COMPLEXITY THEORY & THE MEASURE OF ORGANISATIONS

Thesis submitted for the degree of
Doctor of Philosophy
at the University of Leicester

by
Victoria Abusidualghoul
BA (Chichester), MEd (Exeter)

School of Management
University of Leicester

2014
COMPLEXITY THEORY & THE MEASURE OF ORGANISATIONS

Victoria Abusidualghoul

Abstract

This dissertation explores the literature relating to organisational complexity, organisational measurement, educational institution measurement and qualitative research methods with a specific focus on participant-centredness. This is with a view to seeing whether complexity can provide a suitable underpinning for the exploration of educational institution assessment; whether effictility is a more useful and measurable construct than efficiency for school assessment; and whether the participant-guided tour is a viable first round research tool for recognising effictility. Early on, apparently immeasureable efficiency is replaced with measureable effictility: the efficient and effective utility of human and non-human resources within the constraints of a spatial and temporal context. The study is cross-disciplinary because it draws from such fields as management, human geography, sociology, educational management theory, education policy and philosophy, and the theoretical and real threads of complexity, space and time wend their way through the discourse. The first four literature-based chapters build together to provide the foundation for the practicalities explored in two case studies. These are set up to consist of a four-phase process at two technically similar and yet operationally very different schools. Greatly contrasting measures of success are achieved which in turn richly inform the discussion on the realities of institutional measurement. The research process also throws up some interesting themes through experimentation with innovative interview stimuli. Thus, the study’s contribution to knowledge is four-fold. It juxtaposes a theory and context that have rarely been put together – namely, complexity and education. It provides evidence to support the controversial notion that organisational efficiency cannot be measured. It introduces the concept of effictility and the methodological innovation: the participant-guided tour.

Keywords: complexity, measurement, organisation, participant-centred, tour, visual, efficiency, effictility
Dedication

To my husband and children, thank you for giving me the time and space to do this.
Acknowledgements

I would like to thank my supervisors, Dr Geoff Lightfoot and Prof Simon Lilley, for their enduring support, encouragement and wisdom. You have consistently been there for me over the years and pointed me in the right direction whenever I have faltered in focus or momentum. It has been a great privilege and inspiration working with you both.

I would also like to thank Dr Warren Smith for generously giving me all his complexity and chaos books, Dr Campbell Jones for giving me the idea of applying to the School of Management rather than limiting myself to education departments, Dr Gavin Jack for showing me the path to regular daily writing and Prof Jo Brewis for being tough on me but always fair and there for me – a great role model.

I am also indebted to my classmates for such an enthusiastic welcome and acceptance into your community halfway through the first year when you could so easily have seen me as an outsider. Your warmth, encouragement and advice saw me through the early days, your tenacity and passion inspired me to keep going through difficult times. Despite our differences in language, culture, discipline focus and destination, I believe we will always be a community.

Finally, I would like to thank Dr Karen Dale for a conversation we had that you may not even remember but which made a huge difference to my study-work-life balance with specific regard to becoming a mum while studying. It has been tough, but you were absolutely right about incentive and timing!
# Contents

Illustrations 6

Introduction 7

Part I

Chapter 1: Organisational Complexity 22

Chapter 2: Organisational Measurement 44

Chapter 3: Educational Institution Measurement 65

Part II

Chapter 4: Participant-centred Research Methods 109

Chapter 5: The Case Studies 149

Discussion, Conclusions & Recommendations 251

Appendices 281

Bibliography 284

Glossary 318
Illustrations

**Table 1**: “Features of complex systems” (summary of Cilliers in Maguire et al. 2006:166) 10

**Table 2**: “Developments in complexity science” (McMillan 2006:27) 26

**Table 3**: Major top-down interventions between 1922 and 2010 68

**Table 4**: “Self-inspection and self evaluation” (MacBeath 2006:57) 84

**Table 5**: “Key features of positivism and realism paradigms and the chosen mixed approach” (Adapted from Easterby-Smith by Amaratunga & Baldry 2001:97) 111

**Table 6**: Adapted from “The characteristics, strengths and weaknesses of longitudinal ... studies” (Cohen et al. 2000:178) 129

**Table 7**: School A Phase Three: Question 1 Responses 246

**Table 8**: School A Phase Three: Question 2 Responses 247

**Table 9**: School A Phase One Participants 282

**Table 10**: School B Phase One Participants 282

**Figure 1**: “The performance management process” (Santos et al. 2002:1251) 53

**Figure 2**: “Example for the flow of cognitive processes” (Schaurhofer & Peschl 2005:268) 137

**Figure 3**: “Tired of being measured?” (Abusidualghoul 2007b) 281

**Images** SA1A, SA1B & SA1C 154

**Images** SA2A, SA2B & SA2C 157-158

**Images** SA3A, SA3B & SA3C 161-162

**Images** SA4A, SA4B & SA4C 166-167

**Images** SA5A, SA5B, SA5C & SA5D 172-173

**Images** SB2A & SB2B 184

**Images** SB6A, SB6B & SB6C 191

**Images** SB3A, SB3B & SB3C 194

**Images** SB4A, SB4B & SB4C 202

**Images** SB8A, SB8B & SB8C 209

**Images** SB5A, SB5B & SB5C 212

**Image** of school corridor from 1968 281

**Image** of school corridor from 2007 281

**Image** of School A layered A1 acetates 283

**Image** of School B layered A1 acetates 283
Introduction

The fuel that powers this research project grew from the joining of ‘critical incident dots’ over the span of a 23-year teaching career. The first dots appeared when I was still on the periphery of the profession working as a peripatetic music teacher and experiencing an Ofsted (Office for Standards in Education) inspection during my first year of teaching. More dots revealed themselves during my training and placement on a Postgraduate Certificate in Education, during my further teaching experiences and during my Master’s Degree in Education. I found that when joining these dots the questions and hypotheses that I reached echoed both the popular and academic discourse on the spreading disquiet of the very same organisational community of which I had become a member. Overall, this disquiet seemed to have been caused by the increasing numbers of threats to the educational community’s profession and an emerging concern that stakeholders at a variety of levels within the community were being pushed into situations where their operational implementation of standardised strategies would be judged regardless of the operational realities of their workplace environments. Thus, the community context that forms a backdrop for this study is the state education profession in England and Wales; its stakeholders are limited for the purpose of this study to the school staff and their pupils although policy, politics and politicians are touched upon; the strategies focused on are the Numeracy and Literacy Strategies (DfE 2011); and the threats during the time period in question – namely, the time during which the participating teachers worked at each of the case study schools, but also takes into consideration the interventions that took place in
state education in the lead-up to the period – are Ofsted inspections, league tables and the special measures designation (Prime Minister’s Strategy Unit 2006).

The statistics justifying the 1998 and 1999 introduction of the above strategies were compelling. In a 1995 study, the OECD (Organization for Economic Co-operation & Development) had found that “Scandinavian countries [were] showing very small proportions of people operating at the lowest levels [of literacy and numeracy] and English speaking countries … [were] showing much higher proportions, rising to over one in five of the adult population” (Bynner 2004:32). Snapshots of the 1958 and 1970 school cohorts in the UK demonstrated how this was negatively affecting British society in terms of basic skills in the workforce and employability, and Bynner et al. calculated that with a 10% reduction in the numbers of each group of people in the low literacy and numeracy categories, their “enhanced probability of employment … [would bring] a net benefit to government finances … of £2.54 billion and £0.44 billion”, respectively (in Bynner 2004:44). However, after the Numeracy and Literacy Strategies were introduced, although standard assessment tests showed an increase in attainment in numeracy, literacy remained a concern: “around 20% of eleven-year-olds … [were] not reading at an age-appropriate level” (Literacy Trust 2005). This apparent lack of success and the media circus that surrounded it meant a broader community of stakeholders becoming recipients of the new inspection and league table terminologies. This preoccupation led to the absorption of these measurement and reporting methods across the boundary from the political and educational communities into the common arena. This, in turn, put more pressure on the schools themselves and propelled the marketization of state schools forward.
To meet the challenge of exploring the above issues, this research project draws on the theories of complexity, organisation and education, and uses qualitative methodology to carry out two case studies. However, before the investigation gets underway, it is necessary to define basic terms and set foundations. Therefore, there follow six brief introductions to complexity theory, complex organisations, organisational efficiency, organisational measurement, participant-centred research and the case study contexts.

**Complexity Theory**

This thesis’ underpinning theory, complexity, is both ontological and epistemological: “a property of a system, its parts and their interactions” and “a property of a given interpretation, representation or simulation of a system” (Maguire et al. 2006:170). Complexity also qualifies as a philosophy in this research project, in accordance with Deleuze’s definition: “Philosophy is not a state of exterior reflection on other fields or disciplines, but a state of active and interior alliance with them” (2006:219). A comprehensive and accessible description of the characteristics of complex systems is provided by Cilliers who lists ten features as shown in Table 1 overleaf.

Although complex systems may appear to exhibit all ten features, they are by no means uniform. As Silver states, “Systems vary considerably in their degree of complexity, depending on the number and diversity of components they comprise as well as on the groupings of components within them” (1983:55). In fact, the specific type of system investigated here is the complex adaptive system which, as Holland (1995) explains, is a complex system whose components are also complex systems themselves. This is a particularly intriguing form of system because “it is possible for a
mutually consistent ecology of parts, along with the rules guiding them, to emerge from what is effectively a decentralized, bottom-up process of co-design” (Maguire et al. 2006:166; Honig 2004).

1. Complex systems consist of a large number of elements.
2. These elements interact dynamically.
3. Interactions are rich; any element in the system can influence or be influenced by any other.
4. Interactions are non-linear.
5. Interactions are typically short-range.
6. There are positive and negative feedback loops of interactions.
7. Complex systems are open systems.
8. Complex systems operate under conditions far from equilibrium.
9. Complex systems have histories.
10. Individual elements are typically ignorant of the behaviour of the whole system in which they are embedded.

**Table 1**: “Features of complex systems” (Cilliers summarised in Maguire et al. 2006:166)

Complexity has been chosen as the underpinning theory for this study because it provides the most practicable criteria for analysing an organisation’s operations and also the best language for describing its measurement. This will be discussed in much greater depth in Chapter 1. Although specialist terms will be defined within the text, there is also a glossary on pages 318-319.
Complex Organisations

When applied to human organisations, the systems mentioned in Table 1 on the previous page are, for example, those of engineered arrangement possibly introduced via the wider community of practice (Wenger 1998; Wenger et al. 2002); or those that have resulted from internal strategic wrangling or operational problem-solving, which has evolved into standard practice and possibly recognised protocol. In UK state primary education, the area wherein belong the case study sites examined here, the systems are the teaching, learning and administrative processes at the schools which have evolved through interactions between stakeholders, policy and environment within in the concentric circles of the educational community of practice.

The elements mentioned in Table 1 are the organisation’s stakeholders, resources and equipment, and this also includes the built and other environments. Although views in the literature on environment differ, valid recommendations are rife, such as Manning’s suggestion that “The organization and environment distinction ... is little more than a tautology” (1982:123) and McMillan’s point that “given the right environment a spontaneous, self-organizing dynamic can emerge within an organization” (2006:11). In the context of this thesis’ research sites, the unique qualities of the built environment and its effects on how, for example, the meteorological elements are mediated to the inhabitants demonstrate this spontaneity and self-organising dynamic. The surprising findings detailed in Chapter 5 attest to this emergence of practices from the interaction between the human organisation and the non-human.
This *dynamic* also becomes evident in the analysis of *feedback loops* (Goldstein 1999) where in human organisations they can be seen in the response-and-improvement mechanisms and ad hoc processes of problem-solving and decision-making that occur during day-to-day operations, as suggested in the meteorological example above. Indeed, as Cooper suggests in his interview with Chia and Kallinikos, “To think organization is to recognise a more general force which includes us in its perpetual movement between order and disorder, certainty and uncertainty” (1998:142). The formal and informal mechanisms for pupil, system, peer and self-evaluation at the research sites demonstrate how this *perpetual movement* happens in practice. The first case study which exhibits more signs of effictility has a clearer sense of forward motion, whereas the second seems to have stopped at the prospect of its next major intervention. Full details of this can be found in Chapter 5 with further discussion and analysis in the concluding section of the thesis.

**Organisational Effictility**

This study began as an investigation into the measurement of organisational efficiency. However, it soon became apparent that if efficiency was taken to mean the traditional *x*-efficiency or allocative efficiency – where resources are “allocated according to the preferences and budget constraints of the consumers of final products” and in terms of “minimum cost ... high employment ... best practices and ... technologies”, respectively (Brown & Jackson 1990:195) – then such an investigation would be futile. This is because of the vast number of variables involved in assessing whether the financial and educational investment in a child has resulted in an efficient (in terms of time, cost and benefit) path of development that has led to a job in a distant labour market. The length of time such a study would take – typically 11-16 years – is also
unconducive here because what I hope to provide is a measurement method that can
give current and immediate feedback that would be of benefit to short-term
governments and other current stakeholders.

The characteristics of complex systems, as detailed above, also imply that within a
fluxing flow of development (in this case, the teaching and learning process) towards
an ever-changing and ever-distant target (the needs of the labour market), a particular
form of efficiency might only be clearly evident in externally implemented or internally
emerging coping strategies. More specifically, this form of efficiency requires the
identification of the ways in which an organisation copes longitudinally in response to
critical incidents, such as policy changes, and in fulfilment of long-term goals; and in
doing so progresses temporally and positionally towards its zone of proximal
development (Vygotsky 1978:86): the position a little beyond immediate abilities but
within potential capabilities. Thus, a new word was required to describe this form of
efficiency: effictility. It is taken to mean the efficient and effective usage of human and
non-human resources within the constraints of a spatial and temporal context.
However, it not only refers to performance measurement, but also allows an open
view that historically monitors intervention absorption and production, continuously
gauges environmental limitations, their effects and outcomes, and regards the
stakeholder as maintaining the locus of expertise (Wenger 2000). The only way to
reach this sort of possibly tacit data is through participant-centred methods. Some
may suggest that an ethnographic approach would suffice, but ethnography again
requires more time than is available and tends to involve an infiltrative process by the
researcher which in turn demands a slower gathering of data through a less direct
approach of observation. It is also more likely to lead to researcher-made assumptions about the participants, whereas the participant-centred method trialled here allows for explicit communication and the emergence of the participant’s voice and research direction through limited researcher questioning which merely hints in the direction of organisational measurement through building a longitudinal framework for an evolving narrative around the topic of developmental interventions.

**Organisational Measurement**

However, measurement is a difficult artefact to pin down when considered for qualitative research – as Cave and Wilkinson (1991:35) state, “Management performance ... has outcomes which defy measurement” – but deconstruction of the reasoning behind measurement suggests that there are two underlying drivers: the basic needs to quantify and categorise. Quantification here is taken simply to mean *counting* – according to Stewart, “mathematics is the most effective and trustworthy method we know for understanding what we see around us” (1997:3) and I suggest that to qualitate should be considered another way to count. Categorization here means the allocation of a classification to an object, item or agent, and as Bowker and Star affirm: “To classify is human” (1999:1). From a research point of view, Gilbert (1993:1-2) states that “Researchers are interested in patterns of numbers in data because they provide clues to underlying social processes” and Stewart proposes that “Some innate impulse makes humankind strive ... to seek the laws behind the wayward complexities of the universe, to bring order out of chaos” (1997:1). Overall, it seems that we measure to understand, reduce our fear of the unknown and, thus, reduce our fear of the unmeasured. As Sacerdoti et al. (in Ferris 2004:106) suggest: “Measurement processes are the means by which man dialogues with the external
world in order to enrich his knowledge.” Nevertheless, Bowker and Star (1999:322) warn that “There is no such thing as an unambiguous, uniform classification system”.

Even deeper than quantification and categorization is an innate need to draw ontological and epistemological lines around everything – to territorialise and distinguish, and then compare whatever is within these ever-decreasing and increasing circles with each other and with what is outside the borders. Diamond et al. (2004:34) explain that these “boundaries are the spatial and psychological location from which analysts can decode the peculiar identity of the organization and its inherent characteristics”. As a focus of research in themselves, boundaries and the objects that cross them appear to be an ideal organisational area for providing insights into whether an institution is absorbing and producing change efficiently, and dealing effectively with the limitations that the boundaries – perceived or tangible – may cause.

In relation to stakeholders, boundaries form around societal groupings that have remits in common. In fact, Silver (1983:51) states that “The boundary of a social system can be regarded as the outer limits of the role each person occupies”, but such a boundary’s position is purely subjective and reliant upon the perceptions of the individual. For instance, the remit of any individual as listed in their starting contract rarely matches how their job develops over time and in space, and their perception of what their role entails rarely matches that of others’ perceptions of the same role. In addition, the individual’s multiple roles, for example, as worker, father, union member and patriot make their potentially unique outer limits seemingly unplottable. These different memberships in what Anderson calls imagined communities (1991) mean
that it is not only the role each person occupies, but also their perceptions of what their participation in their societal groupings is that define where the boundaries of any social system lie. Ontologically, this makes the social system an apparently untameable, immeasurable and unboundable construct that exists only because we believe it to be there.

Another problem with qualitative measurement is that since Euclid’s Geometry (circa 300BC), much has been written about measurement in terms of metrology, but only relatively recently about less tangible, qualitative measurement like that required for boundary assessment. However, the long-established, tested, recognised and regulated guidelines for metrology can be considered for useful parallels – something against which to measure other less well-established measures. Therefore, as a starting point, below is the most recent definition of measurement from the VIM (Vocabulaire International de Métrologie):

measurement
process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity
NOTE 1 Measurement does not apply to nominal properties.
NOTE 2 Measurement implies comparison of quantities and includes counting of entities.
NOTE 3 Measurement presupposes a description of the quantity commensurate with the intended use of a measurement result, a measurement procedure, and a calibrated measuring system operating according to the specified measurement procedure, including the measurement conditions.

(emphasis as original; JCGM 2008:16)
Of most interest and relevance to qualitative measures are the notions of *experimentally obtaining values*, *comparison*, *intended use of the result*, *procedure*, *a calibrated measuring system*, *the specified measurement procedure* and *measurement conditions*. These will be revisited at various points during the dissertation so that their relationship with the measurement of efficiency can be made clear.

**Participant-centred Research**

Participant-centred research has been chosen for this project for three main reasons. Firstly, there is the aim to increase researcher objectivity where there is strong feeling about the topic at the same time as avoiding “detachment from an isolated object of research” (Pickering 2008:19) by allowing the participant to be fully submerged in their own environment. Secondly, there is the aim to empower potentially deskilled and resistant participants who, through participant-centredness (Riach 2009), may re-gain a sense of ownership over their workplace and profession through acting as guide and, thus, be more forthcoming in their responses. Thirdly, and also as a result of the first and second aims, there is the aim to gain richer data through allowing participants to respond in their own time and space with minimal input from the interviewer (Abusidualghoul 2010; Evans & Jones 2011) who I believe – for the purposes of this project – should be deliberately naïve (Kvale 1996) or conducting the research from the perspective of a “new mode of astonishment” (Stengers 2000:72). These three aims form into a four-phase longitudinal proposal involving participant-guided tours, follow-up interviews involving photo- and graphic elicitation, and documentary research, all of which will be explored and put into practice in Part II.
The idea for the participant-guided tour evolved from the pilot study where it was discovered that teachers who were interviewed in their own workspaces were much more detailed and specific in their responses than those who were interviewed in, for example, the staffroom. This made it clear to me that if I was to get teachers to provide rich data about changes and developments across their whole school environment, the interview must involve some form of tour of the site. The issues that I had to work through before reaching the final form of the participant-guided tour related to access, anonymisation of sites and interviewees, the unpeopling of photographs in peopled spaces, and replicability.

**The Case Study Context**

Due to my experience teaching in state and private educational institutions in the UK and abroad at pre-school, primary, secondary and tertiary levels, it was presumed that schools would be a familiar environment in which to conduct the practical element of the research. It was also felt that as a teacher I would relate better to the participants, already possess a suitable set of common terminology, an appropriate demeanour and thus be able to manage communications effectively at each stage of the project.

Indeed, I had been very fortunate with the pilot study in that the school I was keen to visit was able to welcome me and participate fully in my research at the time I wished. It had been crucial to visit that particular school because I was exploring researcher objectivity and visual methods at the time, and had discovered a 1968 photograph in an architectural monograph of part of the interior of the school and I wanted to use it and a modern photograph taken from the same angle for photoelicitation purposes. Each teacher was asked to make a comparison of the two images as a starting point for
the interview; this was to set the scene for talking about changes in the school space and teacher territories. However, of the 13 state primary schools approached for the main study, only two agreed access – two of the others agreed to begin with, but the initial reconnaissance appointments never materialised. Common reasons given for non-participation included not having time due to having trainee teachers on site and not having time because of preparations for pending inspections or building work. Of the two who participated, their starting points were approximately a year apart and the research experiences with them were very different due to unforeseen circumstances that will be recounted and examined in detail in Chapter 5.

It was possible to combat the issues of anonymisation of sites and interviewees and the unpeopling of photographs in peopled spaces through being clear with the teachers that the photographs they took of significant parts of their workspaces should not include any pupils or staff. In the most part, the head teachers had timetabled the tours when the teachers’ pupils were elsewhere so their classrooms were empty. When that was not the case, teachers appeared naturally careful to avoid shots including children and needed little prompting. As a result, where pupils are visible in five of the photographs, their identities are safe either because their back is turned or because they are indistinguishable due to distance. As for the school sites, the photographs are so closely topical that only someone who has been inside the particular spaces photographed would recognise them. In relation to the issue of replicability, the participant-guided tour was set up to begin in the same place for each of the teachers in a particular school, with the simplicity of the questioning in all phases designed to facilitate replication of the research process. Although this worked
perfectly in the first school, it was impossible in the second. Full details can be found in Chapter 5.

**Dissertation Structure**

In order to achieve the above, Part I of this dissertation explores the existing literature relating to ‘Organisational Complexity’ in Chapter 1 and measurement in ‘Chapter 2: Organisational Measurement’ and ‘Chapter 3: Educational Institution Measurement’. Chapter 1 will expand on the brief introduction to complexity given above and explore its characteristics in relation to organisational theory and practice. Chapter 2 will investigate the concepts and theories of organisational efficiency and effectivity assessment with reference to literature from such fields as economics, business and management, human geography and sociology, whereas Chapter 3 will focus more on writings from educational management theory, education policies and philosophy. In both Chapters 2 and 3, the theoretical threads of complexity, space and time will wend their way through the discourse, and all the theories, cases and past research examined will build together to provide a foundation for the practicalities explored in Part II.

Part II consists of two chapters, the first of which will remain with the literature, but this time that of research methodology and with a particular focus on the aforementioned ‘Participant-centred Research Methods’. It will draw upon the literature relating to visual and other sensory research methods as well as interviews, ethnography and other traditional qualitative techniques. The fifth chapter will test the understanding gained from the explorations in Chapters 1, 2, 3 and 4 by presenting
and analysing data gathered during the first three of the four-phase research project at the two aforementioned similar and yet very different primary schools.

The concluding section of the thesis will attempt to pull together the learning from the literature review and case studies in an effort to present the Phase 4 discussion and answer the following research questions:

- Does complexity theory provide a suitable underpinning for the exploration of educational organisations?
- Is effictility a more useful and measurable construct than efficiency for school assessment?
- Is the participant-guided tour a viable first round research tool for recognising effictility?

Thus, the study’s contribution to knowledge is four-fold. It juxtaposes a theory and context that have rarely been put together – namely, complexity and education. It provides evidence to support the controversial notion that organisational efficiency cannot be measured. It introduces the concept of effictility and it trials a methodological innovation: the participant-guided tour.
As the introduction explained, complexity is both ontological and epistemological, and qualifies in this project as an underpinning and guiding philosophy. When applied to human organisations, Cilliers’ list of characteristics for complexity (summarised in Maguire et al. 2006) shown in Table 1 on page 10 suggest that they are open systems which operate under conditions far from equilibrium and have histories. In addition, they have a large number of elements whose interactions are rich, non-linear, typically short-range and dynamic; any element can be influenced by any other; individual elements are typically ignorant of the behaviour of the whole system in which they are embedded; and these elements’ interactions also involve positive and negative loops.

Each of these characteristics will be explored in turn in this chapter.

Open Systems?

The first of Cilliers’ ten features of complexity (1998) to be addressed here is system openness. However, one of the main issues in defining open systems seems to be their distinction from closed systems and the converse; as Mesarović (1964:8) explains succinctly, “if a system is open, it cannot be distinguished from some other system”. Chisholm gives a clear defining example:
A domestic hot water system is an open system, in that energy enters into it from elsewhere in the form of fuel and leaves it as hot water and warmed air: energy transfers are occurring across the boundaries of the system. By contrast, closed systems are those in which no such energy transfers occur ... the only change of state that can occur is a result of the work that is done as any initial differences in energy in various parts of the system are equalized ... as the system tends toward entropy. (Chisholm 1967:46)

He goes on to say that there are few closed systems so the distinction is of little value (ibid.), but it is felt here that the differences between the transformative flows across boundaries and the stagnating flow towards entropy could be seen as signs of effictility and its antithesis in action depending on the purposes of the system. This relates to the decision-making process, who is considered a decision-maker and the looping dynamic of decisional feedback (for more on decision-making, see Martínez-León & Martínez-García 2011). However, in pushing the notion of organisations as interpretation systems, Daft and Weick say that:

*Organizations are more than transformation processes or control systems. To survive, organizations must have mechanisms to interpret ambiguous events and to provide meaning and direction for participants. Organizations are meaning systems, and this distinguishes them from lower level systems.*

(Daft & Weick 1984:293)

This attempted distancing of human organisations from *lower level systems* is widespread in the literature, but it is firmly believed here that as part of one overall organism – the Earth in the whirling cosmos – human organisations should be seen as no different to, for example, biological systems just because we pride ourselves in possessing consciousness, choice and free will (e.g. Ackoff in Kast & Rosenzweig 1972;
Johnston 2001; Kane 2011). However, the distinctions continue to be made even in some of the most popular and recent discourses – as Caldwell (2005:99) points out, even “the duality of participation–reification [in Wenger’s (1998) idea that communities of practice are sustained through the ongoing ‘negotiation of meaning’] opens up classical organizational issues of autonomy and control”.

The notion of the embeddedness of human organizations in the greater scheme of things has also been developing throughout the literature. For instance, drawing on the early literature on General Systems Theory (von Bertalanffy 1950), Kast and Rosenzweig clarify that:

*Open systems exchange information, energy, or material with their environments. Biological and social systems are inherently open systems; mechanical systems may be open or closed. The concepts of open and closed systems are difficult to defend in the absolute. We prefer to think of open-closed as a dimension; that is, systems are relatively open or relatively closed.*

(Kast & Rosenzweig 1972:450)

Giving biological and social systems together in this neutral fashion implies a similarity and equality that seems rare in the early systems literature. Nevertheless, Kast and Rosenzweig appear to contradict themselves three pages later in the same article where they use the distinction between organisms and organisations to distinguish between General Systems Theory and the study of social systems:

*Organisms, the foundation of general systems theory, do not contain purposeful elements which exercise their own will. ... [T]he concern is primarily with the way in which the organism responds to environmentally generated inputs. Feedback concepts and the maintenance of a steady state are based on internal adaptations to environmental forces.*

(Kast & Rosenzweig 1972:453; emphasis as in original)
It is argued here that the last two sentences in the above quotation could equally apply to social organisations and that complexity theory allows space for free will (Kane 2011). In fact, in his exploration of intentional action, intrinsic intentionality and ascriptive intentionality, Johnston proposes that:

Ours sense of free will suggests to us that we have sufficient autonomy from the constraints of the physical world to allow us to consciously decide the future by aiming actions at future goals. This is a notion of intrinsic intentionality and can only be appropriately applied to conscious organisms. (Johnston 2001:233)

Thus, there is a great contrast between views from General Systems Theory and complexity theory in the positioning of human systems as something elevated and other in the former and something integral and embedded in the latter. The corresponding language of the two theories is strongly related to these assertions and this adds to the benefits of using complexity theory to underpin and guide this particular project: what is being researched can be more effectively explained using the language of complexity because it adheres to the same principles of integrality and embeddedness.

Equilibrium or Disequilibrium?

The second of Cilliers’ ten features of complexity (1998) to be addressed here is the system state of being far from equilibrium. This is a common and well-known concept in the physical sciences, but as Table 2 overleaf shows in relation to complexity, it can take some time for concepts in the physical sciences to spread across the disciplines and embed themselves in the social sciences. In fact, ideas about equilibrium appear in the literature even further into the documented scientific past showing that the
individual aspects of complexity were identified in science before the arrival of complexity science as a named field in the 1960s. For instance, according to Chisholm (1967:50), the notion of dynamic equilibrium has been around in geomorphology since the turn of the 20th century when Davis was writing about the steady state in, for example, the river cycle.

