a particular educational culture that was managed in a particular way. Too often, school design appears in the theoretical distance, far from the constraints of everyday life and control. Examples of these micro-level constraints were explored in Chapter 6 whereas here I focus on the wider political and social framing of both PTA and BSF. For Gary Alan Fine, there is a 'traditional black box that links micro- and macro-interpretations' (2010:357) in qualitative sociological approaches and this chapter aims to 'fill in' some of the account between the hours in the classroom and the origin and context of BSF long before.

In addition, my reading suggests that how schools are funded and their political origins are rarely connected to their design and, from there, to practice. Similarly, the demands of the educational system they are part of (and bounded by) are frequently ignored. The chapter explores this too and the implications for thinking about how people are framed. How, and the extent to which, PTA instantiates policy as well as architectural and educational discourses more generally is therefore both revealing of its inspiration and suggestive of how particular ideas come to be reproduced through the design of space and imaginations of people's role in relation to them.

Exploring these underdeveloped issues involves a return to the literatures on school design and spatial and social theory in order to explore their connections and disjunctions with the data I discuss from PTA. It also involves the politics and ethics of design and policy at a more macro level than I have considered so far. It is a truism to say that policy and design both precede their effects (whether intended or otherwise) but not a banal one because that temporal disjunction also marks one formed professionally and politically: architects and policymakers rarely live out their own creations which are made

for an imagined community in a different time. Hence I put architectural and educational expectations on the one hand into dialogue with people's experiences and use of architecture on the other. The aim is to answer Research Question 3:

> **RQ3**) What – and where – is the role of teachers in policies and architectural discourses of innovative spaces designed to transform education?

To answer it, I take the following steps. I start from the question of perspectives, exploring some of the differences between the theoretical framing of people as future inhabitants of an imagined building and the lived reality and experiences of working in a school. That helps to situate the following discussion on educational architecture within political contexts and the period of time and form of governance commonly known as neoliberalism. I show how BSF and indeed flexibility can be read as exemplar neoliberal moves with flexibility a burden rather than enabling design feature. I finish the chapter by relating flexibility to educational vision-making and suggest it can be seen as a contributing factor to the fragmentation and dispersal of a shared educational culture.

7.1 Senses of Perspective: Designing and living out Architecture

As stated, this thesis concerns teachers' uses of and thoughts about PTA's spaces. However, I want to begin the empirical part of this chapter by bringing in the opinion of Marie, a student I introduced briefly in Chapter 4 where she helped me to think a little more reflexively about my role in the research process. Here I draw on Marie's comments because what she says is meaningful in respect of the role of perspective, perspective being intrinsic to knowledge and experience (Sayer, 2000:30).

This brief conversation happened at the end of a Science lesson in one of the bases. Of all departments, the bases in Science were the most open with little in the way of articulation through bookcases, for example. As students were packing away, I started talking to two girls and asked them for their thoughts about the different learning spaces. Marie told me she liked the classrooms more:

Me:	So you prefer the classrooms then. What is it about these open spaces you're less keen on?
Marie:	I feel claustrophobic in them.
Me:	Do you *mean* 'claustrophobic'?
Marie:	Yeah, yeah, all the people, it's all ehhhh [waves hands close to face] (Fieldnotes, 10/10/14).

I had assumed that Marie had confused her words: how could an *open* space be claustrophobic? As well as the significant difference this made for thinking about how I do research, it prompted me to think more about people's *senses* of perspective both in terms of how Marie's understanding of school space appears embodied here but also for the different positions we had towards it. It reminded me of Green et al.'s (2012:310) comment on 'frame clash' that I had read in the first year of my study when I was trying to understand more about ethnography:

> Central to the ethnographic logic-in-use are moments where ethnographers are confronted with a surprise or something that does not go as expected. Such moments of frame clash become *rich points* as the ethnographer strives to shift his/her point of view (POV1) to that of the insiders' (POV2) in order to resolve the clash in expectations, frames of reference or understandings of what is happening (original emphasis).

What Marie said, struck me. It did feel like a *rich point*, although not only because it helped to broaden my understandings of how the space was lived by this one student but because it provided a way to think about not just ethnography but policy and architecture too.

Intentionally or otherwise, both architecture and policy often work to separate those who experience policy or architecture from those who make them. The separation is inevitably temporal because architecture and policy both project ideas of what should happen into the future. It is also social because both intend to affect in some way the relations between the people they involve and those relations to relations among, for example, knowledge, culture and other broader social categories and resources in a similar manner to the way that Bhaskar, cited at the very beginning of this thesis, understands the

subject matter of sociology (2011:71). In fact, the number and extent of separations between those who design schools or who make policies about schools and those who use them is significant. Professionally, they are different categories of people of course and, as I discussed in Chapter 2, there are economic and structural reasons too why there are disjunctions in experience and knowledge (Marmot, 2002:252; Bordass, 2006:1).

Bourdieu elaborates some of these disjunctions in relation to the architecture of modern housing vis-à-vis the Casbah of Algiers and policies to move the local population from the latter to the former:

> The modern apartment is an *already structured space* indicating by its organization, its extent, and its form the future use which can be made of it, the type of occupation it calls for, etc. As a tool, that is, a material object prepared for a certain use, it announces its future and the future use that one can (and must) make of it *if* one wants to conform to the 'intention' it contains (my emphases, 1979:85).

Bourdieu's point is that the disjunction between the embodied traditions (i.e. the habitus) of those living in the Casbah and the one that would be required of them to live 'successfully' in the modern French apartments as intended in the design is one that is politically motivated – another form of domination by the colonial power. However, as long as 'modifications are possible and even indispensable, the future use which can be made of [the apartment] is never entirely pre-determined' (ibid). People have to make things work, and they have to make things work for themselves not for someone else's grand plans.

However, the further the separation between designer and user, and the senses of perspective each has, the harder this might be if the two groups are held apart by the rigidities of their respective professional cultures as Bordass and Marmot suggest, *or* if the intentions of design themselves are too rigid – the tradition that Hertzberger seeks to overcome. In fact, Hertzberger recognises the problem of separate perspectives:

> Architects are substantially far-sighted and see distant objects the most clearly. For starchitects in particular, viewing the world as they do from an

> astronomical distance, people are tiny specks so many light years away, if there at all (2015:116).

Hertzberger's use of a visual metaphor connecting knowledge, sight and positionality recalls Weizman's threshold of detectability and is part of a long, especially western tradition:

> The notion of *idea* — from the Greek *idéa*, shape, aspect, whose root is the lndo-European *vid-*, from which the Latin *viděo* also derives – is itself visual. And if idea is a vision, theory (from *theōréō*, I look) is literally a way of seeing (original emphases, Brighenti, 2010:11).

Position, knowing, seeing and the many forms of representation come together. Hence positionality and what can be seen is intrinsic, in this model, to what can be known. Hertzberger's comment on the far-sightedness of architects is not that it is simply bad. Architects' responsibilities are vast, extending far beyond thinking of space, people and what they do together to include managing contractors, sourcing materials, ensuring buildings' environmental efficiency, and, increasingly, legal and financial management at the expense of theory and philosophy (Smith, 2017:online). In short, there is good reason why far-sightedness is useful. However, far-sightedness needs to be complemented by near-sightedness (and vice-versa). Retaining this distance, policy structures (as I shall show in the next section) and different forms of representing knowledge (as I showed with the case of the fire exit in the previous chapter and as Jeremy Till shows in respect of the 1:100 scale) reduce opportunities for frame clashes and coincidence of meaning which can help mutual understanding. The short encounter with Marie illustrated the value of a 'cross-cultural' understanding and was emphasised again in an interview with one very experienced classroom teacher:

> Staff here know a lot about spaces informally, things that you've learnt as time's gone by, nothing to do with university, nothing to do with teacher training, it's what's happened here, ehm, I think those practitioners actually at the chalk face, they're the ones really you need to talk to (Interview, Humanities Teacher Geoff Walker, 13/10/14).

Understanding *actualised* constraints and possibilities in the here (space) and now (time) is key. They are the interaction of entities and their causal powers to limit and enable actions and are 'seen' (or felt in the case of Marie) and known primarily as examples of situated knowledge. The fire exit flagged the representational problems with that and the distance that the meanings have for different communities of users. Here again, the problem is experienced from a positional perspective: those at the chalk face rarely get a chance to speak to designers or, for that matter, policymakers.

In Chapter 2, I reflected on BSF documents written in a future tense by people who would never be responsible for or have to enact the present. Their creations would be passed forwards to another group of people, in school, who have to get on with their jobs by developing their own systems and reorganising space where necessary. One result in PTA was that what *works* became a recurring theme in the life of PTA. There is no abeyance from pressures of schools (also outlined in Chapter 2.) And teachers and staff have legal responsibilities for the young people, a duty of care to protect them and a moral responsibility as well as performance incentives to ensure learning; things *have to* work. And the principal herself of course has additional responsibilities to make it work:

> We were quite fluid about the ideas but equally I knew what would work or what I thought would work, I mean there were times when I thought, 'I hope I've got this right' cause there's a £32 million building going up! But it works because of that combination I think. And again, my view was that if anybody's going to make this work, it has to be us because we've got so many opportunities, with new staff, we didn't have to learn anybody's habits, including children, you know, we could go straight into it as a new venture and make it work and I think that's what's driven it really (Interview, Principal Di Reynolds, 1/7/14).

Her work and the work of her staff were tied to the particular present in which they could be performed. There was no opportunity for these people to build a school for *the future* since they had to make one for their present, and make it work.

A gap seems to open up then in terms of when constraints act on people and how they are seen. Making things work is unavoidably of the now and within the actual, contemporary constraints of possibility for the people on the ground, here.

Understanding, knowing and acting in the here stand in contrast to some of the hype that emanated from the government agencies mentioned in Chapter 2 and of which Partnership for Schools (PfS) provided the clearest example in their insistence that designs be 'pushing the boundaries of the possible' (2009:5). In recalling Dana Cuff's words, cited above, there appears in PfS's self-conscious construction of a new paradigm, a rejection of the importance of analysing norms from which 'radical departures' (ibid) are made and a celebration of a discontinuous difference that discounts user experience and historical accounts, and promotes theoretical but empirically ungrounded visions.

In this section, I have connected policy and architecture and shown how they can share similar relationships with respect to how people are themselves related to time, positionality, knowledge and representation. In the next section I focus on architecture as a form of policy instrument in order to discuss the social and political context of school-building, wider social changes and the role of people in relation to these.

7.2 Educational Architecture, Policy and 21st Century Governance

The broad aim of this chapter is to explain how the role of people is positioned in relation to the policy and architectural discourses that constituted BSF nationally and were part of PTA's backstory. The previous section focused on ways of knowing, seeing and representing and how these made a difference for what we know about school buildings in use, their lived architecture. This section continues to explore how people are located conceptually and really in architecture but does so with an eye to the wider social and political culture of England as a relatively wealthy economy in the 21st century.