<table>
<thead>
<tr>
<th>Time period</th>
<th>Theory / Concept</th>
<th>Key researcher</th>
<th>Discipline</th>
<th>Country of birth / experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s – 1970s</td>
<td>Dissipative structures (Self-organization)</td>
<td>Ilya Prigogine</td>
<td>Chemistry</td>
<td>Russia and Belgium</td>
</tr>
<tr>
<td></td>
<td>Self-organization / Self-organizing systems</td>
<td>Herman Haken</td>
<td>Physics</td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td>Self-organization, evolution and complexity</td>
<td>Stuart Kauffman</td>
<td>Biology</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Patterns and patterning</td>
<td>Brian Goodwin</td>
<td>Biology</td>
<td>Canada and UK</td>
</tr>
<tr>
<td></td>
<td>Self-organization / Autopoiesis</td>
<td>Humberto Maturana</td>
<td>Biology</td>
<td>Chile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Francisco Varela</td>
<td>Biology</td>
<td>Chile</td>
</tr>
<tr>
<td>1980s</td>
<td>Edge of chaos</td>
<td>Chris Langton</td>
<td>Anthropology and computing</td>
<td>USA</td>
</tr>
<tr>
<td>1990s</td>
<td>Complex adaptive systems</td>
<td>John Holland</td>
<td>Mathematics</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Emergence</td>
<td>Murray Gell-Mann</td>
<td>Physics</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chris Langton</td>
<td>Anthropology and computing</td>
<td>USA</td>
</tr>
</tbody>
</table>

*Table 2: “Developments in complexity science” (McMillan 2006:27)*

Since these beginnings, the role of the steady state, dynamic equilibrium and homeostasis in organisations has changed over time. For instance, Kast and
Rosenzweig’s 1972 assertion is that:

*The concept of steady state is closely related to that of negative entropy. A closed system eventually must attain an equilibrium state with maximum entropy-death or disorganization. However, an open system may attain a state where the system remains in dynamic equilibrium through the continuous in-flow of materials, energy, and information.*

(Kast & Rosenzweig 1972:450)

In contrast and with regard to functionalism, Van den Berghe (1963:696) states that “social systems are fundamentally in a state of dynamic equilibrium. ... The dominant tendency is thus towards stability and inertia, as maintained through built-in mechanisms of adjustment and social control”. These contradictory statements suggest that although social systems are considered open, they are inclined to head for the qualities of closed systems and although they exhibit evolving dynamism, they can be controlled through engineering (e.g. Whittle & Spicer 2008; Steen 2010). Thirty-five years later, Wadsworth states that “In fully living systems [in which she includes social systems] there is time, space and place for the exercise of all functions, to proceed through full sequences, simultaneously in dynamic equilibrium or lively stability” (2008:31-32). It seems to me that this simultaneity may contain many different strands of activity that operate at different speeds and with various momentums, motivations and directions. This reflects the potential complexity of effictility.

The notion fits better, however, with MacIntosh and MacLean’s idea of disequilibrium, which can be defined as the dynamic between stability and instability (1999). Houchin and MacLean go on to explain that “It is the presence of anxiety that keeps a complex social system in disequilibrium. ... organization is a defence against anxiety, and
organizations thus tend towards stability” (2005:162). Wadsworth gives the examples of how fluctuations in the activity of complex living systems can result in extremes in disequilibrium:

- high speed car racing in suburban streets, the mediaeval Xing dynasty at the beginning of the 20th century
- endlessly redesigning or restructuring corporations, western capitalist industry, aggressive takeovers, differential income levels in metropolises, centralised price-fixing
- excessive role prescription without discretionary power, groupthink
- human depression, over-socialisation, mistakenly ‘othering’
- bulimia, cancer, starvation, the stasis associated with excessive loss of mobility (Wadsworth 2008:31-32)

The list above has been extracted from a more detailed text and re-ordered to emphasize the various types of systems that are presented. In fact, Wadsworth uses the above examples to demonstrate the extremes that can occur due to complex living systems “mov[ing] through all moments in dynamic equilibrium” (2008:32).

**What’s the story and do we have the language to tell it?**

The third of Cilliers’ ten features of complexity (1998) to be addressed here is system history. Indeed, the idea above of all moments highlights the complex systems view which asserts that open systems have histories. In fact, the historical nature of complex systems consists of time at a basic level as both an irreversible progression and as a medium in which properties can emerge. As Byrne (1998:15) states, complexity is “fundamentally historical” and later in the same text he suggests that time should be “considered … our fundamental axis” (ibid.:24). In addition, Kast and Rosenzweig’s aforementioned preference to think of open-closed as a dimension
(1972) in General Systems Theory also implies that a sense of continuum exists that allows for the emergence of progress and a looseness of system status classification. This points towards notions of uncertainty and instability, however, such as Allen’s: “uncertainty is ... inevitable ... Long term success is not just about improving performance with respect to the external environment of resources and technology, but also is affected by the ‘internal game’ of a complex society” (1998:159). In this statement, *performance* could be synonymous with *efficility* due to the clear correspondence of the following items in the statement fitting efficility’s human and non-human resources and relevance to spatial context. This confirms that the notion that efficility is already being discussed in the literature, but is struggling to be defined due to our linguistic limits – our ideas are beyond the words we have to describe them.

In his discussion of Lefebvre’s ideas, Merrifield also warns that “Relations between the conceived-perceived-lived aren’t ever stable and exhibit historically defined attributes and content” (2000:175) and Kauffman (1995:202) suspects that consequently “much of technological evolution results from tinkering with little real understanding ahead of time of the consequences”. In Actor Network Theory (ANT), continuity is seen as:

> [not] a reflection of some reality ‘out there’, but instead ... the consequence of a (temporary) stabilization of a particular set of forces that can be conceptualized as a network. This stabilization is achieved by a temporary closure of possibilities and is highly dependent on the density of the mesh, and thus on the strength of the links and the connectedness of the different nodes. (van Loon 2006:309-310)

This points to the idea that snapshot examinations of organisations could capture instances of the *nodes’ connectedness* but should take into consideration the wider
context of evolving processes and conglomerating action over a lengthy period. The literature on complexity theory discusses the same notion, but in language that emphasises components, their intercommunicative activities and communal outputs, rather than in language that focuses the reader’s attention to the metaphorical images of a network, mesh or node (Lee & Brown 1994; Fenwick 2011). For example, Coveney and Highfield (1995:7) suggest that looking at organisations pragmatically through ‘complex eyes’ makes it possible to quantify, analyse and define the “interactions [between elements that] lead to coherent collective phenomena” and Levy talks of how complexity theory brings together the emergence of unique configurations and the fundamental volatility of organisations (1994). In neither case do the writers suggest what shape the phenomena or patterns may take and this means that they retain a fitting sense of complex organicism in their descriptions; i.e. they use ambiguity to form the backdrop so as to allow for any forms to evolve without set expectations or awaiting categories for classification match. This encourages Stengers’ aforementioned “new mode of astonishment” (2000:72) which potentially affords the researcher the opportunity to see the world as if for the first time and thus objectively.

Outside the complexity-specific literature, some authors mix the languages of networks and the complex to positive effect. For instance:

*The metaphor of the British state as a top-down hierarchy with chains of command up and down the system has largely been superseded by an image that stresses the linkages and interactions across the policy terrain and where top-down authority has been replaced by negotiation and contracts.*

(Hudson & Lowe 2004:92)
In such a system, it is possible for “The duality of potency and act ... [to fall] by the same stroke. The act is everything” (Sartre 2003:2). However, Goldstein asks: “If the more we learn about complex systems, the more predictable emergence becomes, does this imply that emergent phenomena are merely provisional, epistemological artifacts [sic], lacking an ontological status?” (2000:190). He talks as though emergence is a stationary objective to be achieved, a box to be ticked, a physical something coming out of the mist; on the contrary, I see it as a continuous and infinite process that cannot be pinned down to a specific moment of arrival – in this study, it is deemed a becoming. “The idea of organizational becoming is intuitive ... in Bergson’s terms, it is a ‘creative emotion’” (Clegg et al. 2005:159) and I firmly believe that participant-centred research methods can access its innards and monitor its effectivity.

**Non-linear Interactions**

The fourth and fifth of Cilliers’ ten features of complexity (1998) to be addressed here is the richness of componential interaction and its non-linearity. In the complex systems view, the focus on large numbers of elements and the richness of their interactions is best described and explored with complex vocabulary whether intentionally written as such or not, as in the example above. Another instance of this can be found in Spoelstra who clarifies Spinoza’s notion of individuality saying that “the ideas of ‘part’ and ‘whole’ are abstractions (inadequate ideas) and not common notions. Parts and wholes do not exist because they contain no truth. The truth is between parts and wholes: in the relations between them” (2007:112). The explanation, language and phraseology used here by Spoelstra is clearly reminiscent of the discourse around complex systems. (The idea of *part* and *whole* is explored in
greater depth later in Part I.) Elsewhere, the literature suggests that the richness of interactions is affected by their location. For instance, Bennett and Bennett (1970) state that the surroundings have a significant effect on the social interaction that takes place therein, in terms of the length of the contact and the development of further events. In addition, Gell-Mann asserts that “complex adaptive systems are pattern seekers which interact with their environment, learn from their experiences, and then adapt, [whereas] non-living complex systems do not” (in McMillan 2006:31).

Interestingly, de Certeau defines strategy as the act of spatial discipline and management for the purpose of exerting power (1984).

However, where through complexity theory the organisational environment is treated as a component fit for the same attention and consideration as human and technological components, its resistance through negative feedback loops to being disciplined and organised may mean that such a strategy would ultimately fail.

Another point of contention arises with Durkheim’s statement that “the more complex an organism is, the more it needs reflection in order to adapt itself to its environment” (1977:6). Surely, how complex an organisation is depends on how closely the perceiver investigates it; in other words, the complexity actually grows with each attempt to reduce it. Goldstein calls this dual distinctness and interactivity in complex systems the transgression of levels and warns that:

This makes the study of emergence in complex systems a much more messy affair, and in organizational applications there will be a great deal of opportunity to get confused about what is happening on what level. But this kind of confusion can be taken as a good sign that one is getting close to the real essence of emergence. (Goldstein 2000:194)
Conversely, Massey explains that space is “the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny” and sees “space as the sphere of the possibility of existence of multiplicity in the sense of contemporaneous plurality; as the sphere in which distinct trajectories coexist; as the sphere therefore of coexisting heterogeneity” (2005:9). Here, trajectories could be intangible or those relating to physical movement (Johansson et al. 1980; Akkerman & Bakker 2011) and this view contributes to the aforementioned concepts of individuals with multiple imagined community (Anderson 1991) memberships negotiating collaborative exchanges across flexible boundaries. This type of dynamic activity seems to be what feeds effictility – could it be that effictility grows from areas of peak dynamic activity and is perpetuated by boundary interactions?

Marion (1999:175) suggests that “On the Edge [of chaos], systems are sufficiently coordinated to permit mutually beneficial interaction, yet sufficiently loose to avoid immobilisation from conflicting constraints. There is stability yet enough vibrancy and inter-relationship to allow change”. This would lead to strength in effictility for an organisation where, for instance, team resilience would enable members to cope with interventions and critical incidents. Thus, whether complexity is “The emerging science at the edge of order and chaos” (Waldrop 1992: front cover) or “a hybrid state that lies between stability and Chaos” (Marion 1999:23), its relation to both order/stability and chaos is widely agreed. This suggests then that complexity and effictility should indeed go hand in hand as both hybrids and being perfectly suited for mutual descriptive purposes.
Spoelstra (2007:86) suggests that: “Action does not take place inside or outside boundaries: action is always boundary-based; it takes place in the midst of things, continuously redefining the actual out of a cloud of potentialities”. However, in terms of notional movement within space, Hudson and Lowe (2004:161) talk of levels stating that “Institutions play a crucial role at the meso-level of the policy process. They provide a context for micro-level human interactions and filter broad macro-level trends.” On the other hand, Byrne suggests that “What matters is not the individual trajectory of social atoms, but rather the changing characteristics of the complex social order within which those trajectories occur” (1998:71). This idea that the componential environment is not just the physical, but also the social is echoed throughout the literature, as is the view that elemental interactions are non-linear. In fact, non-linearity is one of the key qualifying characteristics of complex systems – as Byrne (ibid.:15) states, complexity has “non-linearity as mathematical description, ... [and] realism as an ontological principle”. McMillan suggests that until Prigogine’s announcement that systems are “essentially non-linear, dynamic and able to transform themselves into new states”, “systems ran down and were subject to an ongoing deterioration” (2006:27). There is no doubt that both systemic processes were in existence before their widespread naming, but there is a tendency in some sections of the literature to return to the old geographic phenomenon of insinuating that something does not exist until it is discovered, and implying that the act of naming is akin to the act of invention.

**Range & Dynamism**

The sixth and seventh of Cilliers’ ten features of complexity (1998) to be addressed
here are short range and dynamism. Componential interactions being *typically short-range* means that change can occur quickly and trends may be mapped against false regression patterns if the intervals between snapshots are too long. This can be solved by longitudinal participant-centred research and instead of the aforementioned mapping – which in itself is flawed due to its reliance on the researchers regression recognition – waiting for patterns and threads to reveal themselves through the participant’s accounts? However, Pitariu and Ployhart define the dynamic relationship “as a longitudinal relationship between two variables … [that can be] measured repeatedly in dynamic relationships” (2010:406). This short range versus longitudinality is problematic here, but the dynamic quality of organisational interactions is also where creativity comes into being, which is something that may have a longer-lasting or residual effect that can be marked as evidence. Mullarkey (1999) suggests that the use of creative imagination is a prerequisite for those who need to adapt dynamically and immediately to what is going on around them. The ability to recognise, track and measure this is crucial for the measurement of efficicility. Others pinpoint the *edge of chaos* as the location for organisational creativity to occur. For instance, Cunha and da Cunha (2006:847) state that “strategy is the art of maintaining the organization at the edge of chaos ... where freedom and direction combine to produce creative outputs”. In addition, Goodwin (2001) says that complex adaptive systems have come to naturally move towards the edge of chaos due to their future depending on the peak in dynamicity that occurs there and Senge’s (1994) sentiments about learning organizations echo this in their reference to creativity and adaptive learning, and their embryonic mutual purpose. Lewin (1947), on the other hand, suggests that change resistance is a productive dynamic and Lawrence gives the
general assertion that “Membership in professional fields is ... inherently dynamic” (2004:121). However, Lawrence also warns that there is a tendency for researchers to “focus ... more often on the institutional dynamics associated with specific practices or organizational structures” than their institutional characteristics (ibid.:140). The recommendation here is that when viewing organisation and organisations through a complex lens, one should not be considered in isolation from the other.

This freeing of considerations and opening of notional boundaries is unnerving for analysts who want clearly defined and generalizable answers. Such interactional dynamism between contrasting factors is representative of the nature of complex thinking and is one of the reasons that non-scientists may shy away from the theory when it actually offers the best description of the organisational functions they are investigating. For example, allowing emergence to be taken into account when analysing human resource practices can produce an unwieldy amount of data, uncontrollable threads and surprising outcomes, but it is firmly believed that the final results of such inclusion is more likely to result in realistic and practicable system improvements. As Houchin and MacLean state, the evolutionary nature of complex adaptive systems manifests itself in “The activities, events, routines, behaviours and human interactions existing in an organization at a specific point in time [and it is these that] form the initial conditions for the emergence of future order” (2005:151).

Further in relation to perceived problems with complexity theory’s application, Buchanan and Huczynski (2004:550) summarise chaos theorists’ assertion that “The best management structures ... do not adapt to their environment but emerge from it. The survival of the fittest has been replaced by the arrival of the fittest”. This
continuously dynamic process of emergence means that the system’s whole may change shape repeatedly making it hard to pin down so that any search for relationship dynamics may be hampered. A characteristic that adds to an organisation’s dynamic holism is typically signified when the “system’s capacity for action exceeds the individual or summed capabilities of its parts” (Marion 1999:64), so where the study of relationships may fail at the individual level, it may be observed at the organisational level. However, as Allen states, “Evolution in human systems is ... a continual, imperfect learning process, spurred by the difference between expectation and experience, but rarely providing enough information for a complete understanding” (1998:160).

*Influence & Ignorance*

The eighth and ninth of Cilliers’ ten features of complexity (1998) to be addressed here are the quality that any element can be influenced by any other and the assertion that individual elements are typically ignorant of the behaviour of the whole system in which they are embedded. These compound the above issues relating to organisational dynamism by adding more possibilities for awareness of bifurcation (van Eijnatten 2003) and apparently reducing the opportunities to gain answers. Although differently worded, the former characteristic was also a core tenet of General Systems Theory – as von Bertalanffy (1950) said, everything is connected and each element relies on its relationships with the others for its own worth. However, when taking the latter into account, it is difficult to comprehend a complex system by focusing analysis only on its components and their interactions. As Coveney and Highfield ascertain, “emergent properties ... can be described only at higher levels than those of the
individual units” (1995:7); in other words, “The whole has a grasp of a ‘larger picture’ that is unavailable to the parts” (Marion 1999:29). This means that a holistic approach may need to be taken or a simple *stepping out and away* in order to gain a broader overview and clearer visibility of any emerging patterns. The participant-centred methods used in this thesis empower the researcher to do just that and one of the many benefits of using complexity theory to underpin and guide this research is its ability to provide space for multiple perspective scales. For instance, Cilliers *elements*, von Bertalanffy’s *things*, Coveney and Highfield’s *units* and Marion’s *parts* do not necessarily refer to the same items.

**Loops**

The last of Cilliers’ ten features of complexity (1998) to be addressed here is feedback loops. Regardless of the identity of the items under study or the scale of the focus upon them, feedback loops are vital to any consideration of organisational improvement. As Senge states, for learning organisations to thrive, their abilities must be in a constant state of development (1994), and as mentioned near the beginning of this chapter, “Feedback concepts and the maintenance of a steady state are based on internal adaptations to environmental forces” (Kast & Rosenzweig 1972:453). For instance, jazz would never have been the same without a musician accidentally tripping onto the *blue note* during an improvisation session, receiving positive feedback and deciding that it was worth playing again and, with regard to space, until the inhabitants of a space have experimented with it, there is no telling what might develop through its being lived. For example, during the pilot study, it was discovered that due to new Health & Safety legislation, a wall between a walkway and hall had
been lowered, and this had now become an oft-used partition between a community-
imagined upper and lower stage during assemblies and plays (Abusidualghoul 2007a; see images of the wall in Appendix A). This is an example of Langton’s notion of “a bottom-up, top-down feedback going on among the levels” (in Goldstein 2000:194), but with the resultant physical effect being absorbed by the environment and practice of the lower level stakeholders and their immediate community – a great example of effictility.

It should be remembered, however, that not all feedback is positive and a longitudinal study may well ebb and flow with amity and enmity in its componential relations. With regard to the complexity take on this, Marion (1999:51) states that it “does not deny conflict and competition, but does argue that fitness is better described and served by cooperation” and goes on to say that “The boundary between conflict and cooperation is actually somewhat blurred ... [because] Competition is part and parcel of cooperation” (ibid.:52, 55). Thus, this boundary or aforementioned edge of chaos which is inhabited by both positive and negative generative activity would appear to be an ideal location for complex organisational analysis of, for instance, innovation or crisis management. However, this time/place of extreme flux may not be representative of relational threads, behavioural trends or longitudinal coping strategies. Its identification, though, is crucial to either type of study so the researcher can become aware of the organisation’s current position on its developmental pathway.

In terms of physical location, the general consensus in the complexity literature is that environmental feedback should be considered integral to any system analysis (e.g. Kast
& Rosenzweig 1972; Allen 2006; Bennett & Bennett 1970), but there are differing opinions about the relationship between the elements that make up efficiency: the space containing what could be called a social sphere, its built surroundings and the surrounded physical constructs within it. For example, Pugh (1997:433) states that both social context and the built environment can “impel particular changes to occur and also set constraints on what is possible”, and Kornberger and Clegg (2003:77) suggest that “buildings should be seen as social objects: they enhance and restrict communication, movement, intermingling, contamination, power, dis/order, innovation, and creativity”. According to Hillier and Hanson (1984:ix), the built environment “has a direct relation ... to social life, since it provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realization – as well as sometimes the generator – of social relations”. The answer to a question this statement generates – ‘What sort of space makes movement, encounter and avoidance possible in an institution?’ – could be found in, for example, architectural limitations on societal evolution. There is a tendency, however, to assume that there are only space, buildings and people, but as Värlander and Yakhlef (2006:724) point out: “the role of furniture and objects and the way they are arranged in space ... intervene in the quality and outcomes of the interactions they give rise to”.

**Drawing Together the 10 Features**

To sum up, this chapter has used Cilliers’ list of characteristics for complexity – as summarised by Maguire et al. (2006; also on page 10 of this thesis) – as a guide in exploring the relevant literature stretching back as far as 1950 and drawing on interdisciplinary theories and their applications. In particular, it has highlighted
General Systems Theory (e.g. Kast & Rosenzweig 1972; Van den Berghe 1963) and Actor Network Theory’s (e.g. Lee & Brown 1994; van Loon 2006; Fenwick 2011) inadequate terminology in an effort to demonstrate how complexity theory’s looseness in linguistic classifications for patterns and other emergent phenomena provides a better fit for this study.

With specific regard to Cilliers’ (1998) list of characteristics for complexity, this chapter began with the question of where open systems ‘end’ (Mesarović 1964) and showed that this relates to boundaries (e.g. Goldstein 2000; Spoelstra 2007) and flow (Byrne 1998; Massey 2005), which will be explored further later in Part I and in particular relation to research in Part II. This was followed by a discussion on the differentiation between human and non-human systems in the literature (e.g. Daft & Weick 1984; Caldwell 2005; Wadsworth 2008) with the contrary position given here of there being no difference in terms of complex characteristics. In relation to the large number of elements that unhide themselves during the analysis of organisational complexity, the inference from the literature is that each should be seen as a part and whole in itself with its scale and interactive qualities revealed by closer or farther investigation (Coveney & Highfield 1995; Marion 1999). This has been seen to provide richness which is increased by the environment (Bennett & Bennett 1970; Gell-Mann in McMillan 2006) and in turn affects the environment (Massey 2005). Another contributor to this richness is the complex characteristic that any element can be influenced by any other, which indicates the cause of the endless positive and negative feedback loops within componential interaction at the individual, group, organisational and inter-organisational levels. This dynamic emergence of action-reaction
momentum provides instances of natural and mechanistic decisional bifurcation (e.g. Daft & Weick 1984; van Eijnatten 2003; Martínez-León & Martínez-García 2011) and situated but non-directional or predictable adaptivity or learning (Allen 1998; Senge 1994), thus, propelling the *non-linearity* of the complex evolutionary process of organisational existence. This means that due to the suggestion that *individual elements are typically ignorant of the behaviour of the whole system in which they are embedded*, the minutiae of organisational behaviour can only offer so much which means that holism and overview are called for (Coveney & Highfield 1995; Marion 1999).

Furthermore, one of the characteristics that pushes organisation and organisations to *operate under conditions far from equilibrium* or in dynamic equilibrium or disequilibrium (e.g. MacIntosh & MacLean 1999; Wadsworth 2008) is the *dynamic* nature of complexity (Pitariu & Ployhart 2010). The literature explored above suggests that this *dynamism* may take its impetus from attraction to the *edge of chaos* (Goodwin 2001), organisational creativity (Senge 1994) or resistance to change (Lewin 1947). In addition, the *historical* quality of organisational complexity – which consists of a continuous and infinite process of emergence (Heylighen 1989; Goldstein 1999) that cannot be pinned down to a specific moment of arrival – adds temporal ambiguity and this, combined with the tangible and intangible trajectorial characteristics (e.g. Johansson *et al.* 1980; Massey 2005; Akkerman & Bakker 2011) of *non-linearity* and *short range*, means that there is a lack of clarity on exactly where and when to gain evidence for research purposes. However, what is certain is that regardless of whether the organisation in question is engineered or naturally evolving (e.g. Whittle
& Spicer 2008; Steen 2010), any chosen research elements and their environment must be investigated in juxtaposition (Massey 2005; Bennett & Bennett 1970; Gell-Mann in McMillan 2006); and any exploration of boundaries must take organisational levels (Anderson 1991; Goldstein 2000; Hudson & Lowe 2004; Spoelstra 2007) and developmental flow into consideration (Byrne 1998; Massey 2005). This all adds to the case for measuring organisational efficiency.
CHAPTER 2

Organisational Measurement

One way to control is to understand; one way to understand is to measure.

This chapter investigates both how organisational activities are measured and how organisations themselves are measured, and it is suggested that particularly in this era of accountability and high-stakes competition, the successful measurement of an organisation and its activities can greatly aid its legitimisation and assist in retaining its market perception as a viable institution. Aptly, Miliband (in MacBeath 2006:15) states that “Without accountability there is no legitimacy; without legitimacy there is no support; without support there are no resources; and without resources there are no services” and MacBeath succinctly puts that “Accountability drives everything” (2006:15). Howarth and Redgrave (2008:3) also warn that “Today’s global economy depends on reliable measurements and tests, which are trusted and accepted internationally. They should not create technical barriers to trade and a precondition for this is a widely utilised and robust metrological infrastructure”. However, getting the measurement method right can be problematic and as Santos et al. report: “poorly designed performance measurement systems can seriously inhibit their implementation and, consequently, their ultimate impact” (2002:1248). This is where performance measurement systems are tools which help steer the organisation in the direction of its goals (Ziebel & DeCoster 1991) and performance management is:
the use of performance measurement information to effect positive change in organisational culture, systems and processes, by helping to set agreed-upon performance goals, allocating and prioritising resources, informing managers to either confirm or change current policy or programme directions to meet these goals, and sharing results of performance in pursuing those goals.

(Procurement Executives Association in Amaratunga & Baldry 2002:218)

Howarth and Redgrave (2008:8-9) point out that “in most modern industries the costs bound up in taking measurements constitute 10-15% of production costs. Good measurements can however significantly increase the value, effectiveness and quality of a product.” Furthermore, Buckmaster (1999:187) suggests that we are able to use measurement as an effective learning tool because “the need to ... [measure outcomes] is primarily to learn and manage programs promptly and properly”. For this purpose, what better than to measure efficiency – such measurement could represent and feedback into operations swiftly and directly so as to maximise organisational learning.

However, one relevant concern from some authors is that “the use of measurement is never neutral or objective. Instead, measurement emerges in moments of uncertainty and change as social actors” (Abbott; Dejean, Gond & Leca – in Barman 2007:112). Nevertheless, as Wright (1997:43) points out, “We measure to inform and specify our plans for what to do next” and Boland and Fowler report “the usage of performance indicators ... as a basis for future resource allocation” (2000:421), so it seems that – although there is some doubt as to whether complexity theory can aid prediction (e.g. Bossomaier & Green 1998; Kauffman 1995) – it does allow for the analysis of patterns that can be measured to inform expectations for the future, guide institutional
development, assess success and failure, and place accountability. Although Buckmaster (1999:187) suggests that “much of the pressure to measure outcomes is coming from accountability requirements”, Smith (1995) asserts that performance markers must not be used as a vehicle for informing employees about their individual responsibilities or failings; they are for the generation of discussion on the organisation’s big picture questions.

Shared agreement on the notion of measurement is hard to pinpoint in the literature. Bulmer simply defines it as “any process by which a value is assigned to the level or state of some quality of an object of study” (2001:455) and Wright explains that “it is the mathematics of measurement that provides the ultimate foundation for practice and the final logic by which useful measurement evolves and thrives” (1997:34). However, as Marion states, “Systems do not act in a vacuum, they do not control their own destinies. They are products of their environments” (1999:64) and, as both Enacted Environment and Complexity theorists assert, “order or meaning does emerge out of local decisions, whether irrational or not” (ibid.:173). Thus, regardless of what policy is imposed by external forces, an organisation will make its own practicable meaning of it with respect to its spatially- and temporally-immediate emerging conditions. Consequently, this could lead to the extremes of a policy being enacted as intended or skewed out of all recognition. Therefore, before any quantification can take place, organisational measurement demands basic recognition of and adherence to the conventions of space and time so that the chosen value against which the object or system under study is to be measured can be contextualised and thus legitimised in itself. This is because all quantification, and the categorisation and boundary-drawing
discussed in Chapter 1, operate with fundamental regard to space and time in the
definition of their limits and lines. As Ilgen states, “Any understanding of reality ... has
to consider the implications of space and time” (2004:137).