There are reasons why this perspective is important. First, as Selwyn argues (2011:6, cited in Chapter 2), educational changes are part of broader social changes – ones that often stem from the particular ways in which capitalist society is organised – and benefit from being analysed as such: BSF did not happen in a vacuum. Second, taking a wider view helps to see how BSF is similar to (as well as different from) other times, and ways of

thinking about architecture, innovation and transformation. Both reasons therefore provide the justification to step back, situate what went on politically and architecturally and so perhaps prevent the portrayal of BSF simply as a standalone programme or thing that just happened to happen in England in the early years of the 21st century.

I start by considering how to characterise the BSF programme in policy terms and what that involves for the relationship between people and the state that devised it and sponsored the discursive production of transformation. I explore how this relates to the role and position of people in terms of the architecture they now live out, to other initiatives at other times and in other places, and to flexibility once more although now less in terms of its micro-implications for the classroom but rather flexibility as a socio-spatial and inevitably political ideal, one whose achievement would seek realisation in the organisation of space.

Architecture as Policy Instrument: Responsibilised Users

BSF, nationally and locally, was a programme with little in the way of substantive content. As I showed earlier, the 'what' of BSF and the architectural 'content' and 'aims' were unclear nationally (House of Commons Education and Skills Committee, 2007:4; Jacob, 2015:online; Mahony et al., 2011:346). Locally too, I showed how the substantive idea of transformation and how it would be achieved through open-plan was lacking: it 'just happened' (Interview, Sponsor Pauline McDonal, 21/1/15). This was in stark contrast to the original open-plan of the 1960s and 70s which had a 'clear educational rationale' (Bennett and Hyland, 1979:164). The local policy documents to which I had access provided little help in understanding how it was that design would lead to the promised transformation.

In one sense, this is not surprising. The year after the Government was criticised by Parliament (House of Commons Education and Skills Committee, 2007:4) for having failed

to clarify what the educational future of BSF was, the Department for Children, Schools and Families together with the delivery agents for BSF wrote that 'Heads and teachers':

> must be informed clients who demand the best from BSF. We need them to be able to articulate the educational vision (DCSF et al., 2008:30).

Responsibility lay with school staff. This is problematic and I will return to it later. For the moment, however, it further suggests how BSF was primarily a school-building 'mechanism' (Jacob, 2015:online) and a discursive machine. In policy terms, Lascoumes and Le Galès' approach seems appropriate therefore to BSF: 'Public policy is a sociopolitical space constructed as much through techniques and instruments as through aims or content' (2007:4). More specifically, a 'public policy instrument':

> *constitutes a device that is both technical and social, that organizes specific social relations between the state and those it is addressed to, according to the representations and meanings it carries. It is a particular type of institution, a technical device with the generic purpose of carrying a concrete concept of the politics/society relationship and sustained by a concept of regulation* (original emphasis, ibid).

Approaching the planning and design of PTA as a policy instrument and using Lascoumes and Le Galès' formulation can helpfully illuminate *how* the means to 'do' BSF helped to create a 'sociopolitical space' rather than focus on *what* was to be changed.

I argue that the BSF programme as a policy instrument can be understood as 'organiz[ing] specific social relations' in three main ways. First, by the distribution of funds from the national to the local level in order to build schools. As such, BSF can be read as saying that education is important, that the government is responsible for it and that students and their families will benefit from it. The provision, direction and receipt of funds therefore helps to affirm the state-schooled relationship and the political framework underlying it. Second, it manages the 'representations and meanings' associated with this programme and the ideas of architecture that it underwrites (including, with BSF, particular ideas of transformation, 21st century-ness and flexibility). Third, the architectural element continues this work into the lifetime of the school by helping to structure (literally and

metaphorically/socially) particular instantiations of social relationships, giving regularity to their formations. This is buildings in their role of 'stabiliz[ing] social life' and giving 'structure to social institutions, durability to social networks' (Gieryn, 2002:35). Whereas students and teachers come and go, an educational building *builds in* a visible, stable, physical repository of culture shaped of course by its local actors but influenced too by its national-level sponsor, the state. Hence, the building is not only about the building, but the use of architecture as a public policy instrument over the range of state-citizen relations.

With the DCSF et al.'s (2008:30) encouragement of schools to take responsibility for the educational vision, the nominal autonomy of academies and their 'freedom' from the National Curriculum, I suggest there are two ways (not necessarily mutually exclusive) to read the delegation of educational vision-making. One is that here the government is simply promoting institutional autonomy and providing the instrument (and funding) to do just that. Rather than articulating a *national* educational vision, the role of government is now supporting the development of multiple, local ones. Another interpretation is that central government is passing the educational buck – performance and transformation *matter* but what, exactly, is to be performed and transformed is of less consequence.

With this autonomy came responsibility. Head teachers and teachers 'must be informed clients' and it was dependent on them to 'demand the best from BSF'. It was also dependent on them ('we need them to…') to provide the educational vision which government would surrender. Although this could be about autonomy, the language here is strongly suggestive of control and responsibility rather than a positive definition of freedom and autonomy which, as I showed in Chapter 2 regarding academies, was more a claim than an experienced reality. Hence, Selwyn's encouragement to relate educational change to broader social and political forms of organisation leads us to consider what else is happening. Torrance (2017:93) makes a similar move to Selwyn but now in relation to the changing political environment of educational assessment. He finds that:

> Neo-liberal processes of responsibilisation, far over-emphasise the individual nature of responsibility and far underplay the collective element, thereby

> producing a very inefficient and ineffective form of social and educational investment in the future.

Torrance argues not *against* responsibility but that it be seen in relation to wider 'collective responsibilities' (ibid). Similarly, the notion of schools developing and taking responsibility for their own architectural and educational vision-making need not be seen negatively. However, when these allocations of responsibility to individual schools are viewed within a wider context where national government cedes responsibility that cannot be easily taken up at any other collective level, only the individual level remains. As a result, what 'individual' applies to is the student (individualised from other students) in Torrance's argument and the school (individualised from other schools) in mine. Individual responsibility (whether of the student or the school) is not a neutral concept therefore but comes at the expense of collective responsibility and is part of a way of doing government. BSF – this 'technical device' in Lascoumes and Le Galès's terms that carries a way of doing the 'politics/society relationship' – is a form of neoliberal governance that divests architectural *and* educational responsibility at a national level in line with other changes in neoliberal government. For example, the sociologist Wolfgang Streeck portrays neoliberalism as 'an under-institutionalized way of life' (2016:37) in 'a world that has outgrown government' (ibid:38). Government undoes itself by passing on its responsibilities (and guarantees) to the individual. As a result, there is a dependency on

> …individuals' resourcefulness, skilful improvisation, and good luck. Ideologically, life in an under-governed society of this sort can be glorified as a life in liberty, unconstrained by rigid institutions and autonomously constructed through voluntary agreements among consenting individuals freely pursuing their idiosyncratic preferences … Without supportive institutions, the burden of organizing everyday life is moved from the macro- to the micro-level, meaning that the onus of securing a minimum of stability and certainty – of creating a modicum of social order – is shifting to the individual (ibid:37-38).

The '*post-social society*' (ibid) that Streeck notes became explicit at PTA. In a meeting between the school's leadership and local charities that I attended, one leader of a voluntary sector support organisation for Pottisham explains that they are 'preparing for

a post-public services world'. In this world, PTA is understood by one of the school's managers to have a key role – they see the school as 'a vehicle through which we can deliver social justice' (both comments from the same meeting, Fieldnotes, 13/10/15). Wider changes in society do not therefore touch *lightly* on what the people at PTA do. Instead, PTA acts as a continuation of and response to these notionally *external* changes. Hence, where Streeck points to a 'shifting to the individual' of responsibility, this might apply both to individuals within PTA taking on that onus and the school itself, as an independent, educational institution in a reforming educational landscape.

As a consequence, both PTA and Streeck's accounts juxtapose what are really two stories: a 'life in liberty' (the vision-as-theory) and the 'onus of securing a minimum of stability and certainty' (the work that needs to be done in school.) The former helps to sell the latter by obscuring its real effects. Like architecture as a policy instrument, the two stories are created by different groups of people, at different times, recalling perhaps Marmot's notion of the 'promise' (2002:252) that designers make but need not see realised.

The 'promise' or 'life in liberty' side of the story is that the notionally autonomous academy has been further liberated by a public policy instrument whose redefinition of the relationship between school and state is as one of financial support only. Uninhibited by a national curriculum and encouraged to develop a local educational vision inspired by competition with other schools, this new BSF academy would have the opportunity and means to exploit the claimed advantages of flexible design.

However, this story fails to account for a number of limiting factors: that academies' promised autonomy appears difficult to realise given systemic constraints (as shown in Chapter 2); that the assessment criteria of the high-stakes exam regime encourage a particularly narrow *de facto* curriculum (as Stacey, 2012b, cited earlier, warned it would) as well as educational experiences more generally (Torrance, 2017); that freedom is already curtailed by teachers working long hours (Sellen, 2016:51, cited earlier) *and the list continues*. All of these contextual factors mean that the disjunction between what is promised and what is possible is significant. People are *envisioned* as acting in the story

where the narrative is one of 'life in liberty' but *live out* one that involves the onus and burden of responsibility to make things work.

I return now to explore flexibility from this perspective of responsibility. I extend the argument so far developed in this chapter to give an alternative reading of flexibility that provides further evidence of how it can limit rather than support people's potential.

The Burden of Flexibility

Were flexibility truly a form of extending people's capabilities to make educational choices that they valued (Sen, 1995) and if teachers were to have the time and curricular 'space' with which to actualise this flexibility, then this form of architecture as a policy instrument and its heavily inflected promotion of flexibility might be a welcome and useful thing. As it is, the flexibility of PTA's design documents appeared to offer mostly the promise of freedom but the reality of increased work as I showed in the previous chapter. Here I think again about flexibility as a potential burden and relate it less to the teachers' immediate work (as I did in Chapter 6) but the focus of this chapter, that is, how people are positioned in the policy and architecture relationship.

Broader shifts in political control and responsibilisation are reflected in school-level changes too. So, with the delegation of vision-making by national government, people in schools pick up the work (defining education, transforming it, instantiating it) that was previously carried out at a higher level in a mirroring of how 'the burden of organizing everyday life is moved from the macro- to the micro-level' as Streeck, above, put it. The particular form that the architecture-as-policy instrument at PTA took – its flexible learning spaces – came to increase this burden. I focus for the moment on people's work so short-term flexibility rather than longer term changes. The key point is that even if flexibility were to increase people's options, it may not be desirable. Options need to be valued by people, something that their obligation, challenges. Amartya Sen, again:

> Freedom is a complex notion. Facing more alternatives need not invariably be seen as an expansion of a person's freedom to do the things she would like to do (1995:63).