To be effective, “A performance measurement system should [also] be a dynamic
system” (Bititci & Carrie in Bititci et al. 2000:694). Bititci et al. go on to specify that:

_The use of dynamic performance measurement systems allows changes in
priorities to propagate throughout the business ... Provided that the
suppliers are operating a similar dynamic performance measurement
system, they could receive the changed priorities and take proactive action
... dynamic performance measurement systems would allow more
responsive management of the performance._

(Bititci et al. 2000:703)

Lewin (1947:13-14) affirms this in saying that “Only by relating the actual degree of
constancy to the strength of forces toward or away from the present state of affairs
can one speak of degrees of resistance or stability of group life in a given respect” and
the differences and similarities of the objects, activities and actors present at different
times then we will find an ‘evolutionary tree’, showing that behaviours, forms,
artefacts and types of actor have emerged and evolved over time”. Thus, Bititci and
Carrie, Lewin and Allen demonstrate a crossover between the operations, complexity
and human relations literature, respectively. In addition, in the general management
literature, Pitariu and Ployhart (2010:406) say that “Dynamic mediated relationships
represent instances where the mediator and dependent variables, and frequently the
independent variable, are measured repeatedly and have a specific hypothesized
causal sequence” and, in geography, Chisholm (1967:46) advises that “the unit of study should be not a single thing but a system of interrelated objects or ideas. In this way, the emphasis is placed on the connections and processes that link all kinds of phenomena”. Nonetheless, regardless of the academic field and whether the measurement of organisational activities or an organisation in its entirety involves the aforementioned analysis of degrees of constancy, resistance or stability in relation to the past, present and future (Lewin 1947), instances of emergence in the comparison between objects, activities and actors (Allen 1998), instances of hypothesis in a causal sequence of relations (Pitariu & Ployhart 2010) or investigation of connections and processes within a system of interrelated objects or ideas (Chisholm 1967), the common denominators are the choices of the components for study, time period and location.

**Time, Space and the Measurand**

Time and space, however, are not reliable constants that are defined and perceived in the same way by different people. Although, as mentioned in Chapter 1, Byrne (1998:24) suggests that time should be “considered ... our fundamental axis”, Lefebvre points out that “Space lays down the law because it implies a certain order – and hence also a certain disorder” (1991:143). In fact, time and space are widely defined in the broad sweep of management, philosophy, geography and architecture literature with complex characteristics, such as dynamism, non-linearity, a lack of equilibrium and a superfluity of historicism. For instance, Ching (1979:246) states that “Since we move in TIME through a SEQUENCE of SPACES, we experience a space in relation to where we’ve been, and where we anticipate going” (capitalisation as in original),
whereas Massey (2005:9) defines “space as always under construction ... never finished; never closed ... a simultaneity of stories-so-far”. Similarly, Lefebvre describes \textit{lived space} as being “essentially qualitative, fluid and dynamic” (1991:42) and a \textit{present space} as “the outcome of a process with many aspects and many contributing currents, signifying and non-signifying, perceived and directly experienced, practical and theoretical” \textit{(ibid.):110}. Indeed, processual change is defined as change which is intrinsic to the process and not planned in any way; this supports the notion of agency as choice (Giddens 1984), so it is problematic to follow Ilgen’s suggestion that “In the process of our being, doing and becoming, our perception takes place at a certain location in our physical reality” (2004:138). However, Doel (in Anderson 2008:232) recognises a way of integralising process into the innate temporal quality of space: “it would be better to approach space as a verb rather than as a noun. \textit{To space} – that’s all. Spacing is an action, an event, a way of being” (emphasis as in original). This echoes the notion that the N in ANT should actually stand for Networking rather than Network due to the fact that “rather than focusing on network-structures, ANT shifts attention to networking as a continuous practice of enrolment, translation and redefinition” (van Loon 2006:310).

Although each of the explanations and implications of space and time is different, all are valid and have repercussions on organisational measurement, but clarity on the definition of measurement itself still alludes. Thus, for assistance, we now step across to the metrology literature where it states that measurement “is an operation aimed at associating an information entity, the result of measurement, with the state of the system under measurement in reference to a given quantity, the measurand”
A measurand could be a centimetre, minute or free school meal; it is an engineered item that has been assigned an idealised value. Therefore, to measure, first the object of study must be divided into elements or qualities and then these are matched to pre-existing categories and measurands; thus, this reduces the object or system under study to the countable. Sydenham (in Ferris 2004:102) states that “The result of measurement is ... a numerical value expressing the ratio between the magnitude under examination and a standard magnitude regarded as a unit”. With reference to this quotation, Ferris says: “This definition relies on a comparison conception of measurement that asserts that two objects are equal ... with respect to the observed characteristic when examination fails to reveal difference” (2004:102). He goes on to sum up that “Measurement, then, is a negative process of failing to reveal difference rather than a positive process of demonstrating equality or equivalence” (ibid.).

Similarly, where Massey appears to enlarge space to include all things, others define and explore it via division, which echoes the metrological suggestion for understanding the world given above. For example, Lefebvre defines three types of space – physical, mental and social – ironically saying that they should be seen not as separate but as part of a unity (1991). He then proceeds to divide space again, but this time into that which is conceived, lived and perceived (ibid.). Again, but on a different tack, Lefebvre divides abstract space saying that it too has three elements: “The geometric formant ... The optical (or visual) formant [and] ... The phallic formant” (1991:285-286). However, in the field of education, Cave and Wilkinson warn that “the overall ability to perform effectively is more than the sum of a set of subordinate abilities” (1991:35), so such
persistent division of space may not be the best way to form a backdrop or environmental feedback device for the context of a measurement system.

Elsewhere in the literature, others divide space more practically according to location and usage. For example, de Certeau defines ‘place’ as a fixed site and ‘space’ as a domain where practices happen (1991) and in their exploration of the problematic of considering “‘Workspace’ as a distinctive bounded place”, Dale and Burrell state that:

"[Q]organisation is as much part of the home as the bricks and mortar that are themselves produced through organisation, transported and placed together in one location through organisation, set in particular designs and used to form specific sub-spaces through organisation."

(Dale & Burrell 2007:2)

Dale and Burrell (2007:100) go on to talk of further divisions saying that workspaces have “shifting identities which are shaped by the dynamic nature of social and cultural relations across space”. Thus, although they divide space into identifiable categories, they do not deny its dynamic fluidity or that of the componential interactions within it. On a larger scale, Giedion (1962:41) states that “A city is the expression of the diversity of social relationships which have become fused into a single organism” and this could be considered an instance of the concrete *imagined community* (Anderson 1991) where people take part actively or passively in a community housed within a set of structures grouped together at a particular geographical location. This, in turn, is an example of the fractal nature of the perspective scales that complexity theory allows the observer that were mentioned in Chapter 1.
What and how to measure

One way to measure space and its usage is through mapping. Using plans, images or other cartographics is becoming more popular in organisational research as will be discussed in much greater detail in Chapter 4. Although they can limit the research to two dimensions, it is possible to view physical movement, adaptation and development over time by using, for example, time-delay cameras to map movement in a shopping mall or an observer’s arrows on a classroom plan to map a teacher’s movements among their pupils. In turn, this visual representation can be built up and compared over a much longer time period, but the most basic difficulty with mapping for measurement purposes is the same as with any other type of measurement – as Sydenham says, “The weakest step in the measurement process is the decision of what to measure” (in Ferris 2004:105). Wright explores this issue in greater detail:

*The problem of what to count, entity ambiguity, is ubiquitous in science, commerce, and cooking. What is an apple? How many little apples make a big one? How many apples make a pie? Why don’t three apples always cost the same amount? With apples, we solve entity ambiguity by renouncing the concrete apple count and turning, instead, to abstract apple volume or abstract apple weight.* (Wright in Wright 1997:34-35)

Analogously with organisation, Wright’s apple is the object under study which in multiple quantity can only be measured if standardised into an ideal that matches the chosen measurand. This denies the object’s uniqueness and dynamism, and so does not fit the underpinning guidance of complexity endorsed in this study. There are also issues relating to what can be measured and what cannot; for instance, qualitative data, such as extrinsic and intrinsic motivations, cannot be mapped unless there is an
accompanying verbal dialogue between the participant and researcher, and quantitative data that relates to one item at one point in time cannot be mapped without comparative data from other points. In addition, mapped analysis of some spatial aspects like Massey’s *hybridity* (1995) and Dale and Burrell’s *imaginary spaces* (2007) would require a great number of participants over a lengthy period in order to produce even a hint of rounded data. Thus, it can be concluded that mapping requires a substantial amount of data if it is to divulge worthwhile findings and this would include broad and deep contextual information as well.

From Byrne’s (1998) aforementioned suggestion that time be thought of as a *fundamental axis*, it can be inferred that regular snapshot examinations of organisations would allow for a view of evolving processes and conglomerating action over a lengthy period. This confirms the point that the “design of measurement systems, their implementation, analysis and use ... should be iterative and not a linear sequence of steps, as indicated by the arrows in the centre of the diagram [Fig. 1 below]” (Santos et al. 2002:1251).

![Diagram](image-url)

*Fig. 1:* “The performance management process” (Santos et al. 2002:1251)
The figure above is a reinterpretation of Kolb’s *Experiential Learning Cycle* (1984) which Santos *et al.* have borrowed from the education literature and adapted for the purposes of performance management, stating that “if performance measurement is to lead to enduring and continuous performance improvement, then different stages of the performance measurement and management process … must be successfully completed and form a continuous loop” (2002:1251). However, although it is agreed that the diagram shows an *iterative* process involving *different stages of the performance measurement and management process*, making the process into a circle does not make it non-linear. As McMillan (2006:31) points out, one “property of complex, adaptive systems … is that they are constantly reconsidering and reorganizing themselves as they gain experience”. This implies that to better represent non-linearity, all the arrows in Figure 1 should be double-ended so that feedback loops and directional change could emerge at any point. Emergence takes into account the fact that complex systems are in constant flux through time, so another example diagram could be a horizontal two-dimensional Venn diagram created to show organisational membership groups within a company. Then, vertical layers could be added in a third dimension to show additions and withdrawals from those groups over time. A comparison of effective member activity against less effective could also be mapped in this way to make for an internal measurement strategy for emerging best practice and its bottom-up dissemination.

**On the boundary**

Cohen *et al.* explore the effect on measurement of the aforementioned variability in time and space fundamentals using *fuzzy logic*: 
Fuzzy logic recognizes that properties (e.g. fast, slow, tall, low, high, moderate, adequate, mature, developed, competent) have continuously varying values, and that we partition these values comparatively and arbitrarily into semantic categories or sections (e.g. on a rating scale). Within each category there is variation. Fuzzy logic enables us to gain a more precise measurement of the variance within and between these semantic categories; it recognizes that imprecision, rather than bivalence (either something is or is not the case) is a characteristic of many phenomena.

(Cohen et al. 2000:389)

However, Goldstein (2000:196) warns that “Working on the boundary dimension influences the turns that processes of emergence take. Experimenting with changing boundaries, therefore, is a crucial step in learning how to guide emergence in constructive directions.” The idea of guiding emergence seems to go against the fundamentals of emergence itself, but then it depends whether the guider is perceived as being part of the system or outside it. This returns to the question from Chapter 1 of where open systems end.

The Introduction to this study suggested that boundaries and the objects that cross them may be an ideal organisational area for focus due to their being able to provide insights into whether an institution is absorbing and producing change efficiently, and dealing effectively with the limitations that the boundaries – perceived or tangible – may cause. Boundary objects are, indeed, integral to the operation of interacting communities and Lesser et al. (2000:ix) give workers’ boundary objects as “the rules, norms, procedures, tools, and other artifacts [sic] that communities use to accomplish their tasks ... mechanisms for documenting and sharing what they know and how the work they perform should be accomplished”. This includes contracts, remits, terms of
reference, jargon, protocols and channels of communication. In addition, Bowker and Star point out the necessity for such boundary objects to “arise over time from durable cooperation among communities of practice” and go on to state that “The activities with their stuff, their routines, and exceptions are what constitute the community structure” (1999:197, 294). On the other hand, Howarth and Redgrave (2008:8-9) stress the need to build uncertainty into systematic measurement as “one of the foundations of industrial quality control”.

**Positive conflict?**

Another negative construct, conflict, is a recurring theme in the literature and there appears to be growing recognition of its potential usage as a positive development generation tool; for instance, philosopher Barthes (2005:126) gives conflict’s late nineteenth century and onwards definition as “a motor, a functioning” that can be used “to vanquish, to dominate, to possess, to transform” (ibid.:128). At any organisational level, though, it can be volatile and unmanageable, and these qualities make it difficult to measure both it and its outcomes. Coveney and Highfield (1995:337) suggest that, in the case where “the structure and nature of an organization can produce a conflict between the interests of the institution and those of the individuals within it. This conflict can be understood on the basis of the strategies employed by the parties concerned.” For instance, if the leadership of an institution decide that they need to standardise practices in order to build on and spread existing best practice, this attempted homogenisation may struggle against the creative diversity of the workers (Lefebvre & Régulier 2004). The strategies used to promote these practices could be direct policy imposition, a cascading roll-out or a
peer-guiding process. The strategy used would give a clear indication of the leaders’ perceptions of their staff and the take-up of the promoted practices could be used as the measurement of two aspects of success: the success of the leadership in having an accurate perception of their staff and the success of the strategy in promoting the practices.

With regard to non-profit organisations, “The use of performance measurement has been shown to result in the standardization of services, inhibit innovation, produce mission drift, and lead to conflicts over accountability to different constituencies” (Kanter & Summers; Ospina, Diaz & O’Sullivan; Paton – in Barman 2007:103). In addition, “The goals of non-profit organisations are often ambiguous because of conflicts over perceived stakeholder interests and a lack of knowledge about relationships between measures and goals” (Warna; Hofstede – in Buckmaster 1999:187). Santos et al. (2002: 1252) also highlight this issue in the decision-making process saying that “the decision maker is confronted with a large and complex amount of information, usually of a conflicting nature and reflecting multiple interests” and they recommend use of multiple criteria decision analysis for assistance.

Wide Lens or Close-up

There is also the possibility that “to mathematize society’s principle components – people ... to encode them, or to represent them, by sequences of zeros and ones [in] computable form” (Davis & Hersh 1986:93-95) – in other words, to break down seemingly exclusive communities into accessible, measureable, individual and unthreatening units – may result in a dehumanising of societal systems and groups that removes the opportunity to acknowledge the tacit knowledge that might be the
key to the success of the element under review. Conversely, educationalist Wragg wrote that “The art of humanising our complex bureaucratic society is to keep it as intimate and personal as is feasible” (2002a:73). In fact, there is concern that “we are taking a series of increasingly irreversible steps toward a given set of highly limited and problematic descriptions of what the world is and how we are in the world” (Bowker & Star 1999:326). This denies the innate flexibility and evolutionary qualities of both human and non-human systems, and is counter to the aims of the complex view.

Nevertheless, in order to produce measurable outcomes, individual members of societal groupings must work together towards some common known aim and produce something that can be quantified and categorised so that a comparable measurand can be identified that the item in question can be measured against and thus better understood. To do this, one would assume that there needs to be an acknowledged pre-set boundary, but according to Goldstein:

[C]oherence need not denote such rigid conformity. For example, coherence in the sense of boundaries or containment does seem a good idea, at least some of the time, at least when containment doesn’t simply reinforce nonadaptive organizational ‘silos’. What is needed is a paradoxically sounding nonconsensus coherence.

(Goldstein 2000:195)

This concept of nonconsensus coherence is reminiscent of the fourth stage of the psychotherapy model below:

1. Unconscious incompetence …
2. Conscious incompetence …
3. Conscious competence …
4. Unconscious competence …

(Clark 1999:xx)
This suggests that to reach nonconsensus coherence, a project team or nation should work through nonconsensus incoherence, consensus incoherence and consensus coherence first. This points directly to the fact that someone has to realise that incoherence exists in the first place and such awareness involves a process of measurement and benchmark comparison. Once that takes place, stage two may begin but in the real world individuals move from stage to stage at different rates and may even regress at times to a previous stage. This makes the boundary of coherence a constant reformulation of energy.

Change
What happens on a boundary can be crucial to the ebbs and flows of organisational change, which here is taken to mean any dramatic change, such as merger, any medium level change, such as policy intervention, or any small developmental change, such as the addition of a task to an employee’s remit. Wenger (2000:12) states that “radically new insights often arise at the boundary between communities”, but in the case of a boundary generated by inner nonconsensus coherence, it is suggested that it is the conflictive negotiation of that boundary position that can lead to radically new insights for the participants. As mentioned in Chapter 1, “Complexity Theory does not deny conflict and competition, but does argue that fitness is better described and served by cooperation” (Marion 1999:51). This cooperation grows in the gap between interacting members and “it is the connections themselves, rather than features peculiar to a specific system, that control the structure or behaviour of a system” (Bossomaier & Green 1998:107). Thus, it can be “the boundary conditions that describe the relation of the system to its environment” (Prigogine & Stengers
1984:106) – the reception of the advice that can indicate the receiver’s perception of the advisor.

Such boundary exchanges must be unique because of the multitude of combinations of memberships and peer-assumptions in existence in the interactors. This is to such an extent that if the two people or groups were to attempt the same exchange again, it could not be fully re-enacted – in the same way that Lorenz found that he could not form identical weather patterns in his 1961 experiments (in Gleick 1987). In fact, Pierson warns against making generalisations from studies based in a small number of sites; he asserts that context plays a major role in the output and influence of particular organisations (1995). It is this context that makes up what surrounds the exchangers and this context that could be considered the energy generated by the many boundaries in existence around the relevant members. It is also this context which is a key component of effictility which cannot be measured without its consideration. Indeed, the measurement of effictility safeguards context. However, Wenger (2000:12) states that “Most organizations are not designed to encourage boundary interactions” and Goldstein (2000:196) warns that: “there is a need for work on ‘boundaries’ that will contain anxiety and anarchic impulses”.

**Continuity & Balance**

Hudson and Lowe (2004:149) state that “institutionalists often emphasise the high degree of continuity of public policy and the generally incremental nature of policy change”. With regard to supply chain management, Gunasekaran et al. also observe that “Many firms look to continuous improvement as a tool to enhance their core competitiveness” (2004:335). There are, indeed, conditions under which continuity
and the incremental can be exploited. For instance, a new government with limited funds and a five-year term in office ahead of them could present a ten-year plan with all the expensive tasks in the latter half. More specifically, in the UK, a Labour government has followed a Conservative one and instead of turning around policies that have had an adverse effect on education and health care, they have built on the poor practices already in motion and exacerbated their negative effects. Thus, the simplistic notion of continuity can be used divisively in organisations and is seen here as an unrealistic reduced regression, as discussed in Chapter 1.

Folan and Browne report how in the mid-1990s, the performance measurement literature “was often content with trying to represent the processes [of] … measurement, analysis and response. … [but] today [it] has moved towards examining the organisation as a whole, and impacting to a greater extent upon strategy” (2005:674). It has also been recognised that “The combined use of qualitative and quantitative modelling enriches the analysis and can provide very useful insights for the design of measurement systems” (Santos et al. 2002:1249). Nevertheless, although “Most companies realise the importance of financial and non-financial performance measures, … they have failed to represent them in a balanced framework” (Gunasekaran et al. 2004:335) and monetary aspects remain the most attractive for measurement. As Folan and Browne state, “The quantitative nature of cost makes it more appealing than other measures such as flexibility and customer responsiveness, which are qualitative in nature” (2005:672). Boland and Fowler (2000:419) attempt to justify this by saying that, in comparison to physical, human and
informational inputs, “Financial inputs are, perhaps, the most important as acquisition of other resource types usually depends upon the funds available”.

Barman (2007:103) summarises “recent literature in the history of science [which] provides an alternative perspective on the rise of performance measurement for charities”:

- *quantification is not a neutral technique employed for reasons of efficiency and rationality*  
  (Fineman; MacKenzie)
- *measurement does not reflect but constitutes social reality*  
  (Fineman; MacKenzie)
- *calculation is viewed as a product of contestations between actors over legitimacy and resources* (DesRosieres; Espeland & Stevens; Mennicken; Porter; Power)
- *it is ‘‘constructed, conventional, and arrived at through negotiation’’* (DesRosieres)

(in Barman 2007:103)

These criteria are in line with complex ideals, but they seem to focus more on the ends rather than the means to their achievement, or perhaps “the impact that outputs have in meeting ... [a] perceived need” (Boland & Fowler 2000:420). Buckmaster (1999:186) justifies this stating that “outcome measurement is argued to facilitate learning and the formulation of new strategies” whereas, in defining *policy feedback*, Hudson and Lowe identify the significance of process. They state that policy feedback “encapsulate[s] the view that policies, rather than merely being the outcome of the policy process, can and do become a central part of the policy process itself” (2004:152). This dual quality can lead to confusion, however – as Santos et al. indicate, “organisations [often] fail to analyse the performance data properly and end
up undertaking symptomatic interventions” (Santos et al. 2002:1250) rather than diagnosing and solving the root causes.

**Identifying the ‘what’ and ‘why’**

The literature identifies a number of other concerns regarding the *what* of measurement that also need to be taken into consideration. For instance, “far too many organisations still define their measurement systems without understanding the dynamic interdependencies and trade-offs between measures and ultimately the process underlying performance generation” (Santos et al. 2002: 1249). Furthermore, “in practice, indicators often come to be taken as being synonymous with concrete measures of organisational performance” (Boland & Fowler 2000:420). Moreover, in opposition to Sydenham (in Ferris 2004) and Wright’s (1997) aforementioned indication of choosing what to measure as being “the weakest step in the measurement process” (Sydenham in Ferris 2004:105), Buckmaster maintains that “The greatest impediment to measuring outcomes is one of resource availability and a lack of knowledge about its principal benefits” (1999:186).

To sum up, this chapter looked at the uses of organisational measurement, for example, to assess value, to control, to aid learning and to place accountability. It explored the importance of the temporal and spatial contexts when matching an appropriate measurand with the object under study, and highlighted the significance of the recognition of dynamicity when measuring complex systems. Chapter 2 also presented the issues of choosing what to measure, focusing in on a particular item or aspect for measurement and looking to boundaries and their objects for evidence of change absorption and production; and to conflict for evidence of emergence,
innovation and adaptation. The chapter then explored perspective scales, interaction-generated change, the problems with quantification and finally returned to the ‘what’ and ‘why’ issues that will be investigated in depth in the next chapter with particular focus on effictility.
CHAPTER 3

Educational Institution Measurement

The elements of educational institutions are unpredictable people, non-uniform practices and materials, and ripples of bounded physical and notional spaces. Their boundaries are defined by evolving physical, social, political and economic limitations, and in them emerge “patterns, intertwined paths … [and] structures of all kinds” (Bossomaier & Green 1998:7). These attributes, together with the constant progression of cohorts of learners, temporal and spatial restrictions, and the types of developmental activities that take place, mean that educational institutions are by nature non-linear (Byrne 1998; Cilliers 1998), historical (Byrne 1998; Lefebvre 1991; Cilliers 1998) and adaptive (Gell-Mann; Senge – in McMillan 2006), and operate in far-from-equilibrium conditions (Chisholm 1967; Kast & Rosenzweig 1972; Van den Berghe 1963; MacIntosh & MacLean 1999; Cilliers 1998; Wadsworth 2008). Their potential for effictility is great and the immediacy of feedback loops in the time-intensive teacher-pupil relationship also mean that short-range interactions (Cilliers 1998) are prevalent but occur simultaneously with long-range loops at increasingly larger scale levels of the system. The wider social community of their open system consists of parents, governors, administrators and janitorial staff and spreads out to also encompass the realms of local education authorities, councils, government departments and government-affiliated institutions. None of the individuals peopling this system can know of every element or interaction that is associated with it (Coveney & Highfield
1995) and yet any single element can affect any other (Cilliers 1998). Although the elements in themselves “may be trivial, their interaction often generates wild and unpredictable behaviour” (Bossomaier & Green 1998:9) and their sum effect is greater than that of any individual contribution (Cave & Wilkinson 1991; Marion 1999). However, as Hasenfeld (2010:11) says, “Like any raw material that needs to be sifted, sorted, and categorized, people served by human service organizations are also subject to a process of sorting, classification, and categorization, which defines how they are going to be transformed”. It is not only this measurement that is to be explored here but also its relationship to that of the organisations themselves with regard to the meaning of educational institution effectivity, developments in the educational institution measurement context, and analysis of the current measurement process, its problems and solutions.

**Educational Institution Effectivity**

The arguments around academic achievement and value-for-money public services are inextricably linked to the reality that UK schools can be dealing with anywhere between a quarter of a million and ten million pounds of public money per year, so it is not surprising that “effective use and good management become imperatives” (Moore 2006:90). Measuring whether this funding is transformed to produce the maximum return possible can be complicated, however, because that return involves pupil achievement which in itself is difficult to evaluate accurately. Getting such developmental data from individuals to add together to inform the development of the whole is not the only way. As Fraser (1989:718) confirms, “the key to improving student learning and enhancing school effectiveness lies in simultaneously optimizing several different school alterable factors each of which bears a modest relationship to
student achievement.” For instance, Odden and Picus, and Benson designate three avenues for economic analysis in schools: “organizational management of scarce resources, individual and societal returns to investment in resources used to create student learning ... and efforts to match the skills taught in education to the requirement for those skills in labor markets” (in Heck 2004:131). The study mentioned in the Introduction (Bynner et al. in Bynner 2004) highlights the main problem with the first and third of these avenues: that “the process is ... frequently complicated by the length of time it takes for such impacts to be identified” (Boland & Fowler 2000:420). In order to get an earlier view of whether a particular methodology or curriculum is working, the school system has been divided into measureable outcomes, such as exam results and free school meals, and “children became in effect walking vouchers for the schools which admitted them” (Byrne 1998:123). The unreliability of these outcomes as measurands is rife as pupils take standards assessment tests early to give a false improvement curve when the next set of tests are taken and not all those who are eligible for free school meals self-identify and apply. This in itself should be enough of a sign that investigating efficiency through participant-centred methods is a better way.

This marketization of schools has become a long-standing trend as Broadfoot and Pollard explain: “we have entered an era in which the use of a particular application of assessment policy has led to a fundamental redefinition of the goals of education itself in terms of economic commodity values” (2006:764). The assessment policy referred to is the use of standard assessment test results to rank schools in league tables. Indeed, Kant’s view that education should aim to help the individual reach their full potential (1960) seems to have dissolved into the background and the Department for
Education and Skills has brought the converse to the foreground: “Our future success ... depends on using ... knowledge and understanding to build economic strength and social harmony” (in Brown & Lauder 2006:25).

**Developments in the Educational Institution Measurement Context**

In order to contextualise the educational institution measurement system, it is vital to situate its critical incidents in notional, spatial and community terms along a historical thread. Hasenfeld (2010:15) suggests that “one of the characteristics of human service organizations is that they experience cyclical legitimacy crises”, but this does not appear to be the case when considering the last 90 years of educational policy reform. In fact, the table below illustrates quite a different pattern.

<table>
<thead>
<tr>
<th>Year</th>
<th>Major Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922</td>
<td>Secondary Education for All</td>
</tr>
<tr>
<td>1944</td>
<td>Education Act &amp; Local Education Authorities</td>
</tr>
<tr>
<td>1965</td>
<td>Introduction of comprehensive schools</td>
</tr>
<tr>
<td>1973</td>
<td>Compulsory school leaving age raised to 16</td>
</tr>
<tr>
<td>1988</td>
<td>National Curriculum</td>
</tr>
<tr>
<td>1993</td>
<td>Education Act</td>
</tr>
<tr>
<td>1998</td>
<td>Numeracy &amp; Literacy Strategy</td>
</tr>
<tr>
<td>1998</td>
<td>School Standards &amp; Framework Act</td>
</tr>
<tr>
<td>2000</td>
<td>Academies introduced</td>
</tr>
<tr>
<td>2002</td>
<td>Education Act &amp; Federations</td>
</tr>
<tr>
<td>2008</td>
<td>Education &amp; Skills Bill</td>
</tr>
<tr>
<td>2010</td>
<td>Academies Act</td>
</tr>
</tbody>
</table>

*Table 3*: Major top-down interventions between 1922 and 2010
This shows that the major top-down interventions of the first three-quarters of the 20th century mainly involved who received education, whereas since 1988 there has been a trend towards what and how pupils are taught. A preponderance with how much education is worth financially appears to enter the table with “The 1979-97 UK Tory government [who] eliminated most of the control which elected Local Education Authorities were able to operate over state schools ... and introduced parental ‘choice’ of school alongside a formula funding system” (Byrne 1998:123). This was exacerbated in 2004 with the introduction of payments to 16-18 year olds attending full-time education (Commons Select Committee for Education 2011) and in 2010 with the introduction of specialist academy status which was initially for secondary institutions but has recently grown to include primary ones as well (Parliament 2010).

When the publication of school performance tables was introduced in 1992, for ten years state schools had already been “statutorily required to publish examination results” (Youens 2001:321). The government’s justification for this was that “the rational consumer, who chooses between schools competing in the market place, must be aided by information on the relative quality of the products available” (Gillborn & Youdell 2000:21-22) and the notion of educational marketization was solidified by the 1993 Education Act (Apple 2001). Similarly, as Cave and Wilkinson (1991:35) suggest with regard to another British government project – the Management Charter Initiative – whose aim is to identify management competencies, “given the relatively short periods between elections [in the UK], ... results have to be visible, immediate and measurable. Consequently there has been an inevitable tendency to produce checklists”. In fact, Gillian Shepherd, the Education Secretary from 1994 to 1997,
made a statement that perfectly typifies one of the rhetorical themes during that period:

The remarkable success of five years of secondary school performance tables has confirmed what we always knew to be true – the publication of tables drives up standards.

(Shepherd in Gillborn & Youdell 2000:21)

Whether this statement was an attempt at a cunning ploy, demonstrated ridiculous naivety or twisted logic, it exemplified how the terminology of new reforms was bandied about in the public arena together with key words and phrases such as success, targets and drives up standards. Boland and Fowler draw attention to when this particular terminology was introduced:

Although the measurement of performance in the public sector is relatively new, a substantial body of literature on performance management has developed since the late 1970s, encompassing terms such as performance measures, performance indicators, performance appraisal and review, value for money and, more recently, quality assurance.

(Boland & Fowler 2000:417)

The term performance tables, which later became league tables, rapidly went from S-term (social construct) to N-term (named natural phenomenon) status (MacKenzie 2001) through saturation of the news media and bulletins to schools. Whether the performance vocabulary introduced at this time was constituted of brand new words or was a new way of collocating certain existing words, the jargon created has created a new lexical community (Spolsky 1998). However, regardless of the absorption of the specialist vocabulary, it is doubtful whether the league table itself has become an
accepted and trusted tool of practice for all its respective communities. In fact, the 1997 Secretary of State for Education called the extension of the league tables to include primary results as “the biggest public information campaign since the Second World War” (DfEE in Gillborn & Youdell 2000:22). This is ironic because the way the reality of the war was distorted, particularly through visual media, so as to manipulate the emotions and behaviour of the general population (Calder 1992; Hooley 2002) appears to be an unintentional but very apt simile. Indeed, in practice, as Gillborn and Youdell state, league tables present “crude and misleading data as the basis for the hierarchical ranking of individual schools and LEAs nationwide” (2000:22) which inevitably lead to issues relating to the market place, communities of practice, boundary objects, naturalisation and locus of control.

The league tables are perfect tools for disseminating this competitive pressure down the hierarchy. For instance, in 1997 the Labour Education Minister introduced the school improvement index as being “in easy-to-understand bar charts so parents can see how well a school is improving – or whether its results have been falling back” (Morris in Gillborn & Youdell 2000:26-27). This has increased parents’ responsibilities from result comparators to progress surveyors and also added more bulk to the educational professionals’ list of others. This, in turn, is likely to be the reason behind why “More time and energy is spent maintaining or enhancing a public image of a ‘good school’ and less time and energy is spent on pedagogic and curricular substance” (Apple 2001:416). Indeed, Broadfoot notes that “the instrumental ‘performance’-oriented means to the end (of economic performance) becomes elevated into the end in itself ... [and that] In such circumstances, society begins to lack any more
fundamental basis for social solidarity than mutual competitiveness” (in Broadfoot & Pollard 2006:763). Thus, where a ranking position in a league table has become the *end* rather than a *means* by which to assess progress towards an initially academic end, then it follows that the common imposed force that links communities of teachers, schools and local education authorities together is *mutual competitiveness*. This does not make for the ideal communities of practice that Wenger *et al.* define as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (2002:4).

In September 1998, one year after the Literacy Task Force conducted its pilot, the National Literacy Strategy was introduced (Lewis 2006) and soon after that, the National Numeracy Strategy was also established. Wragg criticised the research done to design the strategies calling it “a confidence trick” and railing that in his thirty-year educational research career he had encountered “no evidence whatsoever to support the insistence ... that every literacy lesson should be in four parts, or end with 10 minutes of whole-class review” (2003:142). Moreover, as mentioned in the Introduction, the statistics that suggested a need for some form of intervention still showed seven years later that “around 20% of eleven-year-olds ... [were] not reading at an age-appropriate level” (Literacy Trust 2005). Thus, this “15-15-20-10-minute literacy-hour pattern” (Wragg 2001:16) has done little to standardise the teaching of literacy in primary schools, safeguard the child’s *right to read and write*, improve the capabilities of our future workforce or ultimately increase the UK’s human capital (Feinstein 2003). In addition, there has been a high dropout rate on teacher education
courses and “The number of unqualified teachers working in UK schools has risen by 500% since Labour came into power [1997-2010]” (Taylor 2005). The media reported that schools even find themselves having to give financial rewards for low staff absenteeism, like in the case of Stretford High in Greater Manchester “charging Man Utd fans for parking on match days” so that staff can “win £100 if they have a 100% attendance record” (BBC News 2006).

Further issues that have arisen in the literature relate to measurement, accountability, training and changes in practice, and there are a number of inconsistencies in the measurement of the what and how of the National Numeracy and Literacy Strategies. For example, in the Office for Standards in Education’s Winter 1997 Update, it states that “While it is right and proper for inspectors to criticise poor teaching and badly structured lessons wherever they occur, schools must not be criticised for adopting the principles and practice required by the National Literacy and Numeracy Projects” (in Wragg 2002a:41). This appears to be a poor compromise considering the substantial funds spent on their research and implementation. In fact, educational communities that develop new rules, naturally evolving systems of their own and ideas that are not in line with current governmental objectives, could signal danger to policymakers who are trying to implement standardisation. There seems to be little room for individuality in such an education system. To compensate for this, teachers have been tasked with producing individual learning plans for pupils, but there is no evidence to suggest that these do any more than promote explicitness and transparency at the root of organisational development. Ironically, as Barber reports, to make sure “policy became practice ... [it was necessary to have] A long term project plan for both literacy
and numeracy, setting out actions, responsibilities, and deadlines” (in Lewis 2006:180), but the targets were too specific and ambitious, and failure to meet them contributed to the resignation of the Education Minister (ibid.:179). Thus, it seems that the educational professionals, schools and local education authorities may not be aware of all the strategies’ real targets because there may be hidden reasons for driving up standards, such as competing in the global economy and meeting targets for increasing the numbers of people attending university (Blair 2001). Durkheim warned against exactly this over half a century ago:

> We cannot and we must not all be devoted to the same kind of life; we have, according to our aptitudes, different functions to fulfil, and we must adapt ourselves to what we must do. We are not all made for reflection; there is need for men of feeling and of action.

(Durkheim 1956:62)

However, regardless of its intentions, the attempted imposition of the literacy lesson procedure “demeans the profession ... [and] (i)mense ... harm has been done by pretending that there is only one way to teach and the harvest is now being reaped, as more teachers rebel against prescription, or simply quit” (Wragg 2003:142-143). I believe that much of this happened because the invasive implementation of the Literacy Hour has come across as change rather than development, especially to those teachers who have already devised successful methods of their own, or what they consider to be such, over a period of time in order to teach literacy to their particular pupils in their specific context. A complex view takes into account this uniqueness and also the uniqueness of the teachers themselves. For instance, another unique quality occurring at this time was the aging of the teaching professionals:
Two-thirds of teachers were over 40 during the 1990s, so most managed to make even the most monumentally stupid initiatives work by using their professional experience to adapt them. By the year 2006, however, half of teachers will be over 50. (Wragg 2000:133)

Wragg went on to suggest that “We will only recruit sufficient high-quality replacements if the job is clearly seen to be one for those with imagination and initiative, and with their genitals intact” (2000:133), but pressures and restrictions from such objects as the National Curriculum, inspections and league tables have been a strong dissuading factor. Interestingly, if the league table had been introduced as an organic boundary object, its origins would become “invisible ... the more it sinks into the community’s routinely forgotten memory” (Bowker & Star 1999:299), but then its naturalisation would have involved:

1. a long period of time ...
2. a trajectory of naturalization [containing] ... both ambiguity and duration
3. practice-activity ...
4. unquestioning ... relationship of the community to [the boundary object]

(Bowker & Star 1999:299)

The first three criteria require seemingly unavailable time and development within the relevant communities of practice, and the fourth has yet to be fully realised as the media, who appear to relish the inquisitional nature of the system, report its every unfairness. For instance, the headteacher of a school in Cheshire is reported to have “called for the Government’s ‘unfair and flawed’ league tables to be scrapped in a row over a new point scoring system for science” (Wilmslow Express 2008) and head
teachers in Liverpool, York and Cumbria have called into question the qualifications, quality and standards of the inspectors themselves (Abrams 2012).

It seems that the league table is best described as an engineered boundary object because, although it could be argued that ex-teachers were involved in its inception, it has not actually evolved organically from within parallel communities of practice. One justification for its construction could be that “Most schools now are lousy places to grow boundary objects because they both strip away the ambiguity of the objects of learning and impose or ignore membership categories” (Bowker & Star 1999:305-306).

Thus, Dewey’s suggestion that educating a child with the purpose of preparing them for the distant sphere of adulthood detaches them from the active community around them (2004) can also be applied to the situation whereby teachers find themselves focusing on manufactured ends outside their organic vocational community. However, from the opposite perspective, “in practice, policy makers tend overwhelmingly to equate ‘standards’ with measurable outcomes in externally examined tests” (Gillborn & Youdell 2000:21) rather than remembering the importance of unmeasureable internal community attributes, such as social and emotional well-being. On this topic and in the context of school reform in general, McLaughlin advises that:

\[\text{Practices cannot be established through the medium of a technicist logic. It is largely for this reason that, over a long period, many successive waves of ‘school reform’ in many countries have come unstuck. Without the willingness to enter the core reality of a practice, they have sought, in ‘top-down’ fashion, to specify ‘outcomes’ and have conceived the task of effective management as one of getting teachers to maximise these outcomes and making them accountable for doing so.}\]

(McLaughlin 2000:158)
Beveniste extends this analysis to reveal the activities of the outer edges of the educational community:

\[T\]he evaluation of student achievement is not just a technical tool for the diagnosis of conditions that may afflict the education sector ... [but] also a political phenomenon that reflects the agendas, tensions, and nature of power relations between political actors. \hspace{2cm} \text{(Benveniste 2002:89)}

However, as Hasenfeld (2010:15) states, “the institutional environment in a culturally pluralistic society is both heterogeneous and turbulent. It consists of diverse interest groups upholding conflicting values and norms”, so although one response to breakpoint pressures has been compromise, another – which could be seen as a form of taking ownership (Kelman & Lawrence in Lefcourt 1982; Coleman 1999) – has come from the educators who have evolved with the system and found underhand ways to respond. For instance, some schools are resorting to such tactics as testing early “to produce maximum ‘under-performance’, against which ‘value-added’ gains can be made, and attributed to schools ... [and renting] extra computers for their open evening ... to give parents the impression of a high-tech learning environment” (Ball 2001:176-177). In fact, Ball claims that “School open evenings are now typically carefully choreographed events, sometimes with professional support” (\textit{ibid.}:177) and a third response has been through the tests themselves which Hanson states “act to transform, mould and even to create, what they supposedly measure” (in Broadfoot & Pollard 2006:765). Hasenfeld puts this sort of behaviour down to worker-client relationships and trajectories:

\textit{Assessment, typification, and service assignments establish a trajectory through which clients are expected to traverse in order to reach the desired}
outcomes. Worker-client relations also structure the manner and content in which workers monitor the trajectory course of their clients and the extent to which they use the information, including feedback from their clients, to make trajectory corrections.

(Hasenfeld 2010:21)

The problem with this simple analogy is that there are actually layers of worker-client connections at different levels of the community from the governmental education department to the local education authorities, schools, pupils and families. All these layers, relationships and potential trajectories make for an incredibly complex and spontaneously organic system. As Goldstein (2000:188) points out:

*Emergence in complex systems is envisioned to arise from self-organization, in contrast to the external or hierarchical imposition of new order on to a system. ... [However,] an overemphasis on the spontaneity associated with the idea of self-organization can lead to a discounting of the conditions that are necessary for these spontaneous processes to occur.*

(Goldstein 2000:188)

In addition, Skocpol and Amenta (1986:149) comment on the constant change of institutional development saying that “once policies are enacted and implemented, they change the public agendas and patterns of group conflict through which subsequent policy changes occur”.

The dys/functioning of league tables has also been affected by the shifts in locus of control (Lefcourt 1982) caused by government reform. For instance, Gillborn and Youdell warn that “it is almost as though the mechanisms are now beyond the control of schools and teachers” (2000:21) and one reason for the government’s increased grasp on the what and how of education in England might be them fearing the loss of

78
control over human capital in this new knowledge economy. As Drucker points out, knowledge has moved alongside and beyond capital in terms of potential for generating wealth and this has caused a major change in power from those with capital who own and manage companies to those who are employed as knowledge workers (1993). Thus, educational professionals could be seen to threaten the state as they are the teachers of the future knowledge workers. This fear can be seen in the way the relationship between the league tables and the concept of standards has accentuated the top-down manner “in which central government sees itself in opposition to the ‘producer interests’ of schools and academics who have supposedly depressed the standards for so long” (Gillborn & Youdell 2000:21).

Another consequence of the top-down nature of league tables “has been to increase to unprecedented levels the intensity of surveillance that schools, headteachers and individual teachers experience” (ibid.), so with recent reform has come a sense of big brotherness. This in turn has led to deeper existential issues. Sayer states that “What the practices, institutions, rules, roles or relationships are depends on what they mean in society to its members” (1992:30), whereas Ball warns that “Service commitments no longer have value or meaning and professional judgement is subordinated to the requirements of performativity and marketing” (2001:700). Thus, where the White Paper ‘Excellence in Schools’ threatens “a ‘zero tolerance’ policy for under-performing LEAs, schools and teachers” (DfEE in Fitz et al. 2006:1000), the message to the educational community is actually: ‘You have no control over the meaning of your context’. Aptly, Ball refers to Deleuzian notions to help explain how such
performativity assessment and constant accountability are “the basis for ... uncertainty and inevitability; ... a recipe for ontological insecurity” (2001:170).

The last of the twelve purposes of assessment given in a 2001 handbook for pre-service trainee teachers is Account to the public and it goes on to state that “Teachers, schools and LEAs are publicly accountable for the standards of education of their pupils” (Haydn 2001:304). This runs counter to community membership, alienates the teacher and denies a number of complex features. With the Numeracy and Literacy Strategies, this also brings even more information about primary age children into the public arena and although “policy discourse presents the performance tables as an exercise in ‘information’ and ‘accountability’; for many working in schools, however, surveillance and control are more adequate descriptors” (Gillborn & Youdell 2000:21).

In addition, with this pressure, “professionals are afforded less scope to manage their own affairs and, thus become vulnerable to the needs of capital and maximization of the bottom line” (Daiski & Richards 2007:211), because of their “considerably heavier workloads and ever escalating demands for accountability” (Apple 2001:417).

In Deschooling Society, Illich defined education as “involving the process of learning and understanding” and schooling as occurring “through the practice of memorization and by instilling obedience”, and he went on to suggest that the latter “destroys human creativity” (in Smith 1998:206). Ironically, in the case of the Numeracy and Literacy Strategies, it seems that the teachers are being reschooled after a lengthy period of exercising post-war deschooledness. Edwards et al. explain the changes in practice in the 80s and 90s:
[Before 1988] teachers were trusted to make use of their professional expertise so as to operate more or less independently in planning and implementing their own educational policies for the students in their care ...

[However] given ... the introduction of the National Curriculum for schoolteachers, a national curriculum for initial teacher education and a form of centralized control of in-service education, all of these being policed by the government’s Office for Standards in Education, then the late 1990s have seen what amounts to the removal of virtually all the autonomy that once typified the English teaching profession.

(Edwards et al. 2002:31)

Among the numerous changes in practice, Apple (2001:416) reports that “teachers seem to be experiencing not increased autonomy and professionalism, but intensification”. This is not surprising when the orchestrator of the implementation of the National Numeracy and Literacy Strategies gives two essentials to guarantee that reform is put into practice as a “detailed teaching framework” with one lesson in numeracy and one in literacy per day, and “an integrated system of ‘pressure and support’” (Barber 2000). Fullan adds “Active initiation and participation” and “Changes in behaviour and belief” to the list and also suggests that “The overriding problem of ownership” should be dealt with (1991:127). However, given that “there has been little attempt to tailor school improvement policies to particular contexts” (Lupton n.d.:656), there is also little chance of teachers making an enforced externally-generated policy, which grates against current on-site practice, their own without considerable stress and resistance. Were feedback loops engineered or evolved, participation, belief and ownership may not be so difficult to achieve – investment in the process could lead to better responsiveness, adjustment and initiative-taking in practical implementation. However, the invasion of communities of practice in the
way detailed above can either break apart the members or make them a stronger
group but with new negative tendencies. This can lead to further perceived needs for
intervention and a chain of half-assimilated half-owning educationalists who cannot
see and perhaps do not care that those designing and passing down the reforms are
ex-teachers: ex-community members.

Looking at the system through a wider lens, it is possible to observe how as
educationalists move up the hierarchy into positions of strategy design, policy
assessment and reform orchestration, they form part of new chains of assimilation and
evolve into members of new organic communities of practice. An ex-drama teacher
acting as a judge at a regional research poster competition said that now that he works
for the Qualifications & Curriculum Authority trying to change the system for the
better from within, teachers see him as the enemy. This is an anecdotal example of
how perceptions of community boundaries can build barriers that do not allow the
concepts of collegiality and collaboration to pass through. Thus, hierarchical and
horizontal continua seem to become invisible to those who have had their
professionality threatened. Lawrence (2004:121) relates these notions to “rituals with
high social density, highly focused attention, and strong emotional conformity [which]
result in tightly bounded social units that restrict the allocation of field-specific capital
to members”. He goes on to suggest that:

*The reification of field boundaries and the distribution of capital both feed
back positively on the interaction rituals that support them; strong
boundaries and social privilege both support members’ sense of superiority
and motivate members to maintain group-focused rituals.*

(Lawrence 2004:121)
One oft-perceived nemesis of the teaching profession that exhibits and perpetuates such rituals is Ofsted, which “was established to replace the very widely respected Her Majesty’s Inspectorate of Education” (Byrne 1998:123). Ofsted’s inspectors are living representations of the standards against which they match school activities and accomplishments and so they have been perceived and received as the coalface benchmarkers of state education in England and Wales. They bear the brunt of attempting to match simplistic and reductive measures, inappropriate measurands and standardised frames with in/efficient systems that have developed through intricate, non-linear, historical, community processes of longitudinal evolution.

**The Current Measurement Process, its Problems and Solutions**

The most recent measurement devices appear to have reduced specificity and increased school workload and responsibility, and on the positive side: autonomy. However, the sense of intervention and non-learning-centredness has remained the same as Broadfoot and Pollard intimate: “English primary schools ... have now been forced to come to terms with the imposition of assessment practices which embody fundamentally different assumptions about both the means and ends of education” (2006:764). One major difference is that the educational community seems now to have absorbed the inevitability of inspection and assessment. MacBeath cites Leicestershire County Council as stating that “A school always prepared for inspection, but not always preparing for inspection, is a self-evaluating school” (2006:109). The main differences evolving in the practicalities of the inspection system relate to the moves from inspection to evaluation and from self-inspection to self-evaluation. MacBeath’s table overleaf explains the differences between the latter two.
The self-evaluation model takes complex organisational aspects into account and the *circulating reference* (Latour 1999) of critical incidents relating to inspection is not only restricted to schools. Local Education Authorities are also subject to Ofsted inspections and during the academic year 1998-9, the Local Education Authorities of Hackney, Islington, Liverpool and Leicester City were “found to be failing to such a degree in the performance of their functions that the Secretary of State intervened” (Annual Report 2000).

<table>
<thead>
<tr>
<th><strong>Self-inspection</strong></th>
<th><strong>Self-evaluation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Top-down</td>
<td>Bottom-up</td>
</tr>
<tr>
<td>Is a one-off event</td>
<td>Is continuous and embedded in the nature of teachers’ and headteachers’ work</td>
</tr>
<tr>
<td>Provides a snapshot</td>
<td>Is a moving picture</td>
</tr>
<tr>
<td>Is time-consuming</td>
<td>Is time-saving</td>
</tr>
<tr>
<td>Is more about accountability than improvement</td>
<td>Is more about improvement than accountability</td>
</tr>
<tr>
<td>Applies a common framework</td>
<td>Is flexible and spontaneous</td>
</tr>
<tr>
<td>Uses a set of predetermined criteria</td>
<td>Uses, adapts and creates relevant criteria</td>
</tr>
<tr>
<td>Tends to create resistance</td>
<td>Engages and involves people</td>
</tr>
<tr>
<td>Can detract from learning and teaching</td>
<td>Improves learning and teaching</td>
</tr>
<tr>
<td>Encourages playing safe</td>
<td>Takes risks</td>
</tr>
<tr>
<td>Requires consensus</td>
<td>Celebrates difference</td>
</tr>
</tbody>
</table>

**Table 4**: “Self-inspection and self evaluation” (MacBeath 2006:57)

It would be interesting to explore the crossover critical incident points of a Local Education Authority in special measures and one of its schools in special measures.
The far-reaching consequences of a school being put in special measures has been especially crucial in the assimilation of some schools to the standardised mould. As Boland and Fowler intimate, “Even if there are no direct ties to resource allocation within these organisations, a ‘poor’ performance label often precedes a fall in the customer/client base which in turn leads indirectly to a decline in the resources available” (2000:421). Thus, the processes and results of inspections, tests and league tables can have all the appearance and consequences of a witch hunt.

Another part of the chain is the teacher training programmes, which according to Wragg are “being inspected to death” (1999:7). His simile of the industrial process of ‘testing to destruction’ (ibid.) could be applied to all inspected sections containing education shareholders. It would imply that the government breaks them with an overload of pre-, during and post-inspection administrative duties, burdens the learners with incessant testing and judges conveniently favourable and unfavourable snapshots of the progress. This is beneficial for those keen on absolute standardisation because it means that a shattered school can be resuscitated in a beaten and limited form of governmental design, fed with staff moulded with uniform skills and behaviours, and monitored by Local Education Authorities that are Ofsteds in miniature.

League tables are a key tool in producing measures comparable with other schools nationally and countries internationally as in the Swedish comparison in the Introduction, but their true involvement in the marketization of education is debatable. Levin and Belfield state that:
The purely competitive market is considered ideal ... There is perfect information on the alternatives open to the participants. There is freedom of entry into the market by either buyers or sellers meaning that there are no obstacles to either producing or purchasing good or service.

(Levin & Belfield 2003:189)

However, the information in league tables is far from perfect and entry to the education market and the production and purchase of services are controlled by government legislature. Ball (2001:178) points out that, in reality, exams and league tables are just “artefacts produced out of a complex set of policy strategies and practical tactics which underpin the fabrication of performance”. This means that “Educational principles and values are often compromised such that commercial issues become more important in curriculum design and resource allocation” (Ball et al. in Apple 2001:413). Holden and Roberts (2004:275) support this view stating that “The drive for efficiency in the face of increasing intensity of world competition has led to enormous pressures to create leaner (and perhaps meaner) organisations”. As a result, schools compete “not only with each other but also with themselves” (Gillborn & Youdell 2000:27) in an externally imposed attempt to match what is taught and achieved to the requirements of the labour market (Spicker 2006). As discussed earlier in this thesis, the problem with this is the lack of predictability in the system and longitudinal nature of education; i.e. by the time the pupils reach the labour market, their employee capital may no longer match market needs. Hence, here is another reason why the measurement of effectivity with its practical, accessible and current narrative on the state of any school would be a more reliable source of data for choice-makers.
Conversely, a major critical incident that affects a school in the short-term is to be placed in special measures. Although it usually results in the label of public failure, it also “means a school gets additional outside intervention and support, albeit with a two-year deadline to improve or face closure” (BBC News 2004a). Intervention is a key word here as it implies interruption and imposition. Support appears to generally come in financial or staff training terms, but it is not apparent why intervention and support should be given as two separate terms. Perhaps this is due to their respective negative and positive connotations of threat and aid, or the BBC’s constant battle to engineer balanced views. Improve is also ambiguous here as a number of schools with substantial improvements in some areas have nevertheless been placed in special measures – for example, Riverside College in Leicester despite a 10% improvement in their GCSE grades (BBC News 2004b) and East-the-Water Primary School in North Devon despite “a 30% improvement in maths, English and science results at 11 years old” (BBC News 2003b). Lastly, face closure covers a few different options including absolute closure, merger and fresh start, which is where school governors and the head teacher are replaced and the school is re-branded overnight.

Unfortunately, for those schools in special measures, the label makes employing new staff and drawing new learners difficult (Dunford in Baker 2005). Even though there are benefits to the process, the fact that this S-term, with its “self-referential and self-validating … aspects” (MacKenzie 2001:127), has been broadly construed as a punishment since 1993, means that it has taken on N-term status. The authorities have implemented this norm and its ensuing name and shame game with such a regularity and rhythm that it has become an accepted part of public awareness.
However, as a concept-dependent social phenomenon (Sayer 1992), special measures is a multilevel critical incident that can be analysed both cross-sectionally and hierarchically, although where the school is merged or closed completely, the change of environment and break up of relationships (BBC News 2003a) would make the impact virtually unmonitorable. With no feedback loop available, vital negative feedback and corrective action are not inputted back into the cycle.

The main issues resulting from the chain of fire-fighting adaptations and self-exacerbating evolutions of the measurement system have compounded each other to create a complicated melee of interwoven frames that cannot truly be resolved without tearing down the system and starting over, but even this would leave an irremovable residue that would make the introduction of a brand new measurement system little better-received and thus similarly poorly adopted in the critical short-term. The root cause of the current problems is the 1988 Education Reform Act which introduced the National Curriculum as one of its six key areas of reform (Office of Public Sector Information 2008; Education Forum n.d.). It was “implemented by all maintained primary and secondary schools in England and Wales in a rolling programme beginning in September 1989” (Watson 2001:347) and, twenty years on, was still lauded as “a framework used by all maintained schools to ensure that teaching and learning is balanced and consistent” (Directgov 2008). Considering all the aforementioned perceptions, misconceptions and views involved, it is doubtful whether the people interacting with the framework do actually do what is intended.

In fact, investigation of the research, media reports and training materials relating to
the National Curriculum indicates four major resulting problems: depowerment, deskilling, dehumanising and barriers to change.

Since 1944, public services had been managed at a local level, but the 1988 Education Reform Act meant “the subordination of LEAs, schools and educational professionals to central agendas in terms of curriculum, pedagogy and assessment” (Fitz et al. 2006:96). Ironically, another of the six reforms was Local Management of Schools, which Cave and Wilkinson (1991:35) claim shows that the government saw “management development as a key element ... for ensuring improvement ... to meet the needs of industry and the economy”. However, on closer inspection it can be seen that this reform only actually involved budgets being removed from Local Education Authorities and given to headteachers. In practical terms, what appeared to be the empowerment of heads and the depowerment of Local Education Authorities actually depowered both groups. This is because heads were given more heavily bureaucratic roles (Milne 2007) that afforded them little time for the fulfilment of their previous practices (e.g. teaching classes, observing staff, leading on the creation of bespoke curricula, tests and materials). Thus, with less time to manage the day-to-day operations of their schools, they were stretched up into the Local Education Authorities’ arena and, in the most extreme cases, this increased pressure and accountability ended in mental breakdown (ibid.) or prison (e.g. Revell 2003).

Practically-speaking, where training is supposed to inform and exercise the what and how of practice, the post-1988 reforms led to their imposition. For participants in teacher training programmes, the most significant part of the 1988 Education Reform Act was the section about the National Curriculum, because those with placements in
state schools must “ensure that ... [their] schemes of work and ... lessons ... meet the requirements of the NC and enable the pupils to make progress in line with national expectations” (Watson 2001:347) regardless of the practices taking place in their school and sometimes in contradiction to their on-site mentors. This means that trainees may attain only legitimate peripheral participation (Lave & Wenger 1991) and not be able to fully join the community of practice (Wenger 1998; Wenger et al. 2002) within their host school. The differing measurement criteria could also have a negative effect on their internal and external performance measurement and so affect the quality of their degree. In fact, “Many newly qualified teachers say they are too terrified to try anything adventurous. They have been warned to stick like glue to QCA work schemes, no deviation” (Wragg 2001:140).

Another defensive move to dissolve community integration and strength is through constantly reminding staff of their connection to the suprasystem through relentless mail shots to all teaching staff demanding anything from the achievement of exam result aims to including more practice of letter sounds in class (Wragg 2003) along with extensive bombardment from negative media. This breakdown can produce a gap between staff and learners that is hard to bridge as resentment builds and sensitivity wanes, and because a child who feels their mentor becoming distant will misbehave to regain their attention, the vicious circle of lessening patience and the dissolution of mutual respect begins. A similar breakdown can be found in the relationships between school staff, where a high turnover and combination of illness and cover can lead to a loss of teachers’ team support. Dunham’s research into Teachers’ Coping Resources (1992:290) demonstrates that although “Support from senior staff is reported, the
importance of good relationships with colleagues is much more frequently described as a positive factor in tackling stress”. He calls these types of support “organizational resources of teachers” (ibid.). An interesting measurement exercise would be to compare the perceived effects on peer support of introducing ‘fish-and-chip Fridays’ or ‘cake Wednesdays’, which are team-building events that are evident in school staff rooms across the country, to a school where stress levels are high and morale low.