Sen's point here is that the *imposition* of responsibility by a delegation of 'educational vision'-making, for example, is problematic. Increased freedom need not mean increased well-being:

> The expansion of choices to be made is both an expansion of those particular choices and *opportunity* (the choices *can* be made by oneself) and a *burden* (the choices *have to be* made by oneself). It is easy to think of circumstances when given *the choice of having to make these particular choices*, one would have good reason to say no. This indicates that the expansion of those *particular choices* and obligations need not be seen as a valued expansion of freedom (original emphasis, ibid).

Sen's argument would have us be more sceptical about claims of flexibility. Indeed, it suggests that we should ask for whom flexibility is being promised. Hertzberger exemplifies this scepticism:

> The greater flexibility of action inherent in a greater flexibility [sic] mainly concerns the organization, in other words the work. Whether this greater freedom has anything to offer the people who have to do the work is doubtful (Hertzberger, 2000:94).

Hertzberger and Sen identify a structuring of the meanings and effects of flexibility. From a managerial or indeed governmental perspective, flexibility has a more theoretical edge to it. It is more clearly, perhaps, a *good thing*. Significantly, the burden it imposes is not imposed at that same level but delegated. The sponsor seemed to recognise the importance of flexibility for change:

> It will continue to evolve, we'll come across things or we'll change things. As long as, you know, you try and develop design flexibility as far as you can within a build because you know you may need to change something at some point (Interview, Sponsor Pauline McDonal, 21/1/15).

In moving from theory to practice, however, and the terms on which that change was lived out, one teacher commented on the extent and frequency of curricular and assessment transformations:

> Project-based learning happened so it all [the curriculum] got changed again and because Year 7 changed that means Year 8 have to change in what they were learning and what they're taught and as a result Year 9's changed. Other changes from the government in relation to performance measures has meant change has come from the top end as well, GCSE-wise. So it's just changing and that's all these teachers have seen every single year is just change upon change upon change which in a sense is good because they get used to it… but they've never experienced stability you know (Interview, Science Teacher Nigel Mehan, 13/10/14).

The period between 2010 (when PTA opened) and 2015 was one marked by 'unprecedented structural change in the school system, at unprecedented pace' (Finn, 2015:152). The lack of 'experienced stability' here raises questions about the effects of flexibility. Elsewhere in the interview with the same teacher, he says the bases were not flexible but even if they had been, would their presumed greater adaptability to the whims of government-induced change have made life easier for teachers, teaching better or learning more productive? This is a more speculative point but it raises a further question, namely that if flexible learning spaces are deemed to enable greater adaptability, might the perceived risks of imposing more change and the perceived costs of responding to those changes be reduced? In short, the one-way deterministic model of particular designed spaces changing behaviour might prove to be insufficient for another reason. The effects of designed space might not be limited to their *expected* outcomes but have a feedback effect whereby because people's work is now assumed to be more flexible, they are subject to more frequent change. I do not have the evidence to answer these questions but I return to this issue at the very end of the thesis when I make suggestions for further study since it suggests that more work is required to establish the nature of the causal models on which design, innovation and policy for transformation rely.

Returning to the above discussion, however, the teacher cited, Nigel Mehan, helps to understand the situation in which teachers are acting. This is key because flexible designs

can never exist outside of the social and political systems of which they are part. In life as it happens for people in PTA, far-sighted theory has to give way and allow the temporary dominance of present, real constraints. At the end of Chapter 6, I posed the question: 'what kind of flexibility is it that insists people are and do things in certain ways?' That was in response to the evidence I drew on from PTA's bases (as well as other researchers' evidence) that open, flexible spaces were claimed by some teachers (especially senior ones) to require particular behaviours, skills and/or types of teacher. Here, that question could be posed again but now in relation to well-being. If flexibility in the way that it has been managed and promoted through BSF and in the way that it has been notionally built into PTA's architecture is not – for the teachers it concerns – a valued but an imposed expansion of freedom, leading to additional burdens, is this really an ethical sense of flexibility? Unsolicited, ideologically-driven, and a top-down imposition, *this* flexibility can be understood as less about empowering teachers or students in their ability to make choices for educational ends of their own choosing. Instead, because capabilities are about real possibilities and here the extra burden of having to make decisions in a system where teachers are already among the most worked in the world can mean that flexibility not only does not deliver what it promises but increases workload. Potentially, flexibility is not just hollow but hollow *and* harmful. It promises the *concept* of a 'life in liberty' without the means of achieving that liberty. In fact, this flexibility has the potential to increase workloads in line with the wider social effects of which it is part and where 'the burden of organizing everyday life' becomes a local, immediate and personal one – people at PTA had very little choice but to make things work.

The hollow-ness of flexibility is confirmed in the BSF literature. The primary value of innovative architecture and its instantiation in nominally flexible design seemed to be its ability to act as an insurance policy against obsolescence:

> If schools are to provide excellent educational facilities for generations to come, designs for new and refurbished school buildings need to take account of current and likely future developments in education and technology, as well as the local and global environment. Short-term flexibility and longer-term adaptability are both key requirements, as are buildings that will inspire new ways of learning and provide excellent facilities to benefit the whole community (DCSF et al., 2008:30).

The focus is less on enabling people in school but on extending the lifetime usefulness of the building. In itself, that is not bad: all other things being equal, a building that can be adapted is better than one which cannot. But all other things were *not* equal in the case of PTA – as Chapters 5 and 6 have shown. Nominally flexible learning spaces were often met by responses in terms of practice that were highly rigid (and complex) with people spending a lot of energy and time in compensating for the design.

Flexibility as an architectural discourse and design principle was born of architectural modernism (Forty, 2004:142) – a way for buildings to retain functionality across time. Elements of this discourse remain in the flexible learning spaces of PTA. Yet the flexibility promoted through BSF also differs from its ancestral traditions. In the final section of this chapter, I retain the focus on people, policy and architecture but turn towards the temporal positioning of both people and education.

7.3 From Future-Reaching to Future-Hedging

School buildings cost a lot of money (£32 million in the case of PTA) and it makes sense to look after them. One way to do that is by making sure they can keep up with the educational times.

Instead of the pro-active, confident (over-bearing, even) attempt to instil in the present a vision of the future (typical of architectural modernism), the overriding message of the Building Schools for the Future (national and local) documents was design as a defence *against* the future. Wanting to be 21st century meant not reaching for it but hedging it. In this sense, flexibility would offer a way out of any particular architectural-educational investment because it would not be an investment or, better, the only investment it would offer would be plasticity. If new teaching methods, new curriculums or technologies do arise then flexibility neutralises path-dependence. The sunk costs of a school building designed with flexible learning spaces remain sunk (as with any other

building) but the difference here is that they can be effectively repurposed allowing a 'new' building (and, hopefully, new uses) to come into being.

So far, this accords with Hertzberger's argument:

> The flexible plan starts out from the certainty that the correct solution does not exist, because the problem requiring solution is in a permanent state of flux … [Flexibility] only has to do with uncertainty [and can offer only] the set of all unsuitable solutions to a problem (cited in Forty, 2004:142-3).

In this formulation, the 'permanent state of flux' is a recurring trope, an example of one of the crises which, Cuff (2012:390, and cited earlier) argues, acts as a prompt to stimulate architectural innovation. Change or flux is the problematic crisis, obsolescence the potential effect and innovative forms of flexibility the appropriate medicine even if those flexible designs are, in Hertzberger's thinking, condemned to be sub-optimal for their users. The 21st century was summoned as a discrete, new set of opportunities and challenges or crises. Recall that Pottisham County Council referred to how the '21st century demands' 'major change to education' (PCC, 2007:9). Rather than setting out a vision of what a desired 21st century education system and its values might look like, local policy positioned PTA (educationally, socially and politically) in thrall to whatever this personified and empowered 21st century insisted upon. Better to be resilient against this powerful future (by being permanently adaptable through flexibility) than risk an inappropriate sunk investment.

If this reading is legitimate then several problematic consequences provide an alternative account of flexibility that may help to reconsider its purpose in school design. Much like a financial instrument, the theoretical value of a flexible design (in the sense of adaptability over the long term) comes from its promise of offering escape routes, backtracking and options. Flexibility effectively renders decision-making less 'decisive' by making future options available. However, to do so it represents a disinvestment from educational content, philosophy and vision. The future is risky. As James C. Scott writes of the 'high modernism' of Le Corbusier and others, 'The strategic choice of the future is freighted with consequences' (1998:95). Rather than follow the modernist spirit which seemed

reborn in Partnerships for Schools' encouragement that design challenge the 'boundaries of the possible', the way out was to hedge. But the loss of faith in any future has consequences too. Even if modernist certainty had an arrogance and paternalism about its own abilities to make the world better, that certainty led to investment. Knowing things could be improved and taking central responsibility for that, states acted on the assumption that:

> To the degree that the future is known and achievable – a belief that the faith in progress encourages – the less future benefits are discounted for uncertainty (ibid).

In contrast – and therefore how the flexibility of today differs from the one associated with modernism – flexibility accompanied by the state's delegation and dispersal of vision at a time of increasingly high-stakes control by assessment meant that no significant educational investment could be made. Flexibility was not oriented towards empowering teachers but a deferral of the consequences of time *and* the need to establish a purpose – both for educational buildings and for education itself.

With educational visions dispersed from the centre, and local institutions and people now responsible for defining their own, the locus of decision-making became fragmented and architectural flexibility therefore appeared to facilitate that fragmentation. Discussion as to what education means, who it is for and how it might happen can still be the subject of a shared debate but only with more difficulty. Values are more likely to become transitory and more local since values as a type of norm exist only by virtue of being exercised, recognised and shared amongst a community of people who partake in those values and so contribute to their continuation (Elder-Vass, 2010:210). Whilst the pertinence of these questions to school architecture may not be immediately apparent, perhaps they should be, that is, we should stop seeing buildings as simply buildings without resorting to determinist assumptions of the role of architecture. This is the point, I think, that Gert Biesta intended when I interviewed him:

> If you say the school is a space where children can learn, before you know it you begin to individualise this learning. Whereas if you say the school is

> basically an institution that in some way has to be in connection with the public sphere and the question of democracy then that not only raises important questions for education but also for the buildings you design. …for me just to mark out a space, the challenge is to be together in that space, that's for me where the essence of a democratic school building lies. If you think that a democratic school is precisely a neoliberal space where everyone can do their own thing then you have not understood what the real challenge of democracy is (Wood, 2015:online).

Biesta's argument recalls Hertzberger's proposition (cited earlier) that a school should be 'the reconciliation of a house with the world' (2009:8). Key here is that there is 'the' world and therefore one that people might be able to share rather than an endless series of fragmented and temporary *worlds* and visions. Of course, each school as with any place *is* unique but it is only with *some* sense of commonality that values might transcend bounded spaces and times. The school is a space where those values can be made, and re-made and need not be one of simple cultural inculcation. As Massey says of the 'throwntogetherness of place':

> There can be no assumption of pre-given coherence, or of community or collective identity. Rather the throwntogetherness of place demands negotiation…places pose a challenge. They implicate us, perforce, in the lives of human others…They require that, in one way or another, we confront the challenge of the negotiation of multiplicity. The sheer fact of having to get on together (2005:141).