A common way to approach staff re-education or standardisation is through in-service training, but many experienced teachers “in the period running up to and in the first flush of post-1988 implementation ‘resisted’ by resigning or retiring” (Ball; Gipps et al.; Pollard et al. – in Fitz 2006:99). For the government, this could have been an acceptable percentage of reluctant participants (Howser 1989) who were considered expendable collateral. Nevertheless, Ball points out that “there is an important element of cynical compliance at work in the processes of individual and institutional fabrication” (2001:179), so teachers who remained in their posts may have superficially gone along with the reforms and then continued their own practices behind closed doors. Staffrooms are full of reminiscences of teachers who tricked Ofsted inspectors by changing to a recommended and rehearsed lesson plan the minute the inspector arrived and then swapping back when they had left, but this does not necessarily mean that one lesson plan is better than another or that the motives are selfish. In fact, there is “strong evidence that educational professionals [who] have challenged, subverted and adapted centrally generated curriculum and pedagogic policies … have buffered students from the worst effects of the new assessment policy” (Ball; Gipps et al.; Pollard et al. – in Fitz 2006:99). This could be considered the
formation of a protective boundary around certain stakeholders on the *edge of chaos* (Cunha & da Cunha 2006; Goodwin 2001) at its most *conflictive* (e.g. Coveney & Highfield 1995; Marion 1999; Barthes 2005) and *furthest-from-equilibrium* conditions (e.g. MacIntosh & MacLean 1999; Cilliers 1998; Wadsworth 2008).

A case in point occurred during a Postgraduate Certificate in Education that I attended based at a university in southern England where my secondary school placement involved observing and teaching an English class for “angry young men” that the mentor revealed was an experiment and not “allowed anywhere near Ofsted”. These 14 teenaged boys with various forms of Attention Deficit Hyperactivity Disorder, Aspergers and Autism engaged in an alternative curriculum for English that was designed by the Head of English and his team to fully respond to their specific and very unique needs and to enable them to improve their reading and writing in a less threatening and competitive environment than the “normal” class they had been integrated into (for more on inclusivity, see Dyson *et al*. 2004). This meant that disadvantaged children who may have been lost in the current system were identified, taken care of and helped to gain skills that they would not otherwise have developed at this rate, and it is believed here that this should be lauded as what educational professionalism and teacher autonomy can result in if allowed to flourish. Such actions, however, make a mockery of the educational measurement system; they make for yet another set of unreliable and misleading data that in turn make schools, teachers and cohorts incomparable. However, rather than prevent or hide good practice, changes to the measurement system seem wiser, and acceptance and enhancement of good practice should be supported and set as models. Signs of
efficacy and its accompanying stakeholder resilience in the face of change would laud such innovative activities because they respond to the uniqueness of a cohort and emerge in tandem with the needs of the institution scaffolding necessary developments in operational practices. As Goldstein (2000:196) warns, “Self-organization and emergence are powerful forces that must be channeled appropriately” and I firmly believe the measurement of efficacy gives space for the acknowledgement of such forces.

The approach of mixing empowerment and depowerment while implementing change through middle managers – like the un-depowered head of department mentioned above – appears to have been a common practice in the 1990s (Holden & Roberts 2004) and with this attempted depowerment came another buzzword of the time: deskilling. This is defined as a “Decrease in the quality and range of the practical knowledge of individuals, organizations, or societies due to attrition, automation, computerization, downsizing, lack of learning opportunities, or neglect” (Business Dictionary 2008). The first suggested cause – attrition, in terms of a grinding down – seems to correspond to what the imposition of extended duties has meant for head teachers and Daiski confirms this saying that, through deskilling, “humanistic professional values are increasingly sacrificed on the altar of the business model approach” (in Daiski & Richards 2007:217). Corroborating evidence comes from two longitudinal research projects in the 80s and 90s that conclude that there was a “narrowing of focus in the work of teachers directed towards the interpretation and implementation of NC programmes of study rather than more creative activities where curriculum design seeks to match the particular needs of their children” (Galton;
Galton et al.; Pollard et al.; Croll – in Fitz et al. 2006:101). This confirms the reduction in or hiding of teaching activities such as the anecdotal trainee experience given above and suggests that there has been a widespread shift towards the standardised practices that the National Curriculum was designed to produce, but with some loss of site-specific pupil-focused adaptivity. This is another example of feedback loops being interrupted and made ineffective – as Durkheim warns, “An empirical, mechanical education cannot be other than repressive and levelling” (1956:6).

This apparent resilience against feedback is highlighted by Keynes (in Hudson & Lowe 2004:222) who suggests that “there is nothing a government hates more than to be well-informed; for it makes the process of arriving at decisions much more complicated and difficult”. However, the current intensive trend for accountability has got teachers so nervous that many are frightened of making the most basic decisions. Jeffrey and Woods provide evidence of this in a teacher interview statement: “You start to query everything you are doing—there’s a kind of guilt in teaching at the moment ... multiplied by the fact that Ofsted is coming in because you get in a panic that you won’t be able to justify yourself” (in Ball 2001:171). Not surprisingly, the number of school trips reduced dramatically with claims that the teaching union was advising teachers against taking pupils on trips (BBC News 2011) and the bureaucracy and number of tasks requiring risk assessments rose. However, recently there have been moves to address this with the publication of a much reduced set of guidelines for trips and logical and persuasive statements about risk assessment from the Health & Safety Executive, Education Secretary, Michael Gove, and Employment Minister, Chris Grayling (DoE 2011). Something that has yet to be address is the huge increase
in academic assessment additional to the standard assessment tests, which Benveniste (2002:109) cynically describes as “a mechanism of social accountability that buttresses state intervention and regulation in social affairs, while it simultaneously diffuses the state’s liability for results by highlighting educational inputs and outputs”. Apple affirms this, stating that “the state shifts the blame for the very evident inequalities in access and outcome it has promised to reduce, from itself onto individual schools, parents, and children” (2001:416).

In some instances, it is unclear where accountability lies; in other words, there is a lack of clarity about who is liable and to what extent teachers are supposed to follow the guidelines. For instance, for advice on legal and ethical responsibilities, Arthur (2006:431) suggests that teachers look at “the Teaching Standards, the General Teaching Council for England’s Code of Professional Values and Practices and other education documents, such as the aims of the National Curriculum and the Statement of Values of the National Forum on Education and the Community”. These documents contain a variety of mutually complementary guidelines and broad range of specificity. For instance, Arthur points out that if the second recommended text “were written in a more exacting way then it would need to describe the context in which the words were used because of the complexity of the many situations in which teachers find themselves” (ibid.:436). This would add the impossible specificity of each unique physical teaching space and of each unique teaching interaction to create an unwieldy and impracticable document. However, regardless of the appropriate vagueness of the existing Code, it can in fact be quoted during the awarding or confiscation of someone’s teaching licence. This represents one negative aspect of the grey area
between statutory and non-statutory frameworks by saying to the teacher ‘You don’t have to follow these guidelines, but if you get in trouble, we’ll use your non-adherence to them against you’.

Inevitably, from any new reform an array of new administrative duties erupt, but the increased assessment linked to the National Curriculum has led to extremes. This assessment has such a strong summative element that the humanistic qualities of formative tests that feed needs-based data back into practice is often lost. In fact, since 1988, the creation of tailor-made lessons and tests “locally to suit ... the needs and capabilities of actual students ... has been considerably diminished” (Fitz et al. 2006:110). From a philosophical perspective, Ball refers to Deleuzian notions to help explain how performativity assessment and constant accountability are “the basis for ... uncertainty and inevitability; ... a recipe for ontological insecurity” (2001:693). Thus, having suffered attempts to depower and deskill them, it is not surprising that teachers and heads have questions about what their jobs actually are – for example, professional educationalist or civil servant (Kinsler & Gamble 2001) – and reduced autonomy has also led to the sense of automation mentioned on page 93. Indeed, this tendency to over-standardise in an attempt to guarantee quality seems to point to a governmental aim of uniformity and that does not suit this or any kind of evolving complex social system because in this environment, uniformity becomes self-perpetuating:

*the dynamics of interaction rituals suggest both the power of social reproduction and the possibility of transformational change (Oliver, 1991): surveillance and uniformity produce the conformity and rigidity that*
encourages further surveillance and uniformity, while simultaneously motivating excluded actors to work to undermine the rituals that support the status quo. (Lawrence 2004:121)

In fact, Wragg designated uniformity as “a killer concept in education” (2001:16). Nevertheless, whether intentionally or not, action has been taken that breaks down the sense of the larger educational community within the teaching profession and curtails emergent creativity at every level of the school hierarchy.

This denial of the realities of the teaching community and its resulting dehumanisation may have developed from an underlying governmental need “to mathematize society’s principle components – people ... to encode them, or to represent them, by sequences of zeros and ones [in] computable form” (Davis & Hersh 1986:93-95). In fact, investigations in the UK into, for instance, the connection between “educational achievement ... social characteristics ... the character of the schools ... and the character of the neighbourhoods ... [tend to be done by] educational statisticians with a mathematical rather than social scientific background” (Byrne 1998:122-123).

However, this focus on counting and prescription has been turned to the profession’s advantage in some case. For instance, one benefit of the intricately detailed nature of the National Curriculum is that the clarity of its myriad objectives has made it easy for materials writers, many of whom are ex-/teachers, to cash in as the resources database on the National Curriculum Online (QCA 2008) demonstrates. Yet, the use of such ready-made lessons can lead to a lack of pupil relevance exacerbating Fitz et al.’s (2006:101) point that “the NC and its associated assessments were making teachers’ relationships with students less personal” – again, evidence of the negative side to the self-perpetuative quality of complex adaptive systems.
Merton confirms this fear of distancing between community members stating that in bureaucratic organisations, “Relationships between members of the organisation tend to become de-personalised as they respond to rules rather than to persons” (in Jones et al. 2005:83) and Ball warns that “there is a real possibility that authentic social relations are replaced by judgemental relations wherein persons are valued for their productivity alone” (2001:172). However, these are not revolutionary observations. In 1916, Dewey said that school children are seen as candidates (2004) and Weber’s 19th century notion of bureaucracy was that it was “both world changing and dehumanising at the same time” (in Jones et al. 2005:84). Nevertheless, the task of juxtaposing the bureaucratic demands of the job with the recommendations of the training materials – for example, to identify the zone of proximal development (Vygotsky 1978) for each child so as to respond supportively to their individual learning needs (Moyles 1992) – has to be a juggling act full of inevitable conflict and compromise. Indeed, the sign of the great teaching team seems to be the swan above the waterline capability to infuse the learning environment with calm confidence while innovating on the edge of chaos (Cunha & da Cunha 2006; Goodwin 2001) behind the scenes.

In terms of barriers to change, there appears to be a ping-pong of blame going back and forth across the larger educational community. For example, one of the greatest barriers to development is receiving conflicting messages that end up being perceived as spin or untruth. A case in point occurred when:

*the Task Group for Assessment and Testing ... made recommendations in 1988 for a complex system of teacher assessment and national tests ... [which] were the starting point for the discussions of the working groups*
However, the Department of Education and Science and the Welsh Office stated in their 1988 report that “assessment should be the servant and not the master of the curriculum” (in Watson 2001:348); and in 2008, the Qualifications & Curriculum Authority encouragingly stated that “Assessment ... allows progress to be recognised and celebrated”. Such contrast between the reality of assessment’s position at the base of the system and what has been placed in promotional material is obvious to education professionals, and so undermines the potential effect of all messages.

Strangely, during the decade preceding the introduction of the National Curriculum, there was also “little attempt ... made to consult with [the] teachers, LEAs or bodies and organisations ... which had once provided ... a voice among policy makers” (Fitz et al. 2006:96), but Gillborn and Youdell reveal that the late 80s and 90s saw numerous reforms “enforced nationally with only the briefest of consultations and no meaningful trials” (2000:21). This was not restricted to the 80s and 90s, though. For instance in 2003, another way to dissolve congruity through destabilisation of the system occurred: a changing of inspection result boundaries. Ofsted adjusted the framework for school inspection so that “the inevitable increase in the number of schools failing would mask the overall and continuing improvement in schools” (Dunford in Baker 2005). One reason for the government accepting or encouraging short consultation periods and measurement criteria changes could be that, as Anderson and Biddle intimate, “research and politics go together uncomfortably because ... politicians, anxious for short-term survival want telescoped time scales, simple remedies ...
consonant with their political agendas” (in Cohen et al. 2000:41). Alternatively, Fitz et al. suggest that the stakeholders “were seen as ‘part of the problem’, ‘producer interests’ that acted as barriers” (2006:96).

Along with this apparent lack of consultation, Watson points out that “Up until that point there had been very little government intervention” (2001:347). Therefore, not only were educational stakeholders rushed into a reform that they were not considered competent enough to contribute to, they were also in the main unaware that the government thought there was anything significantly wrong with the system the way it was. The messages they then received over the following decade ran counter to the foundations set at the start. Indeed, Weick suggests that “It is the unwillingness to disrupt order, ironically, that makes it impossible for the organization to create order” (1979:189), but in this case, what evolves and feeds back is resentment of what stakeholders perceive to be a territorial incursion and reluctance to spend time on someone else’s notions of best practice. The resulting barrier to change means that even though at closer, calmer and less defensive investigation, it could be seen that at “the core of a practice is a locus of expertise” (Wenger 2000:12) due to the governmental bodies concerned being staffed by ex-teachers, the reform delivery system destroys any chance of it being taken on within an efficient timescale.

Resistance to change does not only manifest itself on the teachers’ side of the boundary, however.

*There has been a reluctance [from the government] to acknowledge contextual influences for fear that these might be used as an excuse for*
In addition, Hudson and Lowe (2004:159) talk of macro-level change being filtered “at the meso-level ... [when it is] at the micro-level, the individuals who make or implement policy decisions ... experience the impact ... Furthermore, because institutions differ from place to place, so too do the ‘filtered’ experiences”. This compounds the issues given above and confirms the conclusion that if complexity theory is used as a guide, Ofsted is wrong to assess a school’s efficiency by looking at its individual parts (teachers, practices, exam results, finances, attendance) because as complex systems, what schools create dynamically – i.e. a learning experience within a learning environment – is much greater than the individual components can demonstrate. Conversely, as stated in Chapter 1, “The whole has a grasp of a ‘larger picture’ that is unavailable to the parts” (Marion 1999:29), so to ask the human components their opinions of the school’s teaching quality and value-for-money situation would also not suffice. In order to conjure this larger picture, the school would need to be viewed as a single entity with very carefully thought-through feedback mechanisms regarding the reception, perception, interpretation and implementation of any received reform. This is what is attempted in this thesis by way of the measurement of effictility through participant-centred methods.

A number of solutions have been suggested in the education literature for improving educational institution measurement. These involve changing practical norms and standards to meet theoretical measurement criteria, adapting planning strategies to enable better preparedness for the unpredictable and putting the onus for evaluation
onto the reflexive communal self. For example, in an attempt to standardise best practice with an underlying intention of being able to create comparable data sets, it has become the norm to present in-service teacher training sessions in schools. Barber (2000) recommends “a professional-development programme consisting of centrally provided courses and materials to use for school-based professional development and curriculum support”, but as Wragg points out, “Deeply ingrained ways of teaching ... can only be changed for the better if teachers feel some sense of ownership of the process” (2002b:43-44) and running in-service training from a standardised centralised angle is not ownership conducive. Wenger et al.’s solution to this problem is the community-based knowledge initiative: “The idea is to design organizational knowledge initiatives that leverage the inherent aliveness of communities, rather than trying to engineer or manufacture it from the outside in” (2002:191). Centrally-organised training also usually has a limited duration and Kinsler and Gamble (2001:324) call the technique of one-off and short series in-service workshops ‘spray and pray’ because “teachers seldom extend or apply content dispensed in these settings to their classrooms”. Of Seyfarth’s eight Criteria of Effectiveness of Professional Development Activities, three show where the spray and pray training falls down in practice:

**Maintenance**

*Teachers who implement new ideas receive support*

**Classroom fit**

*Content fits teachers’ instructional style and classroom circumstances*

**Duration**

*Time allowed for participants to practice new techniques*

(Seyfarth in Kinsler & Gamble 2001:326)
Thus, training sessions alone are not the answer. In fact, as the quote from Leicestershire County Council mentioned on page 83 implies, schools that are constantly ready for inspection are self-evaluating (in MacBeath 2006); thus, it is not in indoctrination or the preparation for a specific inspection that the institutions benefit from the inspection process, but from developing routine practices that are of inspection-passing standard. This, in turn, suggests that an improvement to the current system might be a small twist in the focus from meeting the inspection criteria on the day to meeting continuously high standards of practice.

Bennett et al. (2000:335) emphasise the importance of planning in this process and highlight the Ofsted framework’s “inability to cope with unpredictable events”.

According to Scheerens (1997), the framework is synoptic, meaning that it is highly predictable, has a clear mission, degrades, has a series of processes and scrutinises using quantitative data. However, an approach which is more in line with the complex view of organisations is Wallace’s (1991:161) model for flexible planning, which Scheerens (1997) classifies as retroactive, meaning that its scrutiny is a cyclical process of evaluation, feedback, learning and corrective action. This is reminiscent of Kolb’s Experiential Learning Cycle (1984) and Santos et al.’s performance management process (2002:1251) which are discussed in Chapter 2. Such practicable models which include the realities of feedback loops, adaptability and historicity show how one can construct theories which explain a system’s overarching properties without knowing about the smaller elements and interactions (Kauffman 1995). This type of guidance solves one of the main problems of the current regulations being too prescriptive and unrespecting of contextual uniqueness (e.g. Literacy Hour, see page 74), and yet is not
as vague as some of the existing guidelines that could be mis/interpreted in any way (e.g. *Teaching Standards*, see page 95). The process could be treated as providing a baseline measurand for effective steps to achieve, and this seems better than measurands that are fixed for minimal reach in comparison between non-uniform environments. However, for this to happen, transparency at all levels of the system and in all sectors of the community would be crucial. Schroeder *et al.* confirm this in calling for transparency so that measurements are clear to all stakeholders and cannot be manipulated (1986).

Although “changes, from an institutionalist perspective, can never be easy, fluid, or continuous” (Krasner 1988:74), the disinclination to take on new ideas can be linked to relationships between the levels of school staff and between them and others in the education-related management hierarchy. In an investigation into the professional development of middle-aged teachers, Howser (1989) identified two types of in-service teacher trainee: the aforementioned *reluctant participant* (see page 91) and the *growth-seeker*. Looking into teacher attitudes to external intervention could be a way to monitor interactions between policy and staff, but this may require consideration of the measurement of conflict and co-operation (Marion 1999) and their outcomes. For instance, the strategies employed by the previous and current governments of imposing methodology on teacher – like the *Literacy Hour* (Wragg 2001; Lewis 2006) and *Phonics* (DoE 2012) – implies that there is a lack of faith in and respect for what the teachers are capable of developing without intervention – a public knock to their professionalism. If experienced teachers were inspected and seen to be using a different method, a fruitful follow-up could come in the form of
asking the teacher to contribute their lesson plan to an online database of lesson plans that is accessed by colleagues globally, such as the aforementioned National Curriculum Online (QCA 2008). Measurement of whether this is a good lesson could then be fed back by other teachers and possibly their pupils, too. This whole process takes a small conflict and turns it into a huge co-operative act that could lead to greater efficiency and the measurement is still achieved, but this time allowing for the reality of teaching, and self-, peer- and stakeholder evaluation to take place.

By encouraging such reflective practices, routine could be broken down and innovation allowed to flourish (Durkheim 1956) and this fits much better the view of educational institutions as complex adaptive systems (Holland 1995). A case in point is when a teacher has wrestled with their internal “value-laden forces” (Sawyer 2001:41) so as to adapt to an externally imposed change in procedure, and a new internal conflict starts between previous and new beliefs (Lamb 1995). This internalised battle can often only be seen through practical manifestations and sometimes the teachers themselves are unaware of the effects. From a manager’s larger scale viewpoint, this may be easily visible and add to the already unnerving situation where “outcomes typically cannot be predetermined” (Marion 1999:27), unsettling those who strive for reliable, long-term stability so as to feel comfortable with what they manage. However, once a manager comes to terms with the necessarily historical and organic process of practice development, there is the possibility for creating a nurturing and responsive institution-specific in-service training environment. After all, what needs to be understood in education is that it is normal and acceptable for “individual interactions … [to] constitute the source of changes in the social order” (Byrne 1998:71), that all
components are interconnected and that the significance of this is the systems of human bonds (Ward 2002). Therefore, it would make more sense for mixed-disciplinary teams to investigate a school’s effictility or, even better, inter-school cross-investigation by peers.

Ironically, it seems that the only way forward is for Ofsted to be put into special measures so that its leadership can be replaced, it can be rebranded and perhaps even merged with another institution, such as the Qualifications & Curriculum Authority or Ofstin (Office for Standards in Inspection). The inspection process needs to have its objectives rewritten to remove the focus from meeting minimum standards in practice and refocus a ladder or cycle of self-/peer-/stakeholder-evaluated development steps that involve schools choosing the quality aims, awards, accreditations and affiliations most appropriate to their contexts and components; for instance, the Rights Respecting Schools Award from UNICEF (2011), the Green Flag award from Eco-Schools (2012) and the Artsmark award from the Arts Council (2012). In this way, schools would be allowed to rebuild their own unique site- and community-specific learning environments where they can take full advantage of all their stakeholders’ interests in education and evolve into truly multifaceted learning organisations (van Eijnatten & Putnik 2004) in the fullest sense of the term. I believe that this freedom would let their effictility flourish.

To sum up, this chapter drew together the ideas from the Chapters 1 and 2 discussions on organisational complexity and organisational measurement and applied them to educational institution measurement. I began by identifying the complexity-related aspects of educational institutions, discussed the reasons why effictility is a key
concern (which directly relates to Research Question 2) and explained how the current measurement system is flawed. I then looked into the developments in the education institution measurement context, briefly analysed the last 90 years of educational policy reform and looked at how language and the media have been exploited in the introduction of new measurement concepts. The chapter next explored the problematic nature of the National Literacy and Numeracy Strategies; league tables, the special measures designation, increased assessment and the National Curriculum; and the consequences of their introduction for the educational community.

The main themes to reveal themselves in the literature search thus far are accountability, locus of control, feedback and the significance, specificity and uniqueness of communities, their membership, physical context and developmental progression. Key complex aspects of schools were seen to be resilience in feedback loops, and adaptivity and innovation on the edge – for instance, in the face of intervention. In addition to these, there was also the necessity for historicity in the effort to understand institutional responses to change, the significance of the individual and the whole in conglomerating action, and the feedback loops and inconsistencies in pre- and in-service training. All these themes are easily identified and described through the language of complexity, and this responds directly to Research Question 1.

The Chapters 1, 2 and 3 discussions also confirmed the hypothesis behind my third research question that participant-centred research methods are the most suitable way to access the data required to make recommendations on the progress and practices of a school. Further, by accepting that the teachers hold the key to that
knowledge but may not be able to reveal it individually or directly means that a technique such as the participant-guided tour invented for this study may indeed be the best or only way to access the community’s combined experience and possibly tacit knowledge. In response to these needs, Chapter 4 looks into participant-centredness, and paradigms and approaches with a view to accessing the full picture or richest data. It investigates the significance of the recurring theme of space and time, looks at how historicity demands a sense of longitudinality in the data collection process whether interviews are temporally spaced or involve reflection on past events so that new or changed policies and other interventions can be mapped against significant workplace developments and critical incidents. This mapping means that pattern emergence and recognition also needs to be explored in Chapter 4, in addition to the notions of how to record the flow of organisational change and the role of the individual with regard to organisational layers and social interrelations.
One of the drawbacks of complexity theory is that its “proponents ... enthusiastically see signs of it everywhere, pointing to the ubiquity of complex, dynamic systems in the social world” (Levy 1994:169). Thus, it will not surprise the reader that all organisations are considered here to be complex and that, from the writer’s perspective, it follows that the methodological implications given in this chapter are recommended as being applicable to research in any type of organisation.

Fortunately, “A number of methodologies, quantitative and qualitative, exist to facilitate the navigation of such complexity” (Sterman; Eden & Ackerman – in Georgiou 2007:7); nevertheless, the methodological path chosen here is qualitative for two main reasons. First, because of the loose and woolly nature that it is often criticised for, qualitative methodology is actually capable of more easily allowing innovative bottom-up participant-centred techniques to be created to meet the specific evolving requirements of the particular context under investigation. Second, qualitative methods are believed to be more appropriate for this study because of the limit of two case study sites, small number of participants and potentially rich narratives to be encountered. However, it should not be assumed that quantitativity is being ignored; the countable in terms of people, resources, space and money are very much part of
the study. It is firmly believed here that the researcher can never truly separate the qualitative from the quantitative, although this attempted dichotomy remains rife in the research community as Johnson and Duberley (2000:53) demonstrate: where some researchers turn to qualitative research in “response to the crudity of quantification … others … develop ever more sophisticated tools and techniques”. Newer mixed methods, such as those using of fuzzy sets (Ragin 2000), can escape the limiting dichotomy of traditional exclusive, exhaustive categories (Gilbert 1993) and allow chaotic human components to be perceived more realistically. The suggestion here is that research involving participant-centred research methods can do this the most effectively, although it is acknowledged that, as Eisner (1992:12) states, “No single genre can say everything. … Because any symbol system both reveals and conceals, its use provides … a partial view of the reality it is intended to describe or depict”.

It could also be said that, philosophically, a mixed underpinning has been chosen for this study with complexity theory as the mainstay and, in methodological practice, aspects of realism, positivism and functionalism to enable it. For example, realism – which has developed over the last sixty years similarly to complexity theory – “understands reality as holistic, and socially constructed” (Amaratunga & Baldry 2001:96); and in harmony with the positivist paradigm this study gives equal focus to facts and meanings, and also aims to formulate hypotheses and test them (see Table 5 overleaf for clarity of this crossover). Cohen et al. suggest that “anti-positivists would argue that individuals’ behaviour can only be understood by the researcher sharing their frame of reference: understanding of individuals’ interpretations of the world around them has to come from the inside, not the outside” (2000:20). However, in
line with complexity, it is believed here that a holistic view should be allowed to involve multiple aspects from different paradigms to be applied where there is a clear focus on what the methods set out to achieve. Indeed, Fuchs warns that “Functionalism would try to study social systems synchronically in a sort of timeless snapshot, but in reality a social system would only exist in and through its reproduction in time” (2003:137), but it could be argued that through the necessary bounding of the period of a longitudinal case study, the researcher is doing just this – “the study of an instance in action” (Adelman et al. 1976:141).

<table>
<thead>
<tr>
<th>Theme</th>
<th>Positivist paradigm</th>
<th>Realism paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic beliefs</td>
<td>The world is external and objective</td>
<td>The world is socially constructed and subjective</td>
</tr>
<tr>
<td></td>
<td>Observer is independent</td>
<td>Observer is part of what is observed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science is driven by human interests</td>
</tr>
<tr>
<td>Researcher should</td>
<td>Focus on facts</td>
<td>Focus on meanings</td>
</tr>
<tr>
<td></td>
<td>Look for causality and fundamental laws</td>
<td>Try to understand what is happening</td>
</tr>
<tr>
<td></td>
<td>Formulate hypotheses and test them</td>
<td>Look at the totality of each situation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Develop ideas through induction from data</td>
</tr>
<tr>
<td>Preferred method in research</td>
<td>Operationalising concepts so they can be measured</td>
<td>Using multiple methods to establish different views of phenomena</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small samples investigated in depth</td>
</tr>
</tbody>
</table>

*Table 5: “Key features of positivism and realism paradigms and the chosen mixed approach” (Adapted from Easterby-Smith by Amaratunga & Baldry 2001:97)*

Functionalism agrees with some of the points in the table above and adds others that also enable a complex underpinning. For instance:

1) *Societies must be looked at holistically as systems of interrelated parts.*
2) *Hence, causation is multiple and reciprocal,*

3) *Although integration is never perfect, social systems are fundamentally in a state of dynamic equilibrium.* ... *The dominant tendency is thus towards stability and inertia, as maintained through built-in mechanisms of adjustment and social control.* ...

6) *Change comes from basically three sources: adjustment of the system to exogenous (or extra-systemic) change; growth through structural and functional differentiation; and inventions and innovations by members or groups within society.*

7) *The most important and basic factor of social integration is value consensus* (Van den Berghe 1963:696)

There is also a tendency in this study towards the hermeneutic approach which centres on language and interaction with the aim of getting to the root of issues by way of the participants’ tacit knowledge; this echoes Weber’s *verstehen* approaches (Ringer 1997) and agrees with the notion that reality is socially constructed (Berger & Luckmann 1967) because it, too, enables participant-centredness and a complex underpinning. However, it must not be taken for granted that a complex mixed methods and paradigms approach necessarily creates cross-validated social data. Even the basic element of the questionnaire can throw up anomalies; for example, Spicker (2006:85) relates the occasion of the 2003 UK Census in which 390,000 people “gave their religion ... as ‘Jedi’”. Thus, as stated in the realism column of Table 5, the researcher remaining part of what is observed is crucial in maintaining rationality and an overarching principle of validity; although Maxwell, and Guba and Lincoln (in Cohen et al. 2000:106) highlight “the need to replace positivist notions of validity in qualitative research with the notion of authenticity” and Alvesson warns that the inherent egotism of ‘the author’ in ‘framing the story-line’ must be recognised (1999).
**Holism & Boundaries**

Complexity theorists generally subscribe to the ancient view that "The whole is more than the sum of its parts" (e.g. Aristotle in Mazzocchi 2008:11 – although this common attribution is firmly contested by Guberman & Minati 2007), but as Lilley et al. (2004:42) point out “if ... it is impossible to definitively define the boundaries of a system with any certainty, or indeed to define the overarching purpose it serves, how are we to recognise its wholeness?” Furthermore, Georgiou (2007:3) suggests that holism or the systemic approach are runners-up with researchers resorting to them only “when the treatment of a problem through the isolation of its constituent parts is rejected”. However, Prigogine and Stengers advise that system isolation cannot subdue interactions without threatening the core of the system’s behaviour (1986).

For instance, according to Elmore, concentrating on a single policy can mean that we forget the others and the effect that the one may have on the others (1996). Nevertheless, this does not deny the significance of the individual participant, especially with regard to their unique expertise and viewpoint. As Spicker (2006:85) states, “Sometimes only one person, in a key role, has a clear understanding of the issues. Sometimes a single example or complaint, a ‘critical incident’, can give some insight into the whole process.” Furthermore, “the opponents of positivism within social science ... would agree that the social world can only be understood from the standpoint of the individuals who are part of the ongoing action being investigated” (Cohen et al. 2000:19) and “Whatever the system is ... depends directly upon the viewpoints, or worldviews, of the human beings engaging with the situation” (Georgiou 2007:29). Thus, the choice of respondent or participant is crucial to the data accuracy and the questioning of the individual should not be equated with reduction.
One of the major issues relating to the two propositions given above is how to deal with the *thick descriptions* (Geertz 1973) that holistic studies at any scale can generate.

As Spicker states, “The main problem is knowing what to reject” (2006:85), but Gronlund recommends that validity should also be considered as a point on a fluid continuum and not as an end product (1981). Georgiou (2007:5) cautions that “holism, is more difficult to grasp than ... the deterministic, reductionist approach ... [because of] the manner in which the idea of system renders difficult, or even constrains, the identification of *causes* of effects”. However, the alternative reductionist view is “likely to produce misleading conclusions” (Houchin & MacLean 2005:153). Nevertheless, as Fuchs suggests, “Phenomena in one system are completely reduced to events in other systems” (2003:135), so much depends on the time- and space-bound perspectives of the study’s participants and researcher. Thus, the overriding ethic here is “fidelity to the phenomena being studied” (Cohen *et al.* 2000:22) and acceptance that “In living systems [as organisations are perceived to be in this study] there is no beginning and no end of the knowledge processes” (Schaurhofer & Peschl 2005:270).

Another perspective is that of Stacey and Griffin (2005:1) who assert that “organizations are not systems but the ongoing patterning of interactions between people” and they go on to justify this by saying that “Patterns of human interaction produce further patterns of interaction, not some *thing* outside of the interaction”. This belief has led them to the notion of “*complex responsive processes of relating*” (*ibid.*). Even though their initial assertion can be easily contested by those who see the system as an organic, evolving entity that consists of and is therefore equal to *patterns*
of human interaction with other human and non-human components, the notion of complex responsive processes of relating throw up some interesting ideas for research methodology with specific regard to objectivity. For example, autodriving (Heisley & Levy 1991), where the participant is in control of which data to collect – for instance, through photographing their workspace without the researcher present – is an attempt to remove the researcher from the data collection process and achieve more objective and realistic data. According to Becker and Geer (1957:29), the “most complete form of the sociological datum … is the form in which the participant observer gathers it”. However, as Latour warns, “Circulating reference does not stop with the data” (1999:103) and even the act of the researcher handing over a camera and asking a focus question impacts on the participant’s subsequent collection. This is because, as Devlin states, “we approach every situation from a prior context that inescapably shapes and prejudices the way we encounter and react to that situation” (1997:277). Nevertheless, autodriving techniques can enhance participant empowerment which in turn can help to break down initial defensive barriers and potentially nullify the sense of intrusion on both sides. For instance, in the case of using photographs as interview props (Keightley, Pickering & Allett 2012), Warren’s “triad of researcher-image-research participant” (2005:867) during interview “reduces the authority of the researcher … and raises the voices of the research participants” (ibid.:8) and thus may be seen to allow perceived interrogative pressure to be alleviated as the participant’s attention is directed towards the common visual. For instance, with minimal verbal input from the researcher, the empowered participant can guide the research by interpreting the content of the images how they see fit. This is more likely to lead to person-centred findings reflective of complexity theory’s
emphasis on uniqueness and irreducibility. At the fundamental level, Goldstein questions the traditional necessity for objectivity:

_Identifying emergent phenomena demands a similar conscientiousness and a similar community of practice. Starting with subjectivity doesn’t entail us necessarily ending up there. Otherwise, we would all be condemned to a solipsistic existence. Hence, in my opinion, subjective bias does not ring the death knell for emergence any more than it does for other attempts to find patterns in our environments._ (Goldstein 2000:13)

Indeed, Stacey and Griffin suggest that where patterns emerge from local self-organisation, “the insights/findings of the research must arise in the researcher’s reflection on the micro detail of his or her own experience of interaction with others. It follows that the research method is subjective, or rather, a paradox of detached involvement” (2005:9). Mannay (2010:92) echoes this warning that: “discourses of epistemic privilege can be dangerous because they produce a false binary, which silences the multifaceted nature of identities, lifestyles and perspectives”.

This said, one of the first tasks to undertake when planning any fieldwork is that of delineating the field, which at this early point in the research process may be more objective than subjective and relating to the researcher’s experiential assumptions and perceptions rather than any emerging understanding of the site or case. It usually means deciding the limits of the study with regard to time, space and/or range. For instance, in longitudinal projects, it is impossible to complete the research without defining the temporal start and end points; in physical geographical enquiry, one must define the borders of the location or specify the type of geophysical phenomenon
involved; in business studies, one cannot explore consumer buying behaviour without referring to ranges of demographic data. Hudson and Lowe explain that:

\[T\]he historical institutionalists regard it as a methodological necessity to understand the ways in which policies have developed over time and tend to use detailed historical case studies in order to explore the complex ways in which institutions have shaped processes of policy development.

(Hudson & Lowe 2004:150)

Thus, the acts of recognising, identifying and defining boundaries are of key significance in all research. However, the way in which boundaries are perceived from a complex perspective can be unsettling for the traditional researcher due to their lack of fixedness and their ability particularly in open systems to be “both permeable and potentially able to move” (Lilley et al. 2004:39). This permeability can blend the outer and inner realms so that the researcher may find temporal, spatial or range-related elements bleeding into and out of the sample, especially if the procedure involves de Certeau’s notion of emphasizing the immediacy and nowness of walking in some form of mobile method (1984). Ho provides a temporal version of this point saying that “the here and now contains in its essence a myriad of there and thens” (1997:44) and Fuchs echoes this idea of the age of the objects under study to the whole and parts notion: “Emergentism … argues … that the new and the whole are more than the old and the parts” (2003:135).

A common boundary that appears to be taken for granted in business and management research is that between the organisation and its environment. However, as Manning points out “One of the most widely debated problems is the
conceptualization of the relationship” between the two (1982:119) and it is this issue of conceptualisation that can make the perceived boundary either unrealistic or illusive. Lilley et al. explain why this is the case:

*An open system ... transact[s] with its environment. In the process it may give up some of itself to the environment or indeed, consume some of that environment, making it part of the system as both system and environment change, or evolve over time.*  
(Lilley et al. 2004:39)

Therefore, attempting to precisely differentiate between them may be fighting a losing battle due to the way the sense of internal and external is embedded in the organisational literature and in organisations themselves. For example, the common organisational terms *input* and *output* perpetuate the existence of the systemic boundary through their lexical make-up. One could presume that adjusting to the complex view of unbounded organisations and their re-situation in the global flow will not happen until there exists the vocabulary with which to discuss it. However, this smacks of the notion of the British Empire arrogantly *discovering* landmasses that had been populated by the indigenous peoples for centuries. In other words, the fact that we cannot currently find the words to accurately describe the things that we believe to be there does not mean that they do not exist or wait in stasis until we can. One way to propel this linguistic evolution forward is to discuss the phenomenon involved and through conflicts in the discussion find more accurate ways to define its terms, and what better way to inform this discussion than through the analysis of data gathered in interviews. The interview’s natural “dynamic power and trust which concerns the acceptability of certain kinds of questions, the right to ask them, the pressure to provide an answer, and the right to conceal the answer” (McDonough & McDonough
1997:172-3) enables information to be gathered that questionnaires and observation cannot access. As Cohen et al. (2000:267) state, “the interview is not simply concerned with collecting data about life: it is part of life itself, its human embeddedness is inescapable.”

Another issue with identifying the relationship between “system and environment … is the endlessly moot point over whether the boundary of a system is seen to be part of the system, part of the environment, part of neither, or part of both” (Lilley et al. 2004:40). It is suggested here that one can only perceive a boundary through acknowledgement of its objects and these would not be in existence without both the system and environment, so the view maintained in this study is that boundaries are loose and perceived entities constituted of emerging and engineered objects that may be seen or unseen. Shackley and Wynne, and Star, suggest that “Inscriptions can function as boundary objects [and they define boundary objects as] … relatively stable things, people, projects, texts, places, maps, and ideas that are part of and mediate between heterogeneous practices, actors, communities of practice, and social worlds” (in Roth & McGinn 1998:403). It should not be forgotten though that boundaries and boundary objects are also created during the act of research itself and one set of boundary objects which is unstable is the researcher’s interview transcriptions. As Cohen et al. (2000:281) state, transcribing is “a crucial step, for there is the potential for massive data loss, distortion and the reduction of complexity”. However, “a transcription represents the translation from one set of rule systems (oral and interpersonal) to another very remote system (written language)” (ibid.) which exacerbates the issue of data loss, but the translation jump from visual-kinaesthetic to
visual-written, which is the procedure used in the participant-guided tour designed for this study, is smaller and so encourages data retention. Thus, it is important to realise that boundaries like boundary objects themselves, such as inscriptions, “do not exist on their own, but are central components of networks ... which they help sustain” (Latour in Bryman & Bell 2003; Roth & McGinn 1998:404).

Van Loon suggests that the preoccupation with such dualisms as those mentioned above is a Western phenomenon and gives environment and nature as examples of widely debated non-entities and the word society as a case in point (2006), and as mentioned in the Introduction, Manning succinctly states that “The organization and environment distinction ... is little more than a tautology” (1982:123). However, the impact of this debate on research methods calls for an acknowledgement of complex concepts; for instance, it is suggested that complexity and the ‘embeddedness’ of social truths can be documented through the case study (Adelman et al. 1976) and participant-led photography or tours encourages investment in the research (Carpiano 2009) and a grounding in the space in which the picture-taking takes place. The pilot study (Abusidualghoul 2007a) undertaken in preparation for this project highlighted the importance of embedding the social interaction of the interview and questions relating to social interaction within the specific social and physical space under analysis. As mentioned in the introduction, some interviews had taken place in the teachers’ classrooms and some in their staff room. The data showed that those teachers who had talked about their workspaces while seated within them – literally seeing and physically pointing out, for example, sharp corners, blinds, extra high lumens projectors and pupils working – gave much richer and more detailed
information than those who were remembering and imagining. There is nothing revolutionary about such a realisation – in fact, it could even be considered common sense. It was simply an example of how “our understanding and ordering of the world is deeply connected to our experience of it” (Weaver 2008:2).

The emergence of this more effective interview technique demonstrated a fractal relational quality to the situated conversation. As Elwood and Martin state, “the interview site itself produces ‘micro-geographies’ of spatial relations and meaning, where multiple scales of social relations intersect” (2000:649). In practice, this acted as a memory-jogging device in terms of stimulus (Büscher & Urry 2009), as a stabiliser in terms of giving the participant locus of control (Lefcourt 1982) and as a mapping device in terms of the researcher’s notional position and the physical location of the subsequent main study. Tsoukas and Hatch note the critical importance of the researcher’s position when investigating the features of complex systems (2001) and Cohen et al. (2000:22) highlight the stabilising constant of situatedness saying “situations are fluid and changing rather than fixed and static; events and behaviour evolve over time and are richly affected by context – they are ‘situated activities’”. Marion states that “some measure of stability is key to memory and mapping” (1999:73) and Schaurhofer and Peschl (2005:270) stress that “Memory, described as representations of experienced relations, has the dominant and direct impact on all processes in a knowledge system.” Thus, creating stable conditions in which to conduct research is essential to maximising the participant’s recall skills, and physical location is a relatively simple way to achieve this end (Pink 2008). This is especially
significant where the research involves reference to sensitive or emotional issues or events.

In contrast, physical and non-physical context can also be used to destabilise the participant in order to jog a memory or stimulate a particular response. However, Devlin states that:

> People don’t have to be taught how to make use of context to understand each other’s words. We do it automatically. We only become aware of the huge role that context plays when something goes wrong – when we fail to communicate. (Devlin 1997:201)

This implies that the potential for intuitive rather than consciously reflective interpretation of data during collection and post-collection may be more likely through destabilisation. Schneider comments on the unstable and dynamic nature of organisational knowledge suggesting that:

> Knowledge in organizations cannot be regarded as a fixed, stable body of facts or information. Rather, it must be seen as situated, dynamic, constantly negotiated, and constantly shifting, as members of organizations work to have their version of the organization legitimated as the one that counts. (Schneider 2001:228)

Thus, Bryman and Bell’s warning that “Interviewing within organizations also involves encroaching on an individual’s work time and in some cases it may not be possible to take people away from their work during the hours of their employment” (2003:347) is seen here as a blessing in disguise. However, Carpiano’s point that time of day was one of the main limitations for his walk-along tour due to when potential participants
would be in situ or available (2008) needs to be taken into account where the researcher is relying on certain participants and environmental stimuli to visibly coincide during, for instance, a walking interview (Evans & Jones 2011). In fact, one of the main reasons why focus groups or group interviews have not been chosen for this project is that convenient, relatively unobtrusive and situated access to the participants means arranging interviews during their working day. This involves the teachers covering each other’s classes during the interview period and so removing a group of teachers from their classes at the same time would be impossible. A subsidiary reason is the issue given by Spicker (2006:76) about “group interviews … that people will feel some pressure to make their answers consistent with each other” and that would be ironic considering the fact that one of the focal criticisms of the education system that this project asserts is that of attempts at inappropriate standardisation.

**Space & Time**

Kidder affirms the notions above asserting that “social relations are anchored in and mediated through physical space” (2009:311) and thus the researcher’s decision on where to draw the spatial boundary of their fieldwork is of crucial importance. However, there are major issues relating to how far out to retreat from the focal point in order to gain a broader view of the *big picture* and how close in to move in order to investigate its detail. For instance, “even if one does accept that there is one overall system in which all others may be considered, the choice of which system should be seen as the most encompassing is far from clear” (Lilley *et al.* 2004:43-44). The standpoint taken here is that which developed in fractal theory and is succinctly explained by Suteanu (2005:117): “there is no best scale. What one should do is to
take into account the results at all the scales and find the relation connecting them”.

He gives the following example:

*Richardson’s (1961) exasperation when a coastline length became longer
and longer every time he used a map at a larger scale, a map which was
therefore more detailed, revealing irregular windings of what was seen as a
straight-line segment on smaller-scale maps. Naturally, questions arose:
where should one stop? At what scale? What is the ‘right’ scale to use in
order to study this problem?  

(Suteanu 2005:117)*

With regard to these *windings* and the enmeshed nature of spatial and temporal
elements, Ho (1997:44) points out how “quantum theories demanded that we stop
seeing things as separate solid objects with definite (simple) locations in space and
time. Instead, they are de-localized, indefinite, mutually entangled entities”. However,
Nóvoa and Yariv-Mashal state that “The re-conceptualisation of space-time relations is
problematic, because it implies a rupture with the sensorial conception of space and
time, as ‘things’ that can be physically touched” (2003:431). It is argued here that
notional perception as relayed through words and actions, for instance in the interview
context, are akin to *physical touching* in their strength and necessity for acknowledge-
ment; the participant’s recall, identification and description of events and emotions
should not be considered any less real or valid because of their constituent
intangibility and membership of a fuzzy space-time flow. Indeed, if systems are indeed
“organizations of elements through which goal-directed processes occur” (Lilley *et al.*
2004:38), then the incidents when goals and process steps are achieved should be
markable in time and space. In fact, there may be an opportunity to map events in
time using Poincaré’s method of “recording the character of the system at successive
time points and presenting a description of it at the successive times we measure it”
in Byrne 1998:24). In addition, Buchanan suggests that photographs can be of
assistance in interview contextualisation because they help:

- develop a richer understanding of organizational processes;
- capture data not disclosed in interview;
- reveal to staff aspects of work in other sections of the organization with
  which they have little or no regular contact;
- offer a novel channel for respondent validation of data; and
- involve staff in debate concerning the implications of research findings for
  organization process redesign and improvement.

(Buchanan 2001:151)

Another way to achieve a form of mapping of time- and space-related data is to ask
participants to engage in historical reflection with questions that focus on spatial
qualities or locations. If interview data can then be plotted together in some form of
space-time map, an overall view of a located case study period could be revealed.
However, such a technique presents the opportunity for enmeshedness, in/stability
and other patterns to exhibit themselves in a seemingly unfathomable mess and
render the data unusable for the intended purpose, and any attempt to simplify the
results would end in futile reduction. Fuchs warns of the importance that “The
qualities that result from temporal and spatial differentiation of a system are not
reduced to the properties of the components of the system” (2003:135). In fact, it is
felt here that the interconnectedness of social science data should be revelled in
rather than reduced and it is the researcher’s responsibility to learn to read complex
data patterning because it is at the edge of chaos (Cunha & da Cunha 2006; Goodwin
2001) that the greatest findings may exist. For instance, Nóvoa and Yariv-Mashal hint at chaos theory’s *butterfly effect* – “events happening in one place and time may have important impact upon other places” (2003:431) – and Bossomaier and Green talk of how “Dynamic spatial patterns exhibit self-similarity” (1998:120).

These two examples demonstrate how “a purely physical definition of space and a chronological definition of time are no longer sufficient … [and] we cannot continue to think of [them] as autonomous entities, ignoring the fact that [they] tend to merge into the same reality” (Nóvoa & Yariv-Mashal 2003:431). Research that takes the inextricable nature of time and space as read and deals with it as a positive underpinning should be championed. O’Connor suggests an approach that does just this:

> Embedded narrative is a useful construct for attending to and shedding light on the temporal and spatial context of organizational change initiatives. Change is a phenomenon that is located in time and space. With such location, then, substantive processes of contextual relation become evident and analyzable. (O’Connor 2000:176)

This form of ethnographic discourse analysis is an extension of the interview, where rather than interviewing a person, the researcher interviews or interrogates a contextualised dialogue between speakers or the writer and reader. To consider discourse analysis such is to de-fetishize it as an(O)ther method. As Bryman and Bell (2003:341) state, “The interview is probably the most widely employed method in qualitative research” and with regard to policy analysis, Spicker (2006:75) confirms that “Individual interviews are the most used technique”. The discussion around the
common interview can also be applied to that of the analysis of embedded narrative. For instance, Tuckman (1972) asserted that the researcher should prevent the participant from going off-topic during the interview, whereas three decades on, Bryman and Bell (2003:342) argue that “In qualitative interviewing, ‘rambling’ or going off at tangents is often encouraged – it gives insight into what the interviewee sees as relevant and important”. Discourse analysis does not allow for the former suggestion of researcher control other than by delineating or cropping the chosen excerpt and with regard to the latter, this type of analysis shifts away from researcher interruption or encouragement to allow a fixing of how much the participant genuinely wanted to ramble at the time of the data collection.

**Longitudinality**

Longitudinal studies, as mentioned above, require temporal boundaries at the start and finish, and often have demarcated temporal stages along the way. The issue with this is that the setting of bounded timeframes in the social scientific world of inconsistency and unpredictability can lead to disappointment due targets not being met, a distortion of data through hurry or the misreading of isolated periods of activity. As intimated by Beach (1999), although at some points an activity may be categorised as leading due to its dominant role at that time, the same activity may occur at other points but with a subsidiary effect. The example he gives is the sequence of “playing followed by schooling, working, and retirement” (ibid.:124). It appears to depend on the researcher’s perception of causal relations and their mapping.

*Determinism argues that causes and effects can be mapped linearly—each cause has one and only one effect, similar causes have similar effects,*
different causes have different effects—and it assumes that small changes of causes necessarily have small effects and large changes of causes necessarily have large effects. (Fuchs 2003:135)

However, complexity and, in particular, its notion of bifurcation (van Eijnatten 2003) does not concur with this view and as Mandelbrot states, “if different points of view produce different results, this is not a problem to solve, but an opportunity to use” (in Suteanu 2005:116). Table 6 overleaf demonstrates in its presentation of the features, strengths and weaknesses of longitudinal studies other points of contention. For instance, lengthy time-consumption should only be considered a weakness where funding restrictions and sponsor deadlines are involved; if this is an issue, the question should be whether this is the right funding and sponsorship for the project, not whether it is the correct method. In addition, the issue of sample mortality should be treated as a strength because it is a reflection of a real-life pattern of component transition. The weakness of control effects can be combatted by each site visit involving a different research angle or data collection approach, which should reflect the realistic nature of the evolving research needs and in turn celebrate the natural effects of interviewing on the project plan.

The act of securing longitudinal participation should be seen as an opportunity, rather than a problem, because this process provides the chance for site reconnaissance and a gauging of participant interest and suitability. Lastly, the complicated nature of rich individual level data should, as mentioned above, be considered a blessing due to the focal options presented. Any attempts to counteract these natural system attributes would deny the research its realism.
<table>
<thead>
<tr>
<th>Features</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single sample over extended period of time.</td>
<td>Shows how changing properties of individuals fit into systemic change.</td>
<td>Time-consuming – it takes a long time for the studies to be conducted and the results to emerge.</td>
</tr>
<tr>
<td></td>
<td>Operates within the known limits of instrumentation employed.</td>
<td>Problems of sample mortality heighten over time and diminish initial representativeness.</td>
</tr>
<tr>
<td></td>
<td>Separates real change from chance occurrence.</td>
<td>Control effects – repeated interviewing of the same sample influences their behaviour.</td>
</tr>
<tr>
<td></td>
<td>Brings the benefits of extended time frames.</td>
<td>Interviewing effects attenuate the initial research plan.</td>
</tr>
<tr>
<td></td>
<td>Useful for charting growth and development.</td>
<td>Problem of securing participation as it involves repeated contact.</td>
</tr>
<tr>
<td></td>
<td>Economical in that a picture of the sample is built up over time.</td>
<td>Data, being rich at an individual level, are typically complex to analyse.</td>
</tr>
<tr>
<td>Enables the same individuals to be compared over time (diachronic analysis).</td>
<td>In-depth and comprehensive coverage of a wide range of variables, both initial and emergent – individual specific effects and population heterogeneity.</td>
<td></td>
</tr>
<tr>
<td>Micro-level analysis.</td>
<td>Enables change to be analysed at the individual/micro level.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enables the dynamics of change to be caught, the flows into and out of particular states and transitions between states.</td>
<td></td>
</tr>
</tbody>
</table>

*Table 6:* Adapted from “The characteristics, strengths and weaknesses of longitudinal ... studies” (Cohen et al. 2000:178)

For example, a highly structured interview may deny “the infinite complexity and open-endedness of social interaction ... [although] it is important for each interviewee to understand the question in the same way” (Scheurich and Silverman, respectively – in Cohen et al. 2000:121). Furthermore, any restriction on time spent may cause the
researcher to miss occasional, ambiguous yet critical incidents that complete the research jigsaw (Flanagan 1949).

Surely, the main point of conducting longitudinal studies is to allow for such complex patterns of interconnected effictility or apparently single unattached events to unfold naturally over time. As McMillan says:

\[\text{[C]omplex dynamical systems ... are not, as a whole, unstable although they exhibit unstable behaviours. The system may appear to be behaving erratically and unpredictably at first glance but observation over a longer period or on a wider panorama or visual scale will show patterns emerging that echo each other and weave around to form an unexpectedly stable tapestry of behaviours.} \]\hfill (McMillan 2006:18)

Thus, patience on the researcher’s part is of paramount importance if “the constructed nature of (discursive) data [and aforementioned] intrinsic narcissism of ‘the author’ in ‘framing the story-line’” (Alvesson in Marshak et al. 2000:256) are to be avoided. Cohen et al. suggest the case study for such research because it can “catch the close-up reality ... of participants’ lived experiences of, thoughts about and feelings for, a situation” but they too warn of the necessity for patience in the observation of unfolding findings saying that “it is important for events and situations to be allowed to speak for themselves rather than to be largely interpreted, evaluated or judged by the researcher” (2000:182). There must also be a broad view taken so as to encompass findings that may arise across the aforementioned scales. Suteanu echoes this suggesting that what is required are “insights about the way in which the different parts relate to each other at different scales” (2005:117) and as Fuchs says, “Microscopic interactions result in new qualities on the macroscopic level of the
system” (2003:135). Allowing for such freely emerging data at various scales of the organisation in question demands what Kvale (1996:30) calls deliberata naiveté, where “The interviewer exhibits an openness to new and unexpected phenomena, rather than having ready-made categories and schemes of interpretation”. Stengers’ alternative name for this state is a “new mode of astonishment” (2000:72), where the researcher explores the potential attributes as though seeing the world for the first time; and, echoing Weaver (2008), Pink (2008) suggests that by experiencing the location and other interview stimuli with the participant as leader, the researcher is better placed for a clearer understanding of the data.

The pilot study for this project is a case in point: the issues that came to light related to the staff in terms of their professional responsibilities and interpretations of the self, and the school’s architecture with reference to the effects of its structural conditions, and the staff’s memories of certain structural elements in opposition to aspects that were invisible to them. These issues related to different spatial and temporal scales, and emerged specifically in relation to the research site and could not be generalised into a model or reduced to a formula. This highlights the importance of respect for uniqueness and “the role of subjectivity in the discernment of emergent patterns” (Goldstein 2000:12). Indeed, case studies are ideal for coping with such site-specific “unanticipated events and uncontrolled variables” (Nisbet & Watt 1984) and they can also take on board variety in the scales of researcher perspective. As Wind et al. state, “zooming in and out, changing the focus between the broad vision and the detail has become a verified way of dealing effectively with complexity” (in Suteanu 2005:118). Case studies also give the opportunity to zoom in and out temporally:
In not having to seek frequencies in occurrences, [they] can replace quantity with quality and intensity, separating the significant few from the insignificant many instances of behaviour. Significance rather than frequency is a hallmark ... offering the researcher an insight into the real dynamics of situations and people.

(Cohen et al. 2000:185)

**Patterns**

Recognising, recording and mapping patterns demand a pattern of researcher behaviour in itself in order to be effective. Lofland and Lofland advise that:

> the analysis of qualitative data is not left until all the interviews have been completed and transcribed. To procrastinate may give the researcher the impression that he or she faces a monumental task. Also, there are good grounds for making analysis an ongoing activity, because it allows the researcher to be more aware of emerging themes that he or she may want to ask about in a more direct way in later interviews.

(Lofland & Lofland in Bryman & Bell 2003:355)

This emergence of themes has an intrinsic rhythm or order and is something we appear to be naturally drawn to; “each and every one of us attempts to discern patterns or shapes in seemingly unconnected events in order to better grasp their significance for us in the conduct of our daily lives” (Cohen et al. 2000:349). For example, Ward reports on rhythm evolving out of apparent randomness in chaotic social behaviour in the natural world (2002) and, as Locke’s 1992 work shows, music and art generated from a chaotic algebraic formula contain patterns that give a momentary comforting semblance of order to the audience. Georgiou (2007:51) explains that “emergent properties are liable to some form of justification through consciousness’ continuing temporal engagement with phenomena”. Thus, it is not
surprising that the emergence of patterns in apparent organisational chaos has become a common research topic. As McMillan states, “Pattern recognition is a key way of recognising, learning and understanding things” (2002:9) and, as Chapter 5 will show, patterns can be quickly revealed by participant-centred methods that focus on effictility.

On the other hand, how data is collected and recorded has an effect on pattern recognition. For instance, audio recording often negates elements of the interview context such as visual cues (Mishler 1986). This is especially significant where participants use patterns of body language such as pointing at image components or items in their surroundings, and where the potentially emotionally patterned non-directive interview is employed, which has “minimal direction or control exhibited by the interviewer and the freedom [for] the respondent ... to express her subjective feelings as fully and spontaneously as she chooses or is able” (Cohen et al. 2000:273; Abusidualghoul 2010; Evans & Jones 2011). In addition, recording is not always possible, especially if interviews are conducted in noisy spaces, sensitive environments or on the move, and there are also cases where the interviewee has agreed to an interview, but not to being recorded. The six real cases provided by Abusidualghoul et al. (2009) narrating what can go wrong during semi-structured interviews are recommended as entertaining and sagacious reading.