Seen in this way, schools are less places for providing bespoke learning experiences 'where everyone can do their own thing' (as Biesta put it) or, more likely, the particular thing required by the latest generation of assessments but sites of organised throwntogetherness that might help to provide something of the lacking 'collective element' that Torrance, cited earlier, described.

Conclusion

Following from Chapter 5 which explored how the ideas of 21st century education were operationalised in PTA's design and Chapter 6 which investigated what flexibility really

meant for teachers, this Chapter sought to widen the focus and consider how people and education were framed by the discourses of architecture and transformation that BSF produced. I showed that architecture – thought of here as a policy instrument – was part of a much broader process of delegating responsibility from national to more local actors and therefore also shaping the roles of individuals vis-à-vis the state. I drew on the work of a number of writers to show that the extra burdens of unsolicited freedom do not automatically lead to autonomy and – in keeping with the results explained in Chapter 6 especially – that seemed to be the case at PTA.

The use of the architecture that schools have cannot be separated from the social, political and educational controls those schools are subject to. There is a tendency for space to be fetishised in general discussions of social life as I discussed in Chapter 3. I showed here how important it is that as well as process and time, the context schools are forced into by political structures and initiatives preceding and beyond their control, *matter*. A design is not the same design-in-use in one political or educational culture as it is in another. In the particular system of English, state-funded secondary schools at the beginning of the 21st century, school design became a policy instrument that contributed to a reshaping of education, now less of a collective endeavour at the national level but dispersed to schools as they see fit.

As such, flexibility became not a tool for teachers as it had been (Medd, 1970) nor was it embedded in a more immediate vision contributing to children's needs and desires as it had once been (Burke, 2010). Instead flexibility became reduced to a means to enhance the structural longevity of school buildings whilst, perhaps, still claiming some of the glamour of a progressive and dynamic-sounding 21st century-ness even, ironically, whilst its roots are in a decidedly determinist and paternalistic modernism. From teachers' perspectives, I suggested this flexibility was largely hollow and could mean extra work rather than facilitating teaching. Ethically, this is important since it suggests that the process of responsibilisation delegated from the national level arrived on teachers' doorsteps via, in part, architecture.

Flexibility obviates the need to define education but in doing so it also hinders the development of a more-than-local space in which some notion of democratic education might be discussed and perhaps makes it more likely that education is reduced to learning. Architecture has been instrumentalised and stripped of its responsibility to 'emphasize those situations that hold out *mutual prospects*' (my emphasis, Hertzberger, 2015:94). Instead, school design has become re-framed as a tool of learning-maximisation. The findings of this and previous chapters suggest that without an adequate analysis of context, the efficacy of even that role should be questioned.

Chapter 8 Conclusion

This thesis set out to explore what educational transformation through one secondary school's innovative architecture of flexible learning spaces involved. The warrant for the research was established in Chapter 1, with Chapters 2-3 discussing the relevant literatures on flexibility, design, spatial and architectural theory. Chapter 4 explained the research design and strategy, and was followed by three integrated findings and discussion chapters, each engaging with a specific research question hence Chapter 5 (RQ1), Chapter 6 (RQ2) and Chapter 7 (RQ3).

This final chapter responds to each research question in a specific manner (**8.1**) and then identifies the contributions to knowledge that the thesis makes (**8.2**). Section **8.3** makes a number of recommendations for future research and the main body of the thesis closes with a post-script (**8.4**). References and Appendices follow.

8.1 Responding to the Research Questions

The thesis posed the following questions:

> **RQ1**) How does PTA's design draw on and operationalise ideas of transformative, 21st century education?
>
> **RQ2**) What are 'flexible learning spaces', what facilitates or inhibits their flexibility and how do these factors relate?
>
> **RQ3**) What – and where – is the role of teachers in policies and architectural discourses of innovative spaces designed to transform education?

I designed an appropriate approach to engage with those questions in the form of an ethnographic enquiry into how the nominally flexible learning spaces of an academy school were used, with what effect and how this lived school design was inspired as well as limited by policy and architectural ideas of educational transformation.

In respect of **RQ1**, I found that the design of PTA was initially shaped by work originating from the local council and educational consultants who claimed, following a general sense of architectural determinism in the BSF documentation, that flexible learning spaces would lead to a transformation of education. The architect and school principal fleshed out those early design principals with their own research on flexible learning spaces, often based on work from abroad. The focus was explicitly on learning with school organisation (particularly of time) intended to support the efficiency with which space could support that learning.

It was already known that 21st century education was weakly defined in national educational policy (House of Commons Education and Skills Committee, 2007:4; Nuffield Review, 2009:3) as was the case with BSF (Mahony et al., 2011:346) but I showed this to be the case at a local level too. Nationally and locally, much was made of the need for education to be different and new. The 21st century was presenting as demanding change but this appeared in a negative form i.e. as what was different from before rather than as a positive set of proposals explaining how education should change and in what ways. This lack of policy vision therefore made it difficult to identify in the school curriculum and teaching-wise what 21st century *meant*. In addition, PTA experienced significant change from within – as the new school adapted to a new building – and from outside with a great deal of change in assessment content and form, and accountability procedures imposed on the school. Many of these changes, labelled as increasing 'rigour' or promoting the value of 'traditional' subjects at the expense of non-, could be seen as retreats from the 21st century and imposed new and more intense controls on what the school could do. This exacerbated conflict between a spatial design that was nominally flexible and learning that would have to be anything but.

There were some examples of design at PTA that seemed to fit wider ideas of 21st century education. For example, there was a spatial redistribution towards, online, self-guided learning. Spatially this was represented by an investment in the learning space areas of the bases and classrooms rather than library or learning resource library facilities. This could be seen as an architectural example of 'learnification' (Biesta, 2009:38) with a consequent reduction of focus on the social value and use of space and, in turn, part of

the re-framing of education as learning. Further examples of gearing the design towards learning were the sophisticated ways in which organisation and architecture were thought of in great detail so that students' passage through the school could be minimised and time in lessons maximised.

Responding to **RQ2** and the question of flexible learning spaces, I found that the flexible learning spaces at PTA did not seem to lead to teachers being able to work flexibly or organise learning activities in a flexible way. In general, they seemed to increase teachers' workload and required more organised forms of teaching and cooperation. The amount and quality of noise passage across spaces meant that teachers had to engage in a great deal of mitigation work. This involved choosing quieter and more passive learning activities than they would otherwise have been opted for, had the spaces (and so sound) been better insulated. Whilst noise appeared to be the most significant factor affecting how teachers taught, the open and always on view nature of the spaces made some teachers feel more self-conscious about their teaching. Team-teaching was not an inevitable response to the space but, as the method generally chosen in the departments with open bases, it came to acquire the status of being the most appropriate teaching method. As the organisational complement to the architecture, team-teaching was enjoyed and disliked in equal measure – much depended on the department teachers were in. It afforded some kinds of flexibility (e.g. teachers could redistribute themselves around the larger space if a particular student or group needed support, or if an incident arose) but also limited others because of the greater organisation and advance planning required. Together with the noise problems, this meant that spontaneous changes to activities were harder and generally avoided. These findings should help to increase the limited understanding about what flexibility involves in practical terms for teachers (Blackmore et al., 2011a:33). They also point to the need of treating flexibility as a complex and demanding achievement of teachers as well as architecture – one that can involve contradictions, namely, that flexible, open spaces may require inflexible forms of organisation. In turn, this could lead to further critical work on the nature of flexibility and differentiation between types of flexibility. For example, the question, 'What kind of flexibility is it that requires highly organised and tightly delineated teacher roles?' implies

the need to explore flexibility from a social and ethical perspective rather than one focused only on learning.

The pressures exerted by assessment requirements through the moral imperative of making sure students did well in ways that could be recognised by the public exam system appeared to make the school's *de facto* curriculum one that was oriented strongly towards exam criteria. This raises questions about the role of architectural flexibility and school design generally and their interactions with educational and system constraints beyond the level of the individual school. Nominal flexibility and flexibility which is assumed to lead to flexible practice depend on context, including national or regional context. This is undervalued in the literature and I refer to it again, below. As Woolner et al. (2007:61) noted, there is a need to 'examine critically the question of just how the environment is supposed to produce effects on its users'. By reading my empirical findings 'through' the theoretical debates regarding causal powers in realist philosophy, the ethics of resources of Amartya Sen and Herman Hertzberger's theories on space, I showed that what ultimately matters are what teachers can do and what they want to do. The flexibility of a learning space is a property that is ontologically coherent and conceptually valuable only when people's causal powers to exploit a given space's disposition of flexibility can happen. I argue that the flexibility of designed space is best approached as a latent disposition and requires consideration of the process in which it is part in order for it to be actualised (Ellis, 2008:82).

Flexibility should not therefore be seen as an aim of architecture *per se*. Rather, flexibility should be approached (especially by school managers, clients and other educational authorities commissioning new school buildings) as the aim of increasing the extent of people's opportunities to teach in ways that they want. Ignoring the context in which teachers work (including the social and political context in which schools are built), notionally flexible learning spaces can lead to an increase in *inflexibility*. The net result of flexibility in the case of PTA was a transferral of responsibility from the architecture to teachers whose roles and activities became compensatory, delivering or attempting to deliver the flexibility that the architecture – in this educational culture – could not. That required additional, mitigation work as discussed above.

As such, it is perhaps more helpful to think of a flexible learning space as an achievement (conditional on people's capabilities) rather than a thing. These findings suggest that the term, 'flexible learning space', is often used normatively rather than descriptively, that is, 'flexible learning space' is a *claim*. Consequently, a space deemed, *a priori*, to be a 'flexible learning space' is both an assumption and a category mistake (Ryle, 1949, reprinted 2009:6) since it accords to space alone what is formally a property dependent on its relations e.g. users' resources, time and their capabilities to use a space flexibly.

I also found that flexibility should be refined in terms of time, who it is intended to benefit and who and what is involved in making it happen. This is discussed below in the contribution section.

All of the above point to an ongoing lack of clarity with the conceptualisation of flexibility and indeed the way that school architecture is often discussed. Assigning space causal powers independently of time and process (and therefore *use*) is an example of spatial fetishism (Sayer, 2000:112) that can have political and ethical effects because it plays up the powers of space and plays down what people need to do. It is also a way of seeing and conceiving of space that gives an unrealistically over-optimistic picture of how flexible 'flexible learning spaces' *are*. I showed how this could be overcome although further work would be useful as I suggest in the 'Future Research' section, below.

In terms of **RQ3**, I showed that architecture as a policy instrument delegated responsibility for educational vision from government to schools but this did not lead inevitably to autonomy because the architectural means chosen (flexibility) could not be exercised in the highly regulated and limiting education system for secondary schools in England today. This was consistent with a general trend of neoliberal governance whereby responsibility is shifted to micro-level actors accompanied by stories of the freedom and autonomy that will inevitably result but the actualisation of which becomes additional work for individuals who are now responsibilised and under-supported (Streeck, 2016). The national assessment system for schools has followed and

engendered this same form of governance (Torrance, 2017) and, I argue, BSF and its promotion of flexibility was another means of transforming the relationships between the state and individual schools, and the state and individual teachers themselves. Accompanied by the political and legal dismissal of the National Curriculum in England, education is a localistic and fragmented service and I argue the BSF programme inflected with flexibility as a style had the effects of operating as a policy instrument (Lascoumes and Le Galès', 2007) that further helped to disperse educational responsibility and vision-making, and the work they required, to the 'lower' and more fragmented level of individual schools and individual teachers as workers.

Part of the process meant that in the BSF literature (nationally and locally) flexibility was rarely expressed as a tool to assist teachers' work or to empower them by increasing their capabilities to act in ways that they think are educationally valuable. Instead, flexibility appeared to provide a way to hedge the future and protect the functionality of educational facilities whatever current or future scenario is thrown at them.

What happened 'at the chalkface' as one teacher used the term was not 21st century-defining education according to the admittedly vague terms used by Pottisham County Council. Instead, there was a deferral (in time) and displacement (from the national to the local and ultimately to individual teachers) of what the 21st century actually involved and would require.

However, even if flexibility had been aimed strictly and effectively at empowering teachers to use their space and time effectively, it might still have created additional burdens for teachers as I showed through BSF in relation to Sen's writing. Flexibility implies the increase of choice but also the burden of having to choose. When unsolicited or it requires more work or it offers only the promise but not the real means of choice, flexibility becomes a problem at once educational, social and political and should be seen in the totality of these terms rather than as an innocent technology of learning improvement. This suggests that both school design and the educational literature exploring it need to incorporate further consideration of teachers' work into their theoretical approaches and their empirical study of learning spaces.

8.2 Contribution to Knowledge

I have organised this section into one general, summary contribution and follow with specific contributions. The wider applicability of the findings from my research is constrained by a number of factors – more information is provided in *The Possibility of Generalisation* in Section 4.5. Methodological Limitations are explained in Section 4.4.

General contribution and the 'constituency' of interest

I hope that this thesis might become part of a conversation, one that Geoff Whitty has argued should involve a 'wider public constituency':

> …a lot of education research will not be about providing solutions to problems in any simple sense. It will entail elucidating and examining the nature of problems for a wider public constituency as much as for politicians or think tanks. (2016:online)

Specifically, that contribution would work on two levels. The empirical part would help to show that flexibility is no magic bullet for the transformation of education and could, depending on the context, have perverse outcomes. This might influence future attempts by policymakers and architects to use architecture as a lever of transformation. However, it could also help clients since the complexity of flexibility needs to be engaged with rather than denied:

> Part of our impact could be in putting evidence of 'what doesn't work' – and why – into the public domain, thereby providing a form of 'inoculation' against 'policy epidemics'… (ibid)

The more theoretical part of the contribution would be to show not just that 'context matters', for example, but that the way that context matters can – and perhaps should – be explored further in order to consider the complexity of lived space and its ethical and political consequences. Together, the thesis therefore offers a more integrated approach

to understanding flexibility and spatial design that might make a) flexibility more likely and b) designed space itself more effective and more ethical in helping teachers do what they want to.

I have written (Chapter 4) that many of the findings which relate to events in PTA will not be generalizable. However, if the assumption holds that flexibility of use has a greater value (for teachers generally) than *notional* flexibility of design, then this thesis provides an argument and evidence for reorienting discussion towards what buildings can do for people rather than a focus on their claimed, inherent properties which, in actual life, may end up anyway unrealisable. People live and work in actual buildings, not notional ones, and the planning and design process for schools should employ conceptions of space and use that reflect that.

Macro-level educational cultures and users' needs matter

The thesis showed that England's high stakes educational culture seemed to affect very significantly how the learning spaces at PTA could be used. This specific finding is not generalizable at the level of events. However, at a conceptual level, the causal mechanism of macro educational cultures and their properties (e.g. educational values and purpose, teachers' long working hours in England, its high stakes assessment and its lack of national curriculum) bearing on others (such as flexibility) can have relevance beyond a single instance (see Sayer, 2000:14). What this means for designers, clients and users of school buildings as well as researchers writing on school design is that greater attention might need to be given to the broader contexts of design. Is a 'flexible learning space' equally flexible in Shanghai, Helsinki and a rural area of Canada, or a state-funded school that the government has announced requires improvement or a private school whose performance is accountable only to parents rather than its position in league tables? By extension, is a 'flexible learning space' just as flexibly-usable when the curriculum is rigidly divided as when it is project-based, when the users are in wheelchairs as not, when students are 6 years old as when they are 16? These questions challenge the often implicit suggestion that school design is context-independent and that the causal powers

of a particular space are immune to time and use (that is, spatial fetishism again). At a time when organisations such as the OECD research learning space design, large, international architectural corporations advertise their skills and experience at building 21st century facilities and school-building programmes favour big contractors running multiple projects, these are questions that should, I suggest, be asked more frequently. There is a danger that school design fashions travel back and forth around the world without proper regard to the specific complexities of the educational cultures in which they are employed. I return to this issue in the section 'Future Research'.

The focus on flexible learning spaces can obscure people and their work

I have argued that people, rather than spaces, should be the focus of design attention. Prioritising space and making it the object of analytic and design attention increases the likelihood that the resources people need to use space flexibly and, crucially, their abilities to use and convert those resources into outcomes they want, are discounted. What matters are people's capabilities, their *real possibilities* (Martins, 2006:673) to act. Hence, it is on those terms that space should be considered, not the terms of the spaces themselves: design, we might say, is back-to-front.

Putting things the right way round so that design is a *means* not an end and so school becomes a 'tool in the teacher's hands' (Medd, 1970:179) is key. This thesis has focused on teacher's work and so I can only speculate about the effect of design on learning *per se*. However, given teachers' greater power (relative to students) to select material for learning and choose and organise learning activities, ensuring teachers had the appropriate tools for their job (of which school design is just one part) would likely help students too.

Evidence and theoretical support that flexibility is not always a 'good thing'

Increased (real) flexibility can be a burden as I showed by drawing on Sen. Further, (nominal) flexibility can also be a burden by creating more work for people if the claimed

flexible spaces do not manage to live up to their name but lead to *expectations* of flexibility. In essence, this is a contribution that could make the debate more critical.

Refining flexibility by its timescales

I have shown that flexibility might be usefully refined by breaking it down into categories of time that respect the uses and interests of teachers. Doing this also helped (in the case of PTA) to make it clearer that different time-types of flexibility seemed to require different actors and resources – further work would be required outside PTA to understand whether these specifications of time applied elsewhere.

Providing a breakdown of flexibility into time-based categories (i.e. immediate, short-term, medium-term and long-term, and descriptions of their differences in terms of their actors and resources required) helped to clarify some of the word's plasticity (Monahan, 2002:online). In particular, it showed that thinking in terms of the timescale over which we mean flexibility to apply involves different actors and resources and that therefore flexibility should not be treated as one thing nor should it be assumed that its different times are commensurable. Further, the resources required for flexibility in the sense of adaptability over long periods of time may be different from and compete with the resources required for teachers' flexibility in the shorter term. I discuss this further below.

A philosophical approach to understanding causality and architecture

Architecture and school buildings intended for transformation have, at some level, to grapple with metaphysics because they make claims involving social reality – the option of being neutral about what things *are* and their ability to affect is not available (see Groff, 2015:online). This thesis showed one way of doing that by using critical realism and other realist philosophy based on a causal powers ontology to explore the nature of school space and the interaction between its causal powers and those of actors and the educational culture in which PTA operated. Woolner et al. (2007:61) stated that more work, particularly critical work, was needed on the causal effects of buildings on their

users. The PriceWaterhouseCooper (2007:ii) report had as one of its aims, 'Identify the causal mechanisms by which BSF capital investment impacts on educational standards' but failed to do so. Flexibility is itself a claim about the causal powers of the entity to which it belongs. This thesis has shown one way that causality might be approached in a manner that rejects architectural determinism and can account for the open system nature of the social world (Sayer, 2000:19), and so schools. This should contribute to greater clarity about the nature and properties of school buildings and how they interact with people. It might also contribute to further debate since there are many alternatives to the realist, causal powers-based ontology I used. In addition, as one expert on the post-occupation evaluation of schools, Adrian Leaman, explained in an interview, 'The discourse about architecture and schools is very superficial' (Wood, 2016:online). This thesis should therefore help to ground the debate on school architecture in more considered terms. As indicated above, however, all of this matters not only because it is useful to understand what things are but because the assumptions on which architecture is based lead to the creation of spaces where students, teachers and other staff spend such a great deal of time. There is therefore an ethical imperative to clarify the terms and properties of school buildings and their interactions with people.

Integration of architectural and socio-spatial theories of space

This thesis presented one way of integrating theories of space from different disciplines. Drawing on Herman Hertzberger's theories from architecture (2000; 2001; 2008; 2009; 2015), Andrew Sayer's from sociology (2000;2010) and Doreen Massey's from geography (particularly 2005) helped to counter the spatial fetishism and architectural determinism common to many discussions of designed space. This was done by bringing the role of time and use back in to an account of the school building as a social space where these have often been excluded, limiting the ways in which schools can be usefully understood.

As such, a further result was that I showed Hertzberger to be a more radical theorist than he had perhaps been portrayed in the past. His work promotes an understanding of space as the interaction between socially produced space and designed space, and the role of

people. Since this relies on an understanding of the social world as an open system and people's reaction to space as based on interpretation and so semiotics, his theory can be seen as presenting an account of causality that intellectually invalidates architectural determinism. Chapter 3 in particular, showed the theoretical consequences of this by integrating his work with that of discourse and semiotics. This could be useful for theoretical and empirical work in architecture.

However, I showed that his concept of articulation could (and should) be extended by being applied to space and time together as well as to sound. This is especially important in schools where space and time, mutually implicated, are used to do a lot of organisational work and where a focus on only one of the two limits the potential of understanding what is happening. His work also rarely distinguishes between the spatio-temporal structuring of primary and secondary schooling which in England at least is fundamental to the organisation (and hierarchization) of knowledge, assessment, groups, individuals and teaching activities within a given school.