Although it can err close to reduction, open coding can aid in the analysis of patterns:

*Issues, comments and findings are grouped together thematically. From the material, some general issues emerge. When themes get to be too full of information, they can usually be split up into sub-themes. Where there is*
material that does not fit an existing theme, it can be put into a new category. The process carries on until all the material is grouped with other material. 

(Spicker 2006:82)

The priority here is to allow for emergence as the first point of action even though what emerges may only be recognised as significant due to the researcher’s relationship with the data and context. As Pickering points out, there has grown:

greater recognition of the need to deploy research methods in a more participant-centred way, and to develop relations between researchers and researched on a subject/subject basis rather than attempting to adopt a position of spurious detachment from an isolated object of research.

(Pickering 2008:19)

Conversely, Tuckman (1972) asserts that the interviewer should consider him or herself just another data recording mechanism, but in terms of the researcher’s relationship with the participants within the context, Walker warns that the participant’s perceptions and preconceptions about the interviewer can affect the results (1980). Thus, this researcher-data-context-participant relational quadrangle means that the understanding of emergent properties should be considered subjective. For instance, an educationalist seems more likely to be able to recognise that “Emerging patterns in evolving school practices can provide insights into what site-specific interventions can do” (Abusidalghoul 2007b) and in turn be able to identify those insights when they arise in the findings. Marion implies the importance of the context’s own constituent patterning in this process of identification: “Mapping is ... related to the complex system’s ability to order interaction patterns and, by extension, to categorize its environment” (1999:71). However, Santos et al. warn
against involving participants in the identification of such patterns explicitly where
relating to specific inscriptions:

[S]trategic maps and/or cognitive maps do not allow participants to
understand fully the implications of interconnections between the factors
affecting performance due to the existence of non-linear interactions,
delays, feedback loops and other elements that give rise to dynamic
complexity and which are not incorporated in these types of mapping.

(Santos et al. 2002:1249)

Houchin and MacLean further caution that “when infused with human issues such as
memory and desire, the role and nature of feedback, and the distinction between
positive and negative variants, become somewhat blurred” (2005:161). One way to
discover what has led to a particular pattern emerging in an organisation is to identify
its (strange) attractor or attractors. Newman (in Goldstein 2000:8) defines them as
“instantiations of emergence” and Marion (1999:72) suggests that they “are the
medium of mapping”. Thus, it would seem reasonable to expect the key points in
participants’ responses to formulate a map of attractors. Indeed, within one
institution, the crossover of participants’ responses could demonstrate the strength of
certain attractors.

Flow
Another facet that can affect the identification of pattern is the rapidity of
organisational change. Beach claims that “the general rate of change for individuals is
less than that for activities, which in turn is less than that for societies” and he goes on
to say that “the most revealing cases of consequential transition are instances in which
activities and societies change rapidly within the time span of the individuals

135
participating in them” (1999:124). This can impact on and be impacted by the length of a longitudinal study and its potential for sample mortality (see Table 6) although Sturman’s point about case studies shows that their reductive temporal possibilities may not always affect content analysis: “case studies investigate and report the complex dynamic and unfolding interactions of events, human relationships and other factors in a unique instance” (1999:103). Such a unique instance could be where there is a temporal match between events in the chosen flow; as suggested by Prigogine (1980), one lesson we have learnt from complexity theory is that intersecting processes whose time constants correspond can trigger resonances, which in turn can trigger key transformations. These resonances could be a result of attractors; indeed, Marion (1999:74) suggests that “An attractor maps a part of the environment by resonating, or correlating, with it”. However, Gleick with reference to Libchaber hints at the broad implications for the application of flow in his definition of it as consisting of shape, change and motion, being universally applicable, laminar, bifurcating or chaotic (1987). Bohm (1983) recommends that in the quest for meaning, isolated system states ought not be the focus, but instead transformations – the process of becoming. One application to cognitive processes can be seen in Figure 2 overleaf.

Where the traditional researcher might focus on the cause-effect relationship between perceiving and acting given in Figure 2, the complex researcher would be more likely to explore the flows of expecting, relating and remembering. Interestingly, in relation to education, Kayes (2002:140) describes learning as “a continuous process of responding to diverse personal and environmental demands that arise from the interaction between experience, concept, reflection, and action in a cyclical—albeit not
necessarily orderly—fashion.” Although both of these examples of flows are named processes, which gives the impression of a chain of events, they contain similar reflexive elements and an inclination to loop. This implies that research involving such flows should take this into account either through the specific questioning of participants or targeted observation.

![Diagram of Flow of Cognitive Processes](image)

Fig. 2: “Example for the flow of cognitive processes” (Schaurhofer & Peschl 2005:268)

Interviews exhibit opportunities for the required flexibility but how this is exploited depends on the researcher’s on-the-spot interpretation and improvisation skills. Bryman and Bell give two scales at which this can happen: in “responding to the direction in which interviewees take the interview and perhaps adjusting the emphases in the research as a result of significant issues that emerge in the course of the interviews” (2003:342-343). This relates directly to the discussion of the natural elements of longitudinal studies that were considered weaknesses according to Table 6. Indeed, with specific reference to case studies and as mentioned on page 130, Cohen et al. (2000:182) warn that “it is important for events and situations to be
allowed to speak for themselves rather than to be largely interpreted, evaluated or judged by the researcher” so a balance must be sought and the time needed for such revelations to be taken into consideration when planning the research project. In fact, participant-guided tours, the data collection technique designed for this study, can be used at any point during the project for a variety of purposes:

* start > generating further research
* mid > use data from initial interviews to generate the focus question
* end > checking conclusions, resolving issues, filling gaps

(Abusidualghoul 2010:slide 10)

This methodological flexibility in the researcher’s toolkit can allow improvisation in response to fieldwork demands, and Stacey and Griffin similarly tout “the perspective of complex responsive process [which they claim] leads one to a view of methodology which is essentially exploratory and emergent” (2005:10). However, both require great researcher confidence in the methods at their disposal, their own understanding of the context and participants therein.

Another consideration is the spatial breadth of the study which could be as broad or narrow as the potential longitudinality is long or short. Castells’ space of flows notion hints at the modern possibilities for the extension of the physical space: it is “the technological and organizational possibility of organizing the simultaneity of social practices without geographical contiguity” (2000:14). This includes “a territorial dimension, as it requires a technological infrastructure that operates from certain locations, and as it connects functions and people located in specific places” (ibid.). Nevertheless, it is suggested here that whether participants are physically or digitally
sharing the same environment, the same temporal and situational issues can occur. For instance, Beach’s (1999:109) comments about learners exemplify many of the points made above:

*Often, changes in tasks and situations do not occur within the same time frame or at the same rate as changes ... Studies that use the learner as the sole temporal point of reference for studying and facilitating transfer are methodologically unable to include the genesis and dynamics of tasks and situations. A model that includes the creation and interlinking of tasks and situations as well as the continuity and transformation of individuals is needed.*

(Beach 1999:109)

This is why the standard assessment tests discussed in Chapter 3 in themselves show nothing. It would be better to use a measurement instrument like the DLHE (Destinations of Leavers from Higher Education) tool (Little 2005) – which collects data on how many graduates have particular types of employment six months after they leave university – to see whether a primary school gave them a good enough start in life to enable them to reach their potential. However, as mentioned in Chapter 3, this would not turn the figures around quick enough for successive medium-term governments (Anderson & Biddle 1991). Another flow involving educational development is staff collaboration in schools; Campbell and Southworth (1990:75) explain that “there is movement away from independent to interdependent activity ... However, we believe that movement along the continuum does not occur on a single strand. Rather, we conceive the continuum as being composed of several strands.” This notion seems nevertheless to be still limited and limiting.


**Layers & Interrelations**

An alternative less fluid perspective of flow is given by Lilley et al.:

*The point here is not simply that all systems are nested, which would be fairly easy to deal with if there was just one hierarchy in which they were all related. Rather, it is that there may well be multiple hierarchies, in multiple systems, which may not be reduced to one overall ‘world’ system.*

(Lilley et al. 2004:43-44)

Others identify these phenomena as layers; for instance, Cohen et al. (2000:22) suggest that “reality is multi-layered and complex” and Latour applies this to research, stating that building a quantitative research project “in successive layers renders it more and more real within a network traced by the displacements ... of researchers, samples, graphics, maps, reports, and funding requests” (1999:76). Georgiou suggests that “The concept of feedback is useful because it allows the linking of causal structure with dynamic behaviour” (2007:7), but it is important to realise that analysis built upon the isolation of feedback loops within a system can lead back to a simplistic and reductive notion of process chains and chain reaction. Another way to investigate such causal dynamic relations is through Giddens’ *structuration theory* which looks at the interactive operation of structure and agency (1984) and how they “exist in a recursive relationship. Thus, while agents draw on structures during their processes of interaction, by performing social activities they reproduce the actions that make these practices possible” (Busco 2009:250). As Schaurhofer and Peschl suggest, “All processes of knowledge are mutually connected. Changes in one process have a direct influence on all other processes” (2005:270) so research into the iterative nature of organisational feedback would incorporate opportunities for multiple strands, nests
and layers to emerge. A further set of interrelations occurs between discourse and situation which from a complex standpoint must be viewed as inextricably intertwined. Chambers highlights their relational significance in participant narrative plotting: “Relevance is ... the perception of a relationship between story discourse and story situation” (1984:20). A practical example can be found in “speaking and writing [which] are not separate domains, each operating in the absence of the other. Writing in organizations is embedded in a stream of organizational talk that occurs before, during, and after the writing of any particular document” (Gunnarsson, Linell & Nordberg; Miller - in Schneider 2001:229). Thus, exploring the way one activity is carried out without consulting the other negates a large part of the big picture.

The literature uses the term networks to describe what were once considered harnessed interrelations, but according to van Loon (2006:308), they “are marked by multiplicity. That is to say, their complexity is defined by a holistic unity of a diversity of connections”. In addition, although Actor Network Theory implies a lattice of nodes, links and mesh that does not sit well with complex notions, “in response to challenges from within, ANT moved towards a more post-structuralist ethos stressing fluidity, transformation and ambivalence” (ibid.:310). Furthermore, Roth and McGinn refer to the usefulness of its fractal quality for research purposes:

[E]ach actor can itself represent an actor network. ... Each actor can therefore be investigated as an actor network which will yield representations that focus on constructed and negotiated nature of the decisions, and the relative importance of individual politicians, policies, laws, and so forth. (Roth & McGinn 1998:405)
Derrida also suggests that whatever roles people within an organisation have taken on, they should be considered “all mediators, translators” (1995:116) and Latour talks of *circulating reference* where chains of processes form “a cascade of re-representations” that causes the object being passed through the process to “lose information on its way and ... redescribe it” (1999:248). Georgiou (2007:7) points to the interrelations in organisations in general stating that “most systems are constituted by a multitude of interconnected positive and negative feedback loops and their behaviour is rooted in a complexity which makes it difficult to see what causes what.” Fuchs’ discussion of Giddens’ explanation of loops clarifies their variety:

*Actors reflexively monitor their actions, i.e., human behavior has an intentional and purposive character. But there are also unintended consequences of actions which, by way of causal feedback loops, form unacknowledged conditions of further actions. Giddens calls this type of reproduction homeostatic loops. Another type is reflexive self-regulation, which are causal loops that have a feedback effect in system reproduction, where that feedback is substantially influenced by knowledge which agents have.*

(Fuchs 2003:141)

A method that could capture the essence of such mediators, re-representations and loops would need to be capable of ensnaring their transient nature and their motion. For example, internal politics arise from decisions made by staff members, governors, parents and pupils. Sayer (1992:30) suggests that these “social phenomena are concept-dependent ... [and that] (w)hat the practices, institutions, rules, roles or relationships are depends on what they mean in society to its members.” This points to the potential research of N-terms (named natural phenomena) and S-terms (social constructs) – the latter in particular, due to their “self-referential and self-validating ...
aspects” (MacKenzie 2001:127). For example, Spicker signals the perceived significance of numbers over words:

There is an obvious temptation in policy making to ... present the material as if the numbers really did mean more than the comments. But the distinction is fairly nonsensical. The worth of opinions and comments does not increase because a number has been stuck on them; if anything, the process of turning comments and views into something that can be counted can act to distort the source material. (Spicker 2006:84)

This fear of distortion is especially apparent in the qualitative research methods literature where techniques such as the aforementioned autodriving (Heisley & Levy 1991) and photoelicitation (Keightley, Pickering & Allett 2012) have evolved in an effort to combat misinterpretation and pass the locus of control (Lefcourt 1982) back to the participant. For instance, Mannay (2010) talks of making the familiar strange in order to suspend researcher preconceptions where the researcher is considered too close to the topic. Although in many cases, the researchers’ understanding of the context would be beneficial to the speed of analysis and improvisation, where strong emotions may interfere with this understanding in the form of enforcing preconceptions on the data or misleading the participants, it has to be decided at the planning stage and re-assessed during the project, whether it would be better to find a less involved individual to collect and analyse the data.

Another example is that warned of by Emmison and Smith, Wang, Cash and Powers who say that there are “limitations if researchers are still going to be the ones driving the interview by selecting the photographs from a personal collection or from among those taken by the participants” (in Packard 2008:68). However, this can be
combatted by allowing the findings from secondary research to dictate the images, which was the technique used in the pilot for this study where a 1968 photograph from an architect’s anthology was re-taken almost fifty years later from the same angle and shown to participants for comparative discussion (see Appendix A). Alternatively, in the primary research phase, the researcher could give the participant the opportunity to discuss all of the photographs they themselves have taken while “asking [them] ... to explain why [they] took each picture, when it was taken and what [they think] it reveals. [and] Keeping a relatively open and standard set of questions” (ibid.). This also needs to be thought through carefully at the research planning stage so that the number of images captured is manageable within the temporal parameters of the interview slots available, and the researcher needs to be aware that the comparability of talk on different images taken for different reasons may be limited. To build interrelating layers of comparable case study data, one could either present participants with the same images or add a phase where they all focus on the same visual item. It makes sense for research relating to the workspace to involve plans, maps (Crilly, Blackwell & Clarkson 2006) or physical tours (Pink 2008) of the spaces in question to offer the participant the safety of the familiar visual stimulus at the same time as situating the study. The potential for layers of verification, comparison and contrast to reveal themselves through such props and devices seems obvious, but is only recently being exploited as a main research technique.

**Recommendations**
Participant-centred research that truly gives the participant a voice is seen in the discussion above to require time, space and an understanding of the complex qualities of organisations and the research process itself. For instance, in order for the
institution to agree to invest time in a longitudinal case study, there needs to be a clarity in focus that can be seen to be relevant (Chambers 1984) and beneficial from the outset. However, there also needs to be integrated into the process the affordance for the realities of multiplicity (Lilley et al. 2004; van Loon 2006) and non-linearity (Santos et al. 2002) in the environmental conditions, componential interactions and data. There also needs to be allowance for the wide variety of patterns and non-patterns occurring in the data set (Bossomaier & Green 1998; McMillan 2002; Stacey & Griffin 2005), their associations (Van den Berghe 1963; Giddens 1976; Schaurhofer & Peschl 2005; McMillan 2006; Busco 2009), flows (Marion 1999; Schneider 2001; Kayes 2002; Gleick 1987; Bohm 1983) and emergent properties (Goldstein 2000; Fuchs 2003; Stacey & Griffin 2005; Georgiou 2007); and the researcher needs to be able to recognise any (strange) attractors that arise within those patterns (Marion 1999; Newman 1996).

Interviews form the basis for data collection in this study and the qualities of and relationship between the interviewer, interviewee, interview space and props has been shown in this chapter to be of great significance. Kvale sums up the suggestions given with regard to the interviewer: “an effective interviewer ... should be: knowledgeable ... structuring ... clear ... gentle ... sensitive ... open ... steering ... critical ... remembering ... interpreting” (1996:148-9) and in accordance with the discussion on pages 138, the interviewer should also be confident, reflective (Stacey & Griffin 2005), responsive (Lofland & Lofland in Bryman & Bell 2003) and an expert at improvisation as well. However, the researcher and their project design should take into account the fact that although we do not yet have accurate vocabulary to describe many of the
complex concepts that may emerge (see page 118), we should not shy away from the
natural emergence of research themes. This means that the researcher needs to feel
certain about allowing findings to surface, allowing participants to reveal their
unique context-specific stuff of significance and trusting the research process to
divulge readable patterns via its data. For the recognition of these patterns, it is also
suggested that the researcher should have a background in the same field – in this
case, education – and thus be a member of the same general community (Cohen et al.
2000; Tsoukas & Hatch 2001); although this should be gauged for any distorting
emotional effects (Mannay 2010) at the various phases of the process.

Giving the participant a central role in the research process has been shown to be a
core principle behind reaching the root of rich data production (Cohen et al. 2000) and
treating them as the contextual expert that they are by relinquishing to them locus of
control and expertise (Lefcourt 1982; Wenger 2000, respectively) seems to be the most
productive method. The significance of the choice of participant (Georgiou 2007)
should be taken into consideration as well as the fact that the individual should not be
equated with reduction (Roth & McGinn 1998; Spicker 2006). In fact, respect for their
own need for answers and potential resistance (Riach 2009) to the project should be
designed into the research procedure. For this study, proponents of participant-
centredness (e.g. Pickering 2008; Riach 2009) would identify the teachers as well-
placed within the system to demonstrate whether they are achieving their aims and so
whether the school is running effectively – although it is recognised that asking them
directly if this was the case would probably be futile (Santos et al. 2002; Houchin &
MacLean 2005).
In relation to the research context, Gribbin (1999:9) succinctly summarises the empirical implications of the discussion above on system and environment: “The only computer that can simulate the weather is the weather; the only computer that can simulate the Universe is the Universe.” This implies that with regard to this study, the only computer that can simulate the school is the school, but it is recognised that “there is no best scale” (Suteanu 2005:117) at which the researcher can position their gaze so it should be varied or at least take organisational layers into consideration (Latour 1999; Cohen et al. 2000). In addition, the actual location of the interview has also been shown to be of vital significance for participant-centred research (Pink 2008) as has any other interview stimulus employed as a memory-jogger (Büscher & Urry 2009), contextualiser (Buchanan 2001) or scaffolding for the interviewee-interviewer relationship (Warren 2005). These stimuli are considered to have the best results when produced by the participants themselves (Heisley & Levy 1991; Becker & Geer 1957).

In terms of its complex underpinnings, the study should take into account the complex nature of both the organisations in question and the findings. This means that the project should be holistic (Van den Berghe 1963; Amaratunga & Baldry 2001; Prigogine & Stengers 1986; van Loon 2006; Georgiou 2007), equipped to deal with thick descriptions (Latour 1999; Geertz 1973; Spicker 2006) and able to approach each organisation afresh, without assumptions or predictions (Kvale 1996; Stengers 2000). It should be able to capture the essence of mediators (Derrida 1995; Shackley & Wynne; Star – in Roth & McGinn 1998; Latour 1999), re-representations (Roth & McGinn 1998; Latour 1999; Cohen et al. 2000; Schaurhofer & Peschl 2005) and loops
(Santos et al. 2002; Giddens 1984; Houchin & MacLean 2005), and be capable of ensnaring their transient nature (Beach 1999; Bohm 1983) and their motion (Gleick 1987). It should also be able to bring items to the foreground for focused consideration without negating the existence of the background for potential causes/effects (e.g. Fuchs 2003; Giddens 1984; Georgiou 2007), be un-isolating (Prigogine & Stengers 1986; Georgiou 2007; Pickering 2008) and unbounded (Lilley et al. 2004; Schaurhofer & Peschl 2005), contextualised (Devlin 1997; Cohen et al. 2000; O’Connor 2000; Walker 1980) and situated (Schneider 2001; Kidder 2009), and conducted in relatively stable physical conditions (Schneider 2001), even if only considered stable by the participants due to their familiarity with them. Only when all these considerations are met may effictility be revealed and measured.
CHAPTER 5

The Case Studies

The data collection process was designed to consist of a reconnaissance and four phases with each phase building on the interview props, participant feedback and relevant documentary research of the last. However, the two sites chosen provided very different responses to the demands of each phase and this clearly demonstrated the impact of the complex themes of situational uniqueness, emergence and adaptivity on the data. This in turn affected the assessment and evaluation of the measurement methods, especially with respect to the number of phases and longitudinal positioning of the research with regard to its being in step with or out of step with the lifecycle of each school.

Reconnaissance

During reconnaissance, the researcher met the head teacher of each of the two schools which had agreed to participate and gained agreed access to a number of school documents including architectural plans of the school buildings and grounds, and details of any changes that were not on the plans. This was intended to facilitate the setting up of Phase One.

The reconnaissance at School A took place on 7th December 2007. The head teacher gave a tour of the buildings and immediate grounds, introduced some of the teachers and gave the following useful basic information:
• there were 40 pupils in each age group,
• Year Six had their own classrooms,
• there was a house system for usage of the small hall,
• the school had received ICT and eco awards, napta, espresso and Ofsted commendations,
• and the two large open plan spaces accommodated three and four teaching groups each, respectively.

With regard to other spatial practicalities, the head teacher mentioned that rooms with walls tended to be used as quiet spaces, the skylights were problematic and there was air-conditioning in the ICT suite. Elements of effictility were already being revealed. When asked for a plan of the school for the guided-participant tours, the head teacher indicated the new plans that had been made of the school and displayed on the walls since the recent “kiln fire disaster”.

The reconnaissance at School B took place on 2\textsuperscript{nd} March 2009. The meeting with the head teacher in her office was interrupted by staff who needed assistance with dealing with a distressed child who was carried into the office by two teachers to calm down until his parent arrived. This meant that this initial meeting was very brief and there was no tour, but the head teacher was able to pass on the information that substantial funds were being provided for some building work. Later, while waiting at reception for a photocopy to be made of the school plan, the school secretary and premises manager were able to fill in some of the specifics saying that the amount was £8.5 million and the building work was to be a full school rebuild and possibly on another site.
At the start of the reconnaissance visit to each school, the proposed study was contextualised through presentation of the research poster that resulted from the 2007 pilot study at another local primary school (see Appendix B). In both cases, it was the photographs of the school from 1968 and 2006 and the current plans that were of most interest to the head teachers. The School B head teacher asked to borrow the poster as a visual aid for a meeting with the Parents & Teachers Association, and this was granted. However, at the second visit it was noticed that the poster was in exactly the same place it had been left and it seemed doubtful that it had been taken to the aforementioned meeting. This was an early warning sign that the school’s inhabitants might not be at a suitable position in their institutional lifecycle to deal with participation in the study.

**Phase One: Participant-Guided Tours**

Phase One involved the researcher spending a day at each school: School A on 7th May 2008 and School B on 8th May 2009. Five teachers were seen at the former and one governor, one learning support assistant and six teachers were seen at the latter. These participants had all been put forward by their respective head teachers, had between one and 34 years of teaching experience, were between 24 and 57 years old, and been at their respective schools for between two and 14 years. Tables 9 and 10 in Appendix C give the full details of each participant’s research name, date of birth, year of gaining qualified teacher status, educational responsibilities and number of years at their respective school.

The single stimulus question asked of each participant at the start of the tour was: “How has this school changed and developed since you joined?” The narrative for
each School A tour given below has been written by the researcher by way of reference back to notes made on the school plans during the tours. Thus, they are descriptive. However, each is followed by critical comment which incorporates increased comparison with previous tours at each stage. This builds the picture of the research data space in a similar way to that of the physical layering of the A1 acetates that the data were transferred onto once the tours at each site were completed.

**School A Participant-Guided Tours**

On 7th May 2008, all five of the teachers at School A started and finished their tour in the front reception area and all five teachers also participated in photo-taking when the tour reached their own teaching spaces.

**TEACHER SA1**

In the reception area, Teacher SA1 indicated where the reception office space used to be divided and said that now the space was open, it could be noisy when busy. She then led the way into the ICT suite saying that it was in almost constant use and pointed through the doorway to the head teacher’s room. On entering the smaller of the school’s two open plan teaching spaces, SA1 indicated the Reception, Year One/Two and Year Two areas saying that the latter was the “worst bit” and pointing out that there were 50 places in the nursery but only 40 places available for those children in the main school. She then led the way through to the new Reception classroom saying that this had enabled them to increase their provision from 30 places to the aforementioned 40 places. She indicated the classroom sink and showed where it had originally been positioned in a cupboard. She also pointed out the vertical blinds and doorway onto the partially covered soft play area saying that
this was now cooler. She talked of how a colleague had been involved in the design of the Reception extension and of the designated zoning of play, maths and wet areas. At the end of the soft play area, SA1 pointed out the environmental area and its pond, and over to the far left the benches and quiet areas. She indicated further up the grass area beyond saying that this was where the Year Six mobile had originally been and that it had been brown and orange and had had no carpet.

Back through the Year One/Two and Year Two areas, SA1 led the way into the larger open plan teaching space and indicated its division by tables, cupboards and storage units into Year Three, Year Three/Four, Year Four and Year Five areas. She talked of there not being enough space and that this combined with the skylights and bottom-opening high windows making it hot and airless. She said that when working in the space one was aware of the other teachers and that it was not a good learning environment for very active children. Over to the right, she pointed out a new door to an enclosed space which used to be the TV room, but was now used on a daily basis for Year 5 Numeracy and in the far left corner a small room which used to be the “nook” or quiet area and was now a cloakroom. She said that a similar room to the right was still a quiet room but was also used for the storage of resources.

Through the double doors into the corridor for the new extension, SA1 indicated the two Year Five/Six classrooms and the quiet resources room. She explained that the “vertical windows” in this part of the school meant it was cooler than the main building, but stressed that the cloakrooms were too small in relation to the class sizes accessing them. The second of the Year Five/Six classrooms was SA1’s own
teaching space and she took the three photographs below of significant parts of her workspace while emphasizing verbally her love of the view shown in Image SA1B.

Image SA1A: Taken by researcher but content directed by SA1
Image SA1B: Taken by researcher but content directed by SA1
Image SA1C: Taken by researcher but content directed by SA1

SA1 then led the way back through to the main building and into the hall where a PE class was taking place. She referred me to the teacher in charge of the session who told me about the plans for a 450m² Astroturf at the back of the school beyond the hard play area. He said that the school would be using some of its own capital to do this, funds were being raised through the Parents & Friends Association and there was to be sponsorship from Norwich Union via its joinateam.com activity. He said it
would be a great benefit to the school because the poor drainage of the grounds meant that outdoor play and PE were sometimes difficult. SA1 then led the way out to the reception area while indicating the caretaker’s office in the left.

**Observations about SA1 notes on plan**

The notes from the first participant-guided tour represent a relatively even spread of information around the school buildings and grounds. In other words, Teacher SA1 did not seem to be restricted to knowledge only about her own current teaching space. This hinted immediately at efficiency and confirmed Silver’s (1983:51) notion that “The boundary of a social system can be regarded as the outer limits of the role each person occupies” as well as the suggestion made in Chapter 1 about the boundary’s position being subjective and reliant upon the individual’s perceptions. In fact, SA1 was able to give examples of changes and developments in six out of the seven areas of the school: the reception and ICT area, smaller open plan area, the extension housing the Reception classroom, outdoors, larger open plan area and Year Five/Six extension, but not the hall. She was also able to refer the researcher to a knowledgeable colleague for information about the planned Astroturf and, by recognising and deferring to this *locus of expertise* (Wenger 2000), she directly plugged the researcher into her *community of practice* (Wenger *et al.* 2002). The aforementioned expert colleague was encountered in the hall during the tour and his conversation regarding the Astroturf took place there so this may be the reason why Teacher SA1 did not talk about the hall itself. Whatever the reason for the omission of data on this space, the spontaneous character of the Astroturf interaction reflected the potential for the organic, responsive and phenomenological nature of an interview conducted in this
way. Overall, Teacher SA1 also showed awareness of current operational concerns – or areas of inefficility – regarding heat, lack of space and access to quiet spaces; and windows were also a recurring theme during this tour. The *here and now* effect of the participant-guided tour, although containing “in its essence a myriad of there and thens” (Ho in Nóvoa & Yariv-Mashal 2003:432), seemed to demonstrate right from this first one what Cohen *et al.* (2000:267) say of the generic interview: “it is part of life itself, its human embeddedness is inescapable.”