Education is normative and *effective* design is insufficient

We need to be making good schools, not simply effective ones. Education is a normative process and culture – it deals with things we value (Biesta, 2009) and one consequence is the need to ask what and for whom a school building is effective for (ibid:36). Knowledge too is 'essentially normative' (Elder-Vass, 2013:214). This suggests that tying the rationale of a school design to its ability to impact on learning is not only reductive but potentially harmful. This thesis therefore provides a contribution to the literatures on school design and particularly how they present the role of school design in the improvement of education and/or learning. Proposals to model and align school design, staff and student cultures and organisational practices are welcome in that the detail they have offered (e.g. Gislason, 2010) has provided real means to consider the social complexity of schools. However, I would argue that these need to go further. Rather than school design as a 'network of elements that together shape the learning environment' (ibid:142), I would suggest that the normative dimension of education requires that a different ontology is

chosen that can assign primacy to values. Ultimately, a 'network' and 'elements' cannot explain (a) the properties of the elements b) their causal powers, and, as such (c) cannot account for their interactions leading to (d) a missing account of how one element feeds back to affect others. Schools, I posit, are emergent entities – their components are not organised in a network in an additive fashion to form an aggregate. As an emergent entity, a school is shaped by the *relations* between components as much as by the properties those components individually have. Values should not be reduced to the status of component but be part of the way the components are arranged. An *effective* design might be an exam factory – if values are the maximisation of learning. Instead, we should seek school designs that have something to say about broader social values including the value of being together. This final sentence is of course a more personal interpretation.

The ethics of using architecture as a lever of educational change

With the architectural profession distanced from the empirical reality it designs for (Marmot, 2002:252; Bordass, 2006:1) and architects' visions themselves distant (Hertzberger, 2015:116), there is a risk that the ethical and political consequences of design are known and experienced only once buildings are complete. To be clear, Marmot, Bordass and Hertzberger are describing trends rather than all instances of architecture and architects. I think this is a problem of an ethical nature that has its origins in policy rather than architecture. For example, we know that the '*obligation* to choose [does not] necessarily add to one's freedom' (original emphasis, Sen, 1995:41). Yet, to the extent that (short-term) flexible designs are an attempt to increase teachers' freedom to run activities they and their students want, flexibility seems as if it is becoming the design standard in some parts of the world – perhaps even a form of orthodoxy. For example, New Zealand's Ministry of Education insists that 'Schools need to upgrade learning spaces so they are FLS [Flexible Learning Spaces] … FLS upgrades are priority 3 projects' (online). In addition to Sen's point regarding a potential decrease in individuals' freedom, there is the question this policy asks of flexibility, namely, what kind of flexibility is it when a flexible learning space is obligatory?

Flexibility is just one example. The idea of using architecture to change educational practice may have other consequences besides those intended including effects on non-practice parts of education. This is especially the case when resources of space or money are scarce. For example, the redistribution of the spatial budget at PTA reinvested the space 'gained' from not having a library or staffroom into the learning bases themselves. These are decisions with political, social and arguably ethical effects since a library or a staffroom cannot be reduced to learning nor a cafeteria space to eating. Instead, they are potentially emergent places which serve a variety of social purposes. In short, the ethics of school design may well be undervalued for a variety of structural and economic reasons and I have shown many ways these effects can play out and one way of thinking about them (through applying Amartya Sen's work to lived architecture).

8.3 Future Research

This research provoked many questions and directions for future study – the ones I think most intriguing and urgent are explained below.

Widening and Deepening Participation in the Debate on School Design

One of the difficulties in my research, and what I believe to be a continuing problem for studying the nature of school design and its effects, was the access to information about school design and so the way that it limits the possibility for debate. The problem is at least fourfold. One is that discussion is fragmented across disciplines and approaches making it hard to have an integrated understanding about education, school buildings, design, space, and teachers and students' activities and needs. The second problem is that the bolder the claim about learning space or school design, the more likely it was to draw on determinist discourses of change or outcome and the more likely that source was to be open access. Most of the considered and well-evidenced debates recognising the complexity of school design that I located were behind academic paywalls restricting

opportunities for non-academics to be involved: the very people design is for are systematically excluded from discussion of their futures. Third, the way architecture and associated professions are structured and incentivised make it difficult to get students' and teachers' input on design as well as their feedback in built schools (as noted in Chapter 2; see also Till, 2007:online). Fourth, policy debates and much of the open access discussion online about education and school design is skewed towards dramatic, visible (and so nominally accountable and impressionable) change and tends to play down the historical and social continuities of the spaces involved with schooling (Burke, 2014:39; Dyer, 2016:online) and indeed spaces generally (Eco, 1997:178; Cuff, 2012;389). Future research might contribute by taking a step back and instead explore the location, platforms and media, and terms of the debates themselves. This would involve exploring how participation in it might be broadened and deepened, and how access to information and different perspectives might be shared more effectively.

One way of doing this might be to consider the possibility of promoting open access debates – perhaps through blogs or journals – that actively encourage the sharing of perspectives: between theory and lived architecture; historical and future studies; local contexts and international design trends; learning and social purposes of schooling; students and teachers; students, teachers and designers; and educationalists and designers. My own experience of writing for and co-editing a blog on these issues suggests that there is a great deal of interest in an interdisciplinary and interperspectival approach to schools and school architecture. How this idea might be extended needs work, however.

Another way would be to encourage sociological approaches to school design since sociology has traditionally dealt with the nature of many of the relations that underpin the above divisions. This has started to happen in the sociology of education in relation to technology, for example (Selwyn and Facer, 2014:494). This developing field has also taken a critical approach to the language used in debates and so contributed to discriminating between the rhetorics and reality of technology (Selwyn, 2015). Similar work would be useful in architecture too where concepts such as flexibility have a

rhetorical value that can hide what is really inflexible design (Schneider and Till, 2005:159).

Different Groups of Students' Experiences of Learning Space Design

As stated earlier in this thesis, my research did not focus on learning or students' experiences of the spaces as a specific subject of enquiry. However, through questionnaires and in my role as a participant observer which included, at times, acting as a teaching assistant and at others a less active position sitting with students during lessons, I gained some idea of how they felt towards the spaces. Girls' perceptions of the larger, more open spaces were slightly more negative than boys' in terms of their general preferences and in terms of how confident they felt when in the open bases. Finding out if particular designs do in fact inhibit one group of students more than another would be useful research especially since to my knowledge, no such work has taken place. Although in a very different area, Leathwood's (2006) research of Higher Education students showed how independent learning was gendered. My point is not that Leathwood's study is directly relevant, rather her work challenges the assumption that 'students' are a homogenous category. Similarly, the validity of the assumption that experiences of space are common across gender has been unchallenged and further preliminary work would be useful to explore whether there is a case for in-depth study.

Further Research on Flexibility

Flexibility and Time

The evidence showed that time was key to understanding flexibility and what and who it involved, and vital to teachers for enabling a particular space to be used flexibly or not. Further work with other schools that had flexible learning spaces would help to know whether the importance of time at PTA was also important elsewhere. It would also be useful to engage architects in order to see if refining time-types of flexibility was helpful for their thinking about design-in-use.

Flexibility and Necessary Teacher Characteristics for Effective Teaching in Open Spaces

My research supported findings by others (Alterator and Deed, 2013:327 and Leiringer and Cardellino, 2011:929) that teaching in open spaces may require teachers to have certain characteristics in order for them to teach effectively. On the one hand, it may make no difference whether these characteristics exist since it may be sufficient that they are *perceived* to exist for teachers to be allocated to particular spaces as a result. In short, the notion that there are only certain horses for particular courses means that this is potentially an ethical issue for how teachers are treated. In addition, it suggests that the politics of school design policy and the moral legitimacy of using architecture as a lever of educational change requires further and more critical work. Finally, it provides an additional challenge to definitions of flexibility since if such an inflexible approach to 'human resources' is deemed necessary, who and what flexibility is for requires further elaboration. On the other hand, if some teacher traits were found to be required for open-plan and this were not an issue of perception only, it implies a need for specific open-plan teacher training (if these traits can be developed) or selection and recruitment when teachers go through initial teacher training and certification. Again, there are ethical and political issues involved.

Flexibility and Feedback on Teachers' Work

A model of causality in a closed system underlies much research on school design and posits that the dependent variable does not come back to affect the independent variable: designed space can be used to change teacher practice in more effective ways and once that has happened, the causal relationship is finished. However, if teachers were able to teach more flexibly, it is possible that what is then asked of them increases – that their flexibility would feed back and affect how they are expected to work. This is clearly a speculative point. However, an acknowledgement of other models of causality and that schools are examples of open, not closed, systems would help to recognise the possibility of unintended consequences and feedback. Finally, this would help to give due credit to teachers. If a flexible space means teachers being able to use it flexibly, that 'use' is *work* – presenting it as anything else obscures that fact. Binding up the properties

of flexibility into space alone is mistaken ontologically and empirically as this thesis has shown. The consequences are at once political (overvaluing space at the expense of teachers' contributions), ethical (it conceals teachers' efforts) and heuristically unhelpful (it may lead us to assume, wrongly, that nominal flexibility of space is synonymous with flexibility in practice and so cause misunderstandings about how we might create spaces which really can be used flexibly).

8.4 Postscript

In an article for *The Architectural Review*, the architect Reinier de Graaf describes recent changes to architecture's ideological aims. The moment has arrived where

> architecture and marketing become indistinguishable … Architecture is now a tool of capital, complicit in a purpose antithetical to its erstwhile ideological endeavour (2015:online).

de Graaf's discussion is mostly about housing but it parallels education and school design. In education research, an increasing orientation towards producing knowledge that will maximise the productivity of learning and learners sometimes makes it difficult to think of school in other ways, for other purposes. As I have shown in this thesis, school design is frequently understood and marketed in terms of its ability to contribute to that process: good buildings make good learners.

There are other ways, and many of the people whose work I have drawn on make a point of defending the role of architecture's contribution to *education* and sociality, to people in shared spaces because of shared aims. Of course, education needs to change too – particularly in England where the perverse effects of the assessment system (and its uses) are sometimes surreal.

Architecture and education have shared aims (beyond learning) and I hope this thesis makes some contribution to their conversation.

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Appendix A PTA-Related Documents

The following are anonymised documents used as sources of data in the research project. Their anonymization is explained in Section 4.6 Ethics and Anonymity and the use of the documents themselves in 4.3 Operationalising the Research.

Carruthers, P. (2016) *PTA Staff values - new staff.doc*. Email to Adam Wood. 1/4/16.

Pottisham BSF. (2009) The Pottisham Technology Academy Design Statement in support of full Planning Submission

Pottisham City Council. (2006) *Pottisham Building Schools for the Future (BSF) – ICT Vision*. Pottisham: Unpublished. [PowerPoint presentation handout]

Pottisham City Council. (2008) *Education Design Brief for Academies*. Pottisham: Unpublished. [PowerPoint presentation handout]

Pottisham City Council and Anon Education Consultancy. (2008) *Pottisham Academies Sponsor-Led Task Group: Education Large Learning Areas*. Pottisham: Unpublished. [PowerPoint presentation handout]

Pottisham City Council Planning and Highways. (2008) *Planning Application*. Pottisham: Unpublished.

Pottisham Technology Academy. (no date) PTA Staff competences – new staff and NQTs. Pottisham: Unpublished. [Internal document]

Appendix B Email introducing my fieldwork and me to PTA Staff

Hello

As I'll be in and out of PTA for the next 18 months or so, I'd like to say ‘Hi’ and explain a little about what I’m doing.

The research is part of a PhD in Education at MMU exploring what architecture means for students and staff in educational contexts and at PTA in particular.

To do this, I'll be trying to capture people's thoughts about school space in a number of ways including spending time in classrooms but mostly, when the time’s convenient, asking them directly.

My hope is that the study begins to bridge the gap between understanding how young people, educationalists and architects think of school space - interests of mine since teaching English in a London comprehensive that was also a building site!

Thanks for your time – if you see me around please do say hello as I’m very keen to speak to people and understand their ideas about architecture and space.

All the best,

Adam Wood

[Accompanied by a photograph in the original email]

Appendix C Participants Interviewed

Participant (Pseudonym)	Role	Date
Kelly Cooper	Teacher, Science	11/02/2014
Di Reynolds	Academy Principal	01/07/2014
Paul Walsh	Teacher, English	23/09/2014
Duncan McGregor	PTA Architect	29/09/2014
Nigel Mehan	Teacher, Science	13/10/2014
Geoff Walker	Teacher, Humanities	13/10/2014
John Whitehead	Administrator, Community Relations	17/11/2014
Mark Griffiths	Teacher, Manager Assessment	02/12/2014
Amy Shoesmith	Teacher, Maths	02/12/2014
Lucy Parkins	Teacher, Science	02/12/2014
Paul Bridges	Manager, Community Relations	13/01/2015
Pauline McDonal	Sponsor	21/01/2015
Leigh School Direct Trainees	Teacher Trainees	30/01/2015
Gina Johnson	External Trainer	27/02/2015
Raswan Mohammed	Premises Manager	17/04/2015
Sam Sewell	Teacher, Health	28/04/2015
Jenny Martin	Teacher, Maths	15/07/2015
Lauren Coyle	Teacher, Maths	15/07/2015
Jane Hawkins	Teacher, English	16/07/2015
Mary Elizabeth	External Researcher	20/11/2015
Jake Hollins	Teacher, Maths	07/12/2015

Appendix D Sample Semi-structured Interview Schedule

Semi-Structured Interview Schedule – (with PTA principal)

1. Could you take me back to pre-PTA and tell me how the school came about? There wasn't a secondary school here before so what needed to happen to set this one up?

2. I'd like to focus now on the school's design – how the building came to look like it does, in general but also the bases in particular. Could you talk me through that?
- follow ups a) in terms of design and the client:architect role, who had most input? b) is it possible to say whose "vision" the school represents? Or did it emerge from discussions?

3. And there were other schools being built at the same kind of time? By the same architects?
- follow ups: a) What schools were those? b) Who are the architects?

4. Has the visual appearance of the school been important, beyond the building's functions?
- follow ups: a) Are its visuals useful to the public too? How? b) how do you see the visuals working with the building's functions?

5. If given the chance again, is there anything you'd change about the building's design or design vision?
- follow ups: a) What are you most happy with? Why?

6. If I said I was going to build a secondary school with open plan Learning Spaces, what 3 pieces of advice would you give me?

Appendix E Example Vignette Used in Interviews

Sam (S, a German teacher) previously taught at a school with classrooms for five years before moving to Hill Top High School with Open Learning Zones. This interview (with a researcher, R.) takes place a year after Sam's move to Hill Top High.

R: *Sam, can you tell me a little about your initial impressions of the learning spaces when you started teaching at Hill Top High?*

S: Yep. It was strange at first, coming from my own space, my classes' space, I went into what seemed a football pitch – I suddenly became more conscious of my voice, where I stood, and where other teachers were and what they said. I think I became a lot quieter at first. The kids seemed quieter too – something to do with the space, you could see everyone, everyone could see you, you were always on show. That first month was tiring because obviously I was new to the school but also because I think that combination, being new and in this big space, it made it harder to adjust, to find my space within the bigger, everybody's space. So it was slow at first, if I'm honest. It made me think about everything I did, I was self-censoring a lot. Things got easier though and I came back into my old self a bit more, though different, it was much more about the department, about my colleagues, planning together. So I think there was a lot more compromise, advantages and disadvantages...

Appendix F Email to non-PTA School Direct Trainees

From: Adam Wood <xxxxxxxxx>
Sent: 25 February 2015 12:53
To: [Name]; [Name]; [Name]; [Name]
Subject: Learning Spaces / Classrooms quick Email Follow-up.

Hi [Name], [Name], [Name] and [Name]

I hope you're all well, had a bit of a break over half term and are happy to be back at 'home'!

Thanks again for your help in the interview we did back at the end of January at PTA – I've been looking over it and it really is one of the most useful I've done, so thank you.
I'm going to ask a couple of questions here and if you feel like replying, please do. Be as rambling or as bullet point-ish as you like, it's just to get some of your ideas. It might be easiest if you reply to me rather than "Reply All" but as you like. 5-10 minutes of your time would be great but I appreciate you're busy so if now's not good, I understand completely.

- You're back in your classrooms, has anything changed with the way that you think about classroom / learning spaces and how you teach in them? If so, why (or how)?
- Not thinking about students, but just how *you* teach, or plan for teaching, which is easier, in classrooms or open learnings spaces/bases? Could you explain this answer too – how and why it's easier or why the other type of space is harder?
- Do you have any more thoughts about how students respond to learning spaces/classrooms – whether they seem to like them, not like them, study well/not well in them etc? Please explain a little.

Thanks again for your time!

Adam

Appendix G Study Information Sheet and Informed Consent Form

Study Information Sheet for Participants

Dear Students and Staff

This letter explains a little about the research that I am doing so that you know why I've been spending time in lessons. The letter also explains why I'd like to ask you some questions about the Learning Bases (if that is ok with you, if not just let me know).

If you want to stop answering questions at any point, that is absolutely fine and if you've got any questions for me then that's fine too – please just ask.

First, I should say something about myself. I used to work as an English teacher in London schools but now in Pottisham I'm researching for a PhD degree at Manchester Metropolitan University. My main interest is to understand how school space affects what people do in it.

This means that for my study I'm often looking at walls and spaces and how people act in them. Most of all I'm interested in what people think or feel about those spaces. There is no right or wrong about this, it's what people think that's important.

Most of the time I'll just be watching what happens. Sometimes though it will be useful to take notes, photographs or very occasionally to film – this helps me to notice things I might have missed or to remember things. If I do film or photograph and students are in the shot, it will only be of those students that have already given their permission at school enrolment. I will always ask staff if they're happy for me to film/photograph and if these images can be used in my research. Anything that I do record is for my university research only, to help me understand school space.

Eventually I will write about PTA's Learning Bases and how I think people respond to them and how/what they think about the spaces. When I do this, I won't identify the school, anyone's name or, if an image, the faces of those in the picture so that everyone will have just as much privacy as they did before they helped me.

Thank you for your help – if you have any questions please feel free to email me at the address below.

Adam Wood, Contact: [My email address]
PhD Candidate, Manchester Metropolitan University

Informed consent form – please complete if you are happy to take part in the study.

Title of Study: Rethinking Learning Spaces in Secondary Schools
Researcher: Adam Wood

1. I confirm that I have read and understand the “Study Information Sheet for Participants”, above. ☐

2. I have spoken to the above researcher and understand that my involvement will involve being interviewed/interviewed and recorded/filmed [delete as appropriate] at a time and place to suit me. I have had the opportunity to ask questions. ☐

3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason and without my medical care or legal rights being affected. ☐

4. I understand that any data or information used in any publications which arise from this study will be anonymous ☐

5. I understand that all data will be stored securely and is covered by the data protection act. ☐

6. I agree to take part in the above study. ☐

Name of Participant	Date	Signature

Name of Researcher	Date	Signature

Appendix H Student Questionnaire

Version 1

Please do not write your name **Questionnaire for Students** 1

These questions are about the bases and classrooms. There are no right or wrong answers – what counts is how you feel about the different spaces. Your answers are anonymous and confidential. Thank you for your help.

→ **Gender** (please circle one) **Male / Female** **Year** (please circle one) 7 8 9 10

	Please circle one response per statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I prefer to have lessons in the bases	1	2	3	4	5
	(Please explain why)					
2	I feel more confident in the classrooms than in the bases	1	2	3	4	5
	(Please explain why)					
3	I learn better in the bases than the classrooms	1	2	3	4	5
	(Please explain why)					
4	The classrooms are quieter than the bases	1	2	3	4	5
	(Please explain why)					
5	I take part in lessons more when they're in the bases	1	2	3	4	5
	(Please explain why)					
6	The lessons in the classrooms are different from lessons in the bases	1	2	3	4	5
	(Please explain how or why)					
7	I work just as hard in the bases as the classrooms	1	2	3	4	5
	(Please explain why)					
8	Teachers speak to me / ask me questions more in the bases	1	2	3	4	5
	(Please explain why)					
9	Lessons seem to go more quickly in the classrooms	1	2	3	4	5
	(Please explain why)					

Version 2

Please do not write your name **Questionnaire for Students** 2

These questions are about the classrooms and bases. There are no right or wrong answers – what counts is how you feel about the different spaces. Your answers are anonymous and confidential. Thank you for your help.

→ **Gender** (please circle one) **Female / Male** **Year** (please circle one) **7 8 9 10**

	Please circle one response per statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I prefer to have lessons in the classrooms	1	2	3	4	5
	(Please explain why)					
2	I feel more confident in the bases than in the classrooms	1	2	3	4	5
	(Please explain why)					
3	I learn better in the classrooms than the bases	1	2	3	4	5
	(Please explain why)					
4	The bases are quieter than the classrooms	1	2	3	4	5
	(Please explain why)					
5	I take part in lessons more when they're in the classrooms	1	2	3	4	5
	(Please explain why)					
6	The lessons in the bases are different from lessons in the classrooms	1	2	3	4	5
	(Please explain how or why)					
7	I work just as hard in the classrooms as the bases	1	2	3	4	5
	(Please explain why)					
8	Teachers speak to me / ask me questions more in the classrooms	1	2	3	4	5
	(Please explain why)					
9	Lessons seem to go more quickly in the bases	1	2	3	4	5
	(Please explain why)					

Appendix I Staff Questionnaire

Version 1

Questionnaire for Teaching Staff

Thank you in advance for your time – your answers will help my research about the school's learning spaces. Feel free to answer this questionnaire anonymously (data will be anonymised anyway and treated as confidential) and to email if you have further comments: xxx[EMAIL ADDRESS]xxxx Further space is available on the reverse.

Gender: F/M ..... **I am willing to attend a 1-hour group interview next year: (Y/N)** .....

Subject: ..... **Name (voluntary):** .....

	Please circle your response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Where I teach (ie classroom or base) affects how I teach, plan or support lessons	1	2	3	4	5

(Please explain how or why) .....

2	The bases allow for more flexible teaching than the classrooms	1	2	3	4	5

(Please explain how or why) .....

3	Given a choice, I would rather teach in the classrooms	1	2	3	4	5

(Please explain why) .....

Please read the following (a fictional interview) with a teacher, Sam, about their impressions of the learning spaces in a fictional school. Then answer the question that follows (use the back if you need more space.)

Where I taught before, we'd only had classrooms so coming here seemed like teaching on a football pitch – I suddenly became more conscious of my voice, where I stood, and where other teachers were and what they said. I was a lot quieter at first. The kids seemed quieter too – something to do with the space, you could see everyone, everyone could see you, you were always on show. That first month was tiring because I think that combination, being new and in this big space, it made it harder to find *my* space, it made me think about everything I did, I was self-censoring a lot. Things got easier though and I came back into my old self a bit more, though different, it was much more about the department, about my colleagues, planning together. So I think there was a lot more compromise, advantages and disadvantages...

4 In what ways do you agree / disagree with Sam's depiction of teaching and the school's spaces?

(Please explain) .....

Version 2

Questionnaire for Teaching Staff

Thank you in advance for your time – your answers will help my research about the school's learning spaces. Feel free to answer this questionnaire anonymously (data will be anonymised anyway and treated as confidential) and to email if you have further comments: xxx[EMAIL ADDRESS]xxxxx Further space is available on the reverse.

Gender: M/F ..... **I am willing to attend a 1-hour group interview next year: (Y/N)** .....

Subject: ..... **Name (voluntary):** .....

	Please circle your response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Where I teach (ie base or classroom) does not affect how I teach, plan or support lessons	1	2	3	4	5

(Please explain how or why) .....

2	The classrooms allow for more flexible teaching than the bases	1	2	3	4	5

(Please explain how or why) .....

3	Given a choice, I would rather teach in the bases	1	2	3	4	5

(Please explain why) .....

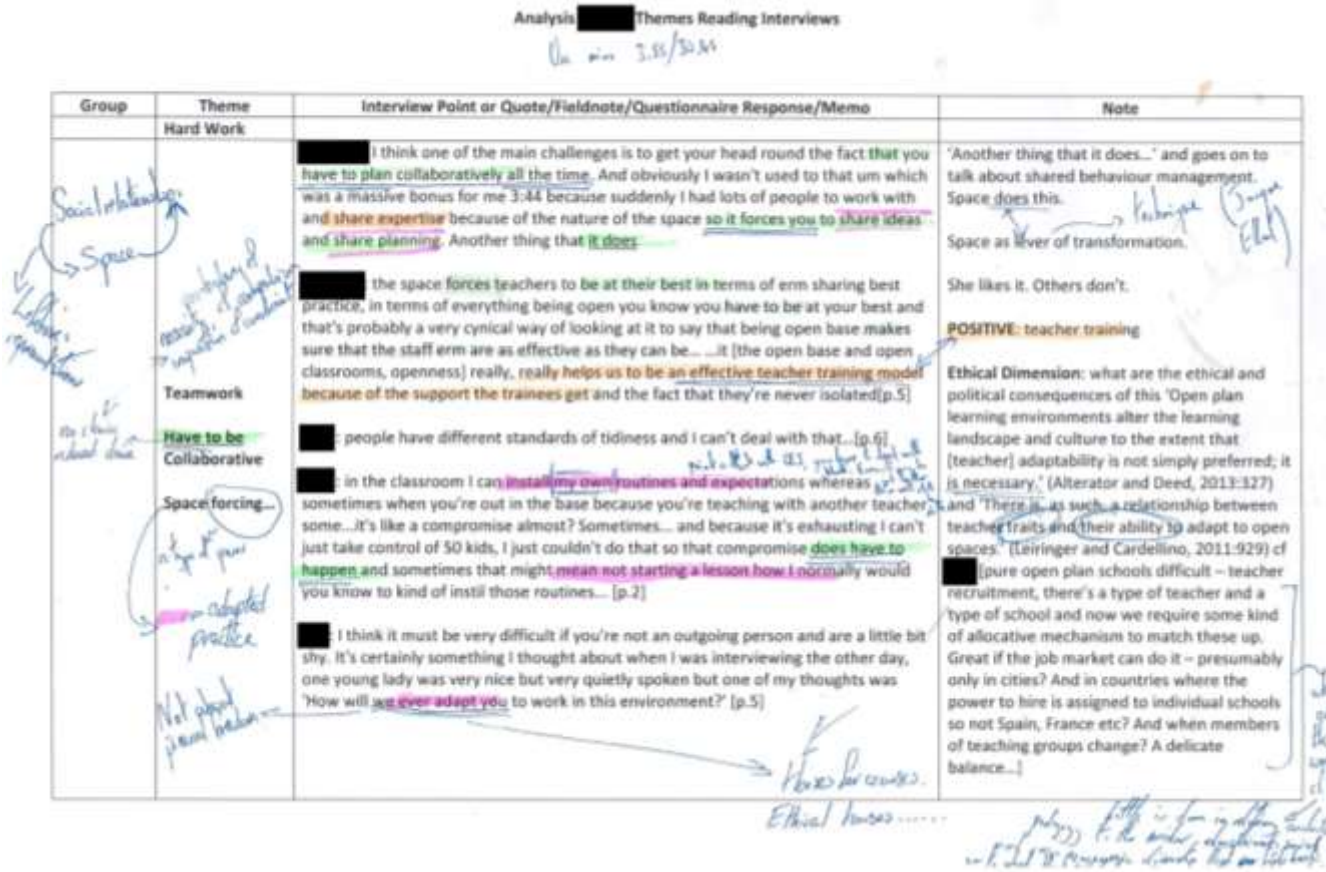
Please read the following (a fictional interview) with a teacher, Sam, about their impressions of the learning spaces in a fictional school. Then answer the question that follows (use the back if you need more space.)

It's easier to learn from each other in the open learning spaces. You pick things up from the other teachers. And you're there for each other too, if need be, you can help them, they can help you. You've got joint responsibility. In classrooms you're left more to get on with it. That said, I think I take fewer risks teaching-wise in the open spaces because I'm more aware of noise maybe but also because there's more to go wrong and more people to see things go wrong. And so teaching's more traditional perhaps there. And in terms of responsibility, because we share the space there's less of it. People maybe don't invest so much because it's not *their* space, it's everyone's. So I think there's something to be said for both, advantages and disadvantages...

4 In what ways do you disagree / agree with Sam's depiction of teaching and the school's spaces?

(Please explain) .....

Appendix J Example Coded Data



Analysis [redacted] Themes Reading Interviews

Group	Theme	Interview Point or Quote/Fieldnote/Questionnaire Response/Memo	Note
	Hard Work		
	Teamwork	[redacted] I think one of the main challenges is to get your head round the fact that you have to plan collaboratively all the time. And obviously I wasn't used to that um which was a massive bonus for me 3:44 because suddenly I had lots of people to work with and share expertise because of the nature of the space so it forces you to share ideas and share planning. Another thing that it does	'Another thing that it does...' and goes on to talk about shared behaviour management. Space does this. Space as lever of transformation. She likes it. Others don't.
	Have to be Collaborative	[redacted] the space forces teachers to be at their best in terms of erm sharing best practice, in terms of everything being open you know you have to be at your best and that's probably a very cynical way of looking at it to say that being open base makes sure that the staff erm are as effective as they can be... ...it [the open base and open classrooms, openness] really, really helps us to be an effective teacher training model because of the support the trainees get and the fact that they're never isolated[p.5]	**POSITIVE**: teacher training **Ethical Dimension**: what are the ethical and political consequences of this 'Open plan learning environments alter the learning landscape and culture to the extent that [teacher] adaptability is not simply preferred; it is necessary.' (Alterator and Deed, 2013:127) and 'There is, as such, a relationship between teacher traits and their ability to adapt to open spaces.' (Leiringer and Cardellino, 2011:929) cf
	Space forcing...	[redacted] people have different standards of tidiness and I can't deal with that...[p.6] [redacted] in the classroom I can install my own routines and expectations whereas sometimes when you're out in the base because you're teaching with another teacher, some...it's like a compromise almost? Sometimes... and because it's exhausting I can't just take control of 50 kids, I just couldn't do that so that compromise does have to happen and sometimes that might mean not starting a lesson how I normally would you know to kind of instil those routines... [p.2]	[redacted] [pure open plan schools difficult – teacher recruitment, there's a type of teacher and a type of school and now we require some kind of allocative mechanism to match these up. Great if the job market can do it – presumably only in cities? And in countries where the power to hire is assigned to individual schools so not Spain, France etc? And when members of teaching groups change? A delicate balance...]
		[redacted] I think it must be very difficult if you're not an outgoing person and are a little bit shy. It's certainly something I thought about when I was interviewing the other day, one young lady was very nice but very quietly spoken but one of my thoughts was 'How will we ever adapt you to work in this environment?' [p.5]	

Appendix K Groups and Themes of Data

Group	Theme
Social relationships changing space and designed space changing social relationships	Teamwork
	Tension
	Possession *or* sharing / Possession *and* sharing
	Have to be Collaborative (ie no choice or reduced choice. A vocabulary of compulsion, constrain in order to be freer)
	Perceptions of 'space forcing'… a type of power…
	Territory
	Identity
	Semiotics of space
	Defend it! Pride, previous struggle invested
	Hard Work
Change	Getting Used to Things
	Adjusting
	A Journey
	Resourcing the Journey
	Creating a Culture
	WORKING AND NOT WORKING
	How are 'solutions' defined?
	Negative, not positive choices.
	Change is a constant
Complexity	Learning Spaces are Part of a (complex, open) System
	Size matters, Ofsted matters, time matters, slack matters
Visibility: seeing and being seen; Control of teachers and teachers' work. Standardization?	Lost in the space
	Getting Left Behind
	Visibility: seeing and being seen
	Industriousness as the proxy for learning
	Looking like learning
	The product, not the process.
Designed Space & Articulations Re-Framing Teaching and Learning, Curriculum, Knowledge, Skills	Hidden curriculum or hidden social relationships.
	'External' changes to idea of education
	Existential ideas of what a school is and is for
	Taking Risks (teaching)
	Spontaneity
	Different spaces for different groups of people / Appropriate Spaces / Setting
	Learning is a thing, not a process
	NOISE
Flexibility / Linking Flexibility with Change	Short-term changes, making space responsive to immediate educational aims
	Ie spontaneity or planned change within a lesson (more from a teacher's perspective)
	Timescale: this lesson, next lesson, after lunch
	Mid-term changes, making space responsive to near future educational aims
	Ie planned, foreseen need (still from a teacher's perspective)
	Longer-term changes, making space responsive to or supportive of educational shifts/new needs eg changes in NoR
Flexibility	Constrained by curriculum or assessment needs
	Dependent on physical or legal availability / usability
	Dependent on others
	Dependent on particular qualities or types of staff eg Young Staff
Design	Translating policy into a Building
	Localising other ideas in the here and now of PTA's design
	Future against the Past & There against Here
	Being Different… and Being Different means… Risks
	New Schools and New Teaching? Dance Partners but who leads? Does the Building lead T&L or T&L lead the design?