**TEACHER SA2**

Teacher SA2 showed the ICT suite and head teacher’s room first. In the former, she talked of the three sets of fifteen laptops for pupils calling it a long term project and also mentioned the laptop available for a specific pupil in the school with Down Syndrome; she talked of the 20-minute maths sessions undertaken in the suite and the one hour per week, five-week ICT course for parents. In the latter room, she explained how the head’s room was used for planning, non-contact time and co-ordinating – a general quiet space. Retracing the way back to the reception area, SA2 pointed out the large video screen there and described it as a ‘share space’. Next, she led the way through to the Reception/Year One area and explained how the curricular differences between these two cohorts had meant changes to the visual displays. Here, she also indicated the cupboard containing the colour photocopier and the one next to it containing the server and two televisions. She did not go through to the reception class extension, but did refer to it in relation to how when she had started working at the school, it had been in its old form. Continuing through the Reception/Year One space, SA2 talked about the value of
the mobile PCs and laptops, but how the skylights sometimes make using the IWBs (interactive whiteboards) problematic, for example during the 6.30pm parents’ ICT classes when the sun is in a particular position. She explained about School A being the only school in the county to have the ICT Mark. She also talked of the value of shared resources and about setting up the Junior Librarian project which involved all the school’s books being put on the PC system with the parents’ help.

Onward into the larger open plan teaching space, SA2 pointed out the new IWB on the left, the kitchen area on the left and the cloakrooms for three classes of girls further along on the left. She also indicated the quiet space in the far left alcove and described how the Year Three (her class), Year Three/Four and Year Four class teachers plan together so that, for instance, they all do Art lessons on the same afternoon. SA2 indicated the then art displays saying that she had been the demonstrator for that project and was proud of herself as art was not one of her strengths. At this point, she took these three photographs:

Image SA2A: Taken by SA2

Image SA2B: Taken by SA2
She went on to talk about the Big Write which involves the same three classes and the fourth sharing that open plan space – Year Five – having 30 minutes of uninterrupted writing once a week with music. Before leaving the space, she pointed out the quiet room on the right which contains a piano and is used for instrumental music lessons.

SA2 then led the way through to the Year Five/Six classroom and pointed out the shed visible from the window containing Huff ‘n’ Puff equipment, the laptop cupboard and storage for assessment resources. She also explained how staff meetings were sometimes held in this room. In the staffroom next door, she said this is where she spent her lunchtimes and pointed out a PC. Next, she indicated the PE equipment storage room and led the way into the hall. Here, she pointed out the new blinds, projector, screen and spotlights. She described how useful these new additions were for presentations in assembly and PFA charity events such as fundraising bingo nights.

**Observations about SA2 notes on plan in comparison to SA1**

The notes from the second participant-guided tour add the next layer to the research
and represent an even spread of information around the school buildings and grounds in the same way that SA1 did, but additionally include detailed information about changes in the hall. Although it is agreed that usually “it takes a long time for ... the results to emerge” in longitudinal studies (Cohen et al. 2000:178), the acetate layering of the participant-guided tour data gives short-term rewards in building visibly towards a broad and deep understanding of the fieldwork landscape while awaiting the subsequent phases’ divulgence of longer-term revelations. In addition, and also similarly to SA1, Teacher SA2 showed knowledge of a wide variety of changes and developments throughout the buildings, but in this case there was a much greater focus on ICT developments reflecting her position in the school as ICT Co-ordinator. This bias towards a particular attractor (Marion 1999; Newman 1996) illustrates the clear relations not only between the participant and their physical environment, but also their inextricable link to their position and workplace responsibilities. In fact, in just the two layers of data provided by the first two participants, it is becoming clear that the looseness of the questions is achieving its aim: to give the participants the “space ... to express their opinions through their own words ... to communicate their feelings, thoughts, values, experiences, and observations in a way that renders their inner worlds accessible to the researcher” (Alvesson & Kärreman 2000:138).

Furthermore, Teacher SA2 showed similar awareness to SA1 with regard to current operational concerns about heat, lack of space and access to quiet spaces. This again identifies areas of inefficicility and demonstrates the linkages between these participants’ inner worlds in relation to their experiences in and perceptions of their external working environment. Where overlapping data ceases is where SA2 talked about storage issues and the strategic activities of co-ordinating curricular timetabling
within the open plan teaching spaces referring to three current projects: laptop provision, the Big Write and the Junior Librarian project. In terms of Anderson’s imagined communities (1991), this demonstrates where the larger impacts on the smaller by way of the organisationally tangible curriculum for England and Wales being adapted to suit the immediate physical environment of the school – evidence of a boundary object (Bowker & Star 1999) in organic motion and the top-down meeting the bottom-up. It also puts the standard governmental definition of the National Curriculum (Directgov 2008) – “a framework used by all maintained schools to ensure that teaching and learning is balanced and consistent” – at odds with the evidence that qualifies it as a boundary object: possessing “sufficient flexibility so that ... [it] can have different meanings in different communities of practice” (Roth & McGinn 1998:404).

The structure and rigour suggested by the former statement contrasts greatly in emphasis to the adaptability and response to uniqueness suggested by the latter.

TEACHER SA3

In the school’s main reception area, Teacher SA3 pointed out the new friendlier and more modern reception desk space, the new key card security entry to the teaching areas, the improved toilets, better flooring and frosted front main doors to hide the flat screen television in the foyer showing images of the latest school activities. She also indicated the new computers that free up desk space and are more environmentally friendly and less noisy, and the air-conditioning unit that had not worked since it locked itself after a power cut. The teacher then led the way through an open plan teaching area and into her own classroom. There, she indicated shelves and benches that she had ordered herself, low storage units on
wheels that acted as moveable walls to define spaces for different activities, an apron hanger, spring loaded dryer and Perspex toilet entrance door for safe visibility and smell reduction. She also said that the key priority in the space was to ensure that all resources were accessible to all pupils, and mentioned how the architect, who she had consulted with on the design of this extended part of the school, had not taken into consideration the need for display spaces on the walls. She also said that she had had to make clear the need for an understanding of the child’s perspective in the design as well as what practical educational requirements should be met, such as the positioning of carpeted and wet flooring areas. SA3 then took five photographs of meaningful parts of her classroom and went back into the open plan teaching area, pointed out the new more convenient position of the photocopier and showed how the cupboards in this open plan space were used to divide it into classrooms.
She then went through into the larger of the school’s two open plan teaching spaces which held four classes and pointed out the IWBs which she had personally worked on getting introduced into the school when she was previously the ICT Co-ordinator. She talked about where the first two IWBs were positioned and how in the beginning there had been one projector on a trolley, which had not been too difficult to cope with due to the open plan nature of the school. She talked of how the IWBs were each funded by a different external agency and how the school had achieved the ICT Mark accreditation in recognition of good use of technology. She also mentioned the Techno-buddies scheme at the school that involved two children per class acting as ICT helpers. Next, she showed how the girls’ toilets had been improved by the addition of a piece of Perspex to the open top right slice of each cubicle door and explained how difficult it was for three classes of girls to share only five cubicles. She pointed out the small baskets that had been introduced to help the pupils keep their shoes tidy during times when they were wearing plimsolls or wellington boots and indicated the new water coolers while detailing the procedure set up for the provision of a water bottle per child and the allowance for each pupil to get water whenever they wanted.
Next, she pointed out the quiet room, mentioned how some cupboards were treated like dumping grounds and, on noticing a collection of waste materials for recycling, explained the two-month old recycling process that had been instigated by a colleague as well as the new Wombles Club that involved pupils participating in tidying the school, recycling and making things such as badges out of recycled material. She then led the way into the corridor between the main building and the larger of the schools two extensions. She told how they had put up framed art work by the pupils after an Ofsted inspector had commented on the unfriendliness of the corridor and she indicated a blue couch in one of the two remaining classrooms that she said had been “the bane of her life” because she had set it up to be a punishment seat and pupils had used it as “an excuse to be silly”. In the same room, she pointed out the school’s first IWB and explained that this room was used for adult classes in the evenings. Finally, she led the way through to the hall and explained how the two-year old projector and large screen there had made a great difference to school assemblies.

**Observations about SA3 notes on plan in comparison to SA1 and SA2**

The notes from the third participant-guided tour add another layer of data and show an even spread of information around the school buildings similar to SA2, but Teacher SA3 did not mention the outdoor space. She did however demonstrate knowledge of a wide range of changes throughout the buildings – her *attractor* being the developments of specified place rather than space. This could be seen as empirical confirmation of the notions that place is a perceived location created within transient space as part of a social process (Merrifield 1993) and that *contained or qualified*
spontaneity (Goldstein 2000) is reliant upon the individual participant’s experiences. Like SA2, SA3 also gave greater focus to ICT developments than SA1, no doubt due to her previous role as ICT Co-ordinator. Thus, for a fuller measurement of organisational effictility, it seems that more participants are needed due to individuals at certain levels only giving a partial view due to being unaware of the activities of the institution as a whole. This is in line with the tenth feature of complex systems according to Cilliers (1998). In addition, Teacher SA3 showed awareness of SA1 and SA2’s current operational concerns about heat, lack of space, access to quiet spaces and storage which demonstrates further confirmation of their overlapping workspace experiences, but she added greater detail about physical and operational changes to cloakrooms and toilets (especially with regard to doors), and architectural decisions in the Reception classroom – this focus further highlighting her bias towards bounded place. This is further evidence of the participants being rooted in effictility. In fact, Teacher SA3 did not refer to strategic activities at all, but she did mention LEA funding and the response to an Ofsted inspection comment – again exhibiting a tendency to focus on the tangible and thus more easily categorizable and measureable. SA3 also gave the names of two current projects – the Techno-buddies scheme and Wombles Club – which were different to the three mentioned by SA2. The acetate layers of data patterning with horizontally differing projects and vertically similar environmental issues show how the Venn-diagrammatic nature of this acetate layering of participant data quickly puzzles together a visual whole that is indeed more than the sum of its parts (e.g. Cave & Wilkinson 1991; Marion 1999; Gilbert & Sarkar 2000).
Teacher SA4 first led the way into the ICT suite off the reception area where she described the improved privacy, fewer interruptions and how it was a great teaching room. Next, she went into the head teacher’s room where she explained its usage for staff planning, preparation and assessment sessions. Then, back through reception and into the first open plan teaching space, she pointed out the photocopy room which used to be a play room for role play activities and indicated where the floor in the open plan area had once been tiled. She went on into the larger open plan teaching space pointing out the new doors in the doorway between the two open plan spaces that she said had had an impact on noise levels. She then pointed out the water cooler and girls’ toilets which she described as noisy due to three classes of girls using them. She explained that the toilet facilities were too small for the school’s current size. Next, she pointed out the carpet and tiled areas and how they and the IWBs had helped define the teaching spaces. She also indicated the skylights, stating that they could create hot spots of light below them, had no blinds and did not open as windows; she said how this could make the re-positioning of furniture difficult.

Next, while walking past a glimpse of the soft play area, SA4 briefly explained that after the SATs (Standard Assessment Tests), the pupils would spend more time studying outdoors in the school grounds. She then led the way through the large open plan area while explaining how there was a lack of storage in the building which was being tackled by the teachers putting in new cupboards and small wardrobes, and they had begun to engage in teamwork for materials management.
To her right, she indicated the quiet room, which had once had a curtained entrance and had contained tiered seating and a television; now, its door kept out the noise and its spacious interior accommodated lower ability Maths classes. On her way out of the large open plan space, she pointed out the new play equipment shed in the grounds that blocked her previously uninterrupted views from her classroom across the grounds and now provided a hiding space for pupils during break times. Once in the corridor between the main building and larger extension, SA4 explained how every half term the pupils’ work displayed in the corridor was changed. In her classroom, she indicated both the view and the new blinds that protected the inhabitants from the glare of the low winter sun at 3pm.

She then described how, after teaching for so long in the open plan teaching area, she had initially found the lack of noise in this classroom scary. At this point, she took three photographs of meaningful parts of her classroom.
Next, she pointed out the large red electricity cut-off button directly below the IWB as well as the cable pipe whose position meant that the IWB had to be positioned a little too high for the children to reach without the use of a step. Then, she opened a large fitted cupboard to reveal the office archive storage before leading the way into the new staffroom which she described as bigger and brighter, with the use of a dishwasher and constant hot water. Next, she went back out into the corridor, passed the toilets where she said there was space to change for PE and pointed to the disabled toilet which she said was much more convenient than before. The next room she went into was the resources room where the art groups could meet, teaching resources were safe and staff planning, preparation and assessment could take place in the evening away from the cleaners; and then she led the way to the final classroom where she showed a fitted cupboard containing old SATs papers. She also indicated the garden space just outside the fire door before leading the way back out to the corridor where she pointed out the new PE storage cupboard which had freed up space in the hall.

**Observations about SA4 notes on plan compared to SA1, SA2 and SA3**

The next layer of data which consists of notes from the fourth participant-guided tour
demonstrate a less even spread of information around the school buildings than those of SA1, SA2 and SA3. This confirms the suspicion that a fuller measure of effictility requires participation from a number of community members. More specifically, Teacher SA4 provided vastly fewer comments about the smaller open plan area and Reception classroom extension. One could spend time working through all the possible reasons why this might be so, but on reflection the most logical reason is her classroom’s position in the large extension, rather than in one of the open plan areas as were the previous three participants. However, she gave more information about the outdoor area, seemingly due to the view through her large classroom window drawing her focus in that direction – this framed view operating like a photograph for respondent analysis and reflection, and thus spontaneously, and wholly on the participant’s terms, creating “the triad of researcher-image-research participant” (Warren 2005:867). As though the view was a photograph the participant had taken themself, they owned and explained the view as lead and expert in the situatedness of the tour and this particular aspect of their workplace. Interestingly, there is a double-framing in this instance as the participant also chose to photograph the view from the window (Image SA4A) as well to show the scene that triggered so much comment. Nevertheless, in general, her comments demonstrated just as wide a knowledge of the variety of changes and developments that had taken place within the other four areas – reception and ICT area, larger open plan area, Year Five/Six extension and hall – and she also showed awareness of SA1, SA2 and SA3’s current operational concerns of heat, lack of space, access to quiet spaces and storage. She also referred to the impact of operational decisions with regard to an increase in the noise level and reduction in visibility – these comments pointing to a sense of measurement with regard to cause-
effect actions and thus containing the potentiality to track the process with a view to projecting possible futures (Dooley 2002). She also mentioned the strategic activity of team materials development showing further evidence of her membership of the school’s community of practice (Wenger et al. 2002) despite her main workspace’s geographical distance. SA4 also talked of the limit on outdoor activities caused by SATs preparation relating her role as Assessment Co-ordinator to the scene in front of her during the tour via her cause-effect attractor – expressing, weighing up, and identifying herself as accountable for her specialism’s impact on other areas. This suggests that she is “probably socialized and integrated in a way that gives ... [her] a greater sense of ownership of the system” and “shares – at an internalized level – some of the basic values on which the system is established” (Kelman & Lawrence in Lefcourt 1982:46,45). Furthermore, SA4 did not talk about any projects by name, which could signify any one of three reasons: the projects were unseen during the tour and so did not trigger comment; they were taken for granted due to being fully integrated boundary objects – part of the “community’s routinely forgotten memory” (Bowker & Star 1999:299); or they were left unacknowledged due to resentment at their top-down imposition (Howser 1989). Going on her sense of aforementioned accountability, it is more likely to be one of the first two reasons than the last. In contrast to the SATs and projects boundary objects, windows on her physical boundary were also a recurring theme in SA4’s tour, as with SA1 whose classroom was also located in the large extension. However, in the case of SA4 there seemed to be more of a draw to what was the other side of the windows. This appears to be symbolically relevant when considering her strong working relationship with incoming governmental boundary objects.
TEACHER SA5

In the reception area, Teacher SA5 said how the current open design had made it more spacious. Previously, one had never seen into the head teacher’s office which has been behind the reception office and its window into the school had always had the curtains shut. Also in the reception area, she pointed out the toilets saying that the now disabled toilet had previously been the gents’, but the others had always been ladies’. SA5 then led the way into the ICT suite saying it had previously been the staffroom and she pointed to where the sink had been. She said that “in the old days” pupils had never entered this space, but now that they had to go through it to get to the head teacher’s office, there was sometimes the issue of a lack of confidentiality. She led the way back out into the reception area and indicated the new security doors saying that it had taken time to get used to their logistics and the laptop trolleys were a close fit for their frames.

Through into the smaller of the two open plan teaching spaces, SA5 reminisced about the flooring pointing out where there had been a tiled strip between this entrance and the one into the larger open place space. The tiled strip had not had any tables or chairs on it and had been designated for easels only. The rest of the space had had green carpeting that was nice to sit on and there had been a no shoes policy. SA5 then pointed to the boys’ toilets on the left saying that they had been painted and she led the way through to the Reception classroom where she showed the position of the original kitchen, walls, reading area and cupboard in relation to the new double doors and window. On the way back through the smaller of the two open plan spaces, SA5 explained how doing Key Stage group
planning meant it was easier to organise resources and storage so that resources were no longer unwittingly lost or moved. She also indicated the enclosed rooms on the right of the space and opened the doors to show how what was a reading and spelling room had become a “storage dump” and how the items on the shelving in what was a quiet room made it difficult to get to the server when required. She then pointed out an alcove that was good for role play activities and mentioned how pupils studying in this corner of the space were sometimes “lost to the loos” which were in the diagonally opposite corner. Then, she led the way into the larger open plan teaching space.

In the large space, SA5 explained how the Water for Learning Initiative had led to there being one water cooler for four classes, bottles for the pupils kept at school and new lids provided each year. She then indicated the cooker and said that the skylights meant that the heat in this space was more problematic than the noise or lack of space. She laughed at how she now needs noise in the background to work well. She then pointed out that there are more girls than boys and the school and that it is a struggle for three classes of girls to use the designated toilets for this area. She went on to show how the wardrobe divisions led to a lack of visibility in some parts of the space and how access to a pole had made opening the high windows easier. She said that the windows and fire doors were new and how this space had previously housed Years Three to Six. SA5 then took the following two significant photographs of her workspace.
SA5 next led the way into the large enclosed room opposite the windows saying that it was used for music between 11.10am and 12.10pm. She described how it had previously been a TV room with stepped seating and she remembered how pitch black it would become with the lights out and scary for the pupils. Back out in the large open plan space, she pointed to what had previously been a quiet room saying how it had been a calm space and good for housing the library books. On exiting the space, she explained how having a lack of walls meant the situation was not ideal for finding interactive whiteboard and computer sockets, and how this restricted the positioning of such equipment.

Through into the corridor of the large extension, SA5 talked of how moving the Year Five/Six and Year Six pupils out of the porter cabin and into this extension had been the biggest change for the school. She also showed the way into the staffroom saying that this new position meant that breaks were no longer interrupted by the front door. Next to this, SA5 led the way into the resources room saying that this was where numeracy classes were held and that it was also the new library. Then, back out through the corridor and into the hall, she talked about how lunch was provided in the style of a family service and that they used to be able to seat the
whole school in one go with Year Six pupils serving. However, now the greater number of pupils meant that they had to sit for lunch in shifts. SA5 also talked of the new hall projector and screen at this point and took a photograph (Image SA5C) saying that it had made a great difference to assemblies and the Parents & Friends Association.

Image SA5C: Taken by SA5

Back through into the reception area, SA5 asked if she could take an extra photograph: one of the ICT suite as this had been a significant space for her in her role providing on-site ICT technical support (see below).

Image SA5D: Taken by SA5
Observations about SA5 notes on plan compared to SA1, SA2, SA3 and SA4

The notes from the fifth participant-guided tour make up the final and top layer of data in this phase of the research at this school and they represent a spread of information around the school buildings similar to that of SA1, SA2 and SA3, and like SA3 Teacher SA5 did not mention the outdoor area. She did however demonstrate awareness of the previous four teachers’ current operational concerns of heat, lack of space, access to quiet spaces, storage, noise levels and visibility, but consciously prioritised heat above all others. This gave a final stamp of confirmation on these five teachers’ environmental and spatial issues relating to inefficility, which can in this instance be considered generalizable with regard to the school as a whole. This is because of the spread of these participants’ workspaces around the buildings, the open-plan nature and, thus, shared environment of much of the school, as well as the consistently recent time period under review. This is in line with the constructivist view that qualitative generalisations must be time- and context-bound (Johnson & Onwuegbuzie 2004).

SA5 mentioned the strategic activity of group planning, which is reminiscent of SA4’s reference to team materials development, and windows – like with SA1 and SA4 – and doors were a recurring theme. Indeed, although the tours were only around 20-minutes long, their processual construction gave the participants the opportunity to emphasize aspects and issues through repetition; this was represented in the transcripts and on the acetate plans through lexical or item recurrence. Such situated emphasis may have been missed if narrative progression had been focused on in the analysis of the transcripts (Mishler 1986) rather than the contextual instances of
comment at the various points in the tours. Rooted in its physical manifestation was the one initiative that SA5 referred to specifically – the water for learning initiative which is laid out, but not named as such, in the *Healthy Living Blueprint for Schools* (DfES 2004). Although SA3 and SA4 had also talked about the introduction of the water coolers, SA5 was the only participant to mention this or in fact any other specific initiative. This way of referring to an intervention is another way of adding to its significance as a *boundary object* that has not yet been fully absorbed into the “community’s routinely forgotten memory” (Bowker & Star 1999:299); in this case, its *S-term* status remaining with SA5 where it had already become an *N-term* with SA3 and SA4 (MacKenzie 2001).

**Concluding remarks about School A**

In order to report the findings above, after the five participant-guided tours were completed, the data from the A4 school plans were transferred onto A1 sheets of acetate stacked in layers above an A1 plan of the school to produce a comprehensive account and review of the changes and developments at School A School. This symbolic and actual unpacking and re-packaging of the data added to the sense of closure for this phase at this particular research site even though there were to be two more on-site visits in the longitudinal process. The follow-up data was to be collected and analysed in a different way, thus rendering the cyclical nature of the typical ethnographic study (Spradley in Shimahara 1988) less clear in this phased project. Indeed, in the A1 acetate format, the individual layers showed how the participating teachers perceived themselves as having overall school responsibilities as well as those of a space-specific nature more clearly than in the handy A4 paper format which was
suitable for note-taking during the tours themselves. Through expanding and detailing vertically through the layers of acetate, the spatial narratives visually revealed the Venn-diagrammatic nature of the crossover of common issues of ineffictility and positive developments, as well as the individual priorities and specialism-relevant data of the participants in relation to their specific roles within the school. The data knitted together beautifully and simply in this visual form (as the first image in Appendix D illustrates) to give an overall view of the evolving operations of the school and a sense of what had been overcome and what had been identified as needing to be overcome next. However, as asked by an audience member at the presentation of some of this data at the Lille Standing Conference for Organizational Symbolism in 2010, would this visual processing of the data be as beneficial to an analyst who was naturally less visually-oriented? When the data are taken as a single stack of A1 acetates, they demonstrate immediately where a participant has given more focus than her colleagues as well as where more than one participant has given similar information. It is believed that these particular examples of visually clear coding would take more time and effort to reveal if the interview transcripts were analysed in lexical text form only. Indeed, due to the colour coding on the acetates, this is easily visible at a glance and, interestingly, where more than one of the participants have referred to something, it appears as darker text so that where all five have referred to the same issue, the text is black (see Appendix D for evidence of this effect). This increases the ease and speed with which the researcher can access the findings amongst such a rich mêlée of data, but only a researcher who considers him/herself less visual and tried out this method would be able to say for sure.
Thus, using this method of analysis to identify commonalities, one issue that all five teachers at School A reported was that of the effect of the skylights in the larger open-plan teaching space. The extreme heat they produced seemed to outweigh their facility as a source of natural light, they affected the positioning of classroom furniture, could not be opened to increase airflow or reduce the effects of heat, and the type of blinds recently introduced in other parts of the school were not suitable for them. This could have been a key issue for the participants due to its direct effect on the pupils and learning environment, and the fact that a solution had yet to be identified. Another common thread in the participant-guided tours was space – its division and the lack of it for teaching, storage, toilets and quiet time – and solutions such as the static and portable storage units used for room division purposes, the reallocation and repositioning of items requiring storage and the changed usage of quiet spaces, offices and cupboards were already being implemented. However, having enough toilet and cloakroom space for female pupils was a recurring concern especially due to the fact there were more girls than boys at the school at the time and a possible solution was not suggested by any of the participants during the tours. This may have been because it was considered a temporary problem relating specifically to the gender balance of this particular cohort of pupils.

In relation to sound, noise levels came up as both a distraction and something to be missed in more peaceful zones. The former matter of distraction was being dealt with through the aforementioned changes in the use of certain quiet spaces, offices and cupboards and the latter was possibly being approached through the use of music during the Big Write, although it was not identified by the respective participant as
being for this purpose. A fourth thread was walls particularly with regard to displays, as the photographs attest (see images SA1A, SA1C, SA2A, SA2B, SA2C and SA3A on pages 154, 157, 158 and 161), which was being tackled the recent approach to art project displays; and the creation of walls in open plan spaces which was being solved through the aforementioned implementation of static and portable storage units for room division purposes. The fifth common topic was windows, window dressings and doors, in terms of light, safety and visibility issues. An approach to the windows had been to provide a different window shape in the new extensions and blinds/curtains where possible – see image SA5A on page 172 for an example of the old windows in the main building; images SA1B, SA3B and SA3C on pages 154, 161 and 162 for examples of the windows in the new extensions; and images SA5C and SA3C on pages 173 and 162 for old and new windows/doors with blinds/curtains. All five of the common issues and solutions given above relate directly to this phase’s question about changes and developments and there were clear indications during the tours that the teachers perceived themselves to be grounded problem-solvers working in a team towards the increased welfare of their pupils and colleagues at the school and better efficiency in its operational running. Thus, it could be said that their responses to the initial question were in the most part restricted to their immediate surroundings.

In fact, external interests were only referred to in terms of the water for learning initiative, LEA funding and response to an Ofsted inspection comment. Nevertheless, further investigation revealed that the security entry system, IWBs, water cooler and collection of waste materials for recycling mentioned during the tours had actually originated from government initiatives: the promotion of safety in the third guiding
principle of the Children’s Plan (launched in 2007; DCSF 2009), Schools Interactive Whiteboard Initiative (Beauchamp 2004), Healthy Living Blueprint for Schools (DfES 2004) and Sustainable Schools Framework (launched in 2006; Eco-Schools n.d.). It is not that these teachers did not know; they had all been at the school during this period and four out of the five had senior posts. It is not that these things had been introduced prior to the initiatives; later investigation showed that this was not the case. It appears that during the tours, the activity of seeing and moving around the items while the pupils were interacting with them held these teachers mainly at a local level and thus away from Anderson’s imagined community (1991) which in this case would be the England and Wales teaching profession as a whole. As detailed later in Phase Two, the static follow-up interviews at School A bring the other parts of the imagined community into focus, but this carries with it a clarity that highlights the differences between what the participants and the researcher have socially constructed in their personal understanding of the boundaries of their own imagined communities.

Overall, the participant-guided tours have demonstrated themselves to be an effective method for producing a spatial narrative on the move situated in a defined time space relevant to the participant – not jointly told, as Ricoeur (1991) suggests, through the relationship between the researcher and the participant, but jointly told by way of the participant and the tour’s environment. Indeed, although as Johnson and Onwuegbuzie (2004:14) suggest, the “knower and known cannot be separated because the subjective knower is the only source of reality”, there is a clear crossover in this case study where the shared time, space and contextual experience of the
participants confirm each other’s perceptions. In so doing, they produce a shared *emplotment* (Entrikin 1991) in evolving location and historical narrative that sets the scene for the following phases of the research at School A.

**School B Participant-Guided Tours**

Of the participant-guided tours at School B School on 8th May 2009, only one could be classified as a tour in the same sense as those at School A School; and that one was a partial and impromptu tour with a school governor without stimulus questions. However, notes were taken on an A4 school plan at the time and the data are considered valuable and so will be included here. The other School B ‘removed tours’ took place either in the staff member’s classroom or the staffroom with little or no movement around the school. This initially appeared to be due to the non-open plan layout of School B, in contrast to that of School A, and the problematic timetabling of the interviews in relation to pupil activities – further possible reasons will become apparent during the coming pages.

Nevertheless, once laid out on the layers of acetate, the School B ‘tours’ do indeed provide a reasonably full picture but the way the participants’ narratives seem to be best reported is very different from that of School A. This is because the five School A teachers all started and finished their tours in the same place and participated in photo-taking when the tour reached their own teaching spaces, whereas the School B staff comprised one school governor, six teachers and one learning support assistant, and their ‘tours’ ranged from a partial impromptu participant-guided tour to static workspace-based ‘tours’ and static staffroom-based ‘removed tours’; the latter
involving participants taking the researcher to their classroom for the photo-taking part of the tour at the end of the interview. This difference in process may not appear great at first as both are interviews, but the effect on the data is immense. Where the tours situate the interview directly and immediately within the context in question – as mentioned above, *jointly told* (Ricoeur 1991) by way of the participant and the tour’s environment – the static and displaced interviews force the “interviewer and interviewee … [to] co-create knowledge and meaning in the interview setting and thereby co-construct reality” (Hennink *et al.* 2011:109). This means that the majority of the School B ‘tours’ were a step away from the type of contextual reality achieved at School A.

Although still participant-guided, the staffroom-based School B tours were mainly paper-based with the researcher being guided mentally to places identified on the plan and conjured into three-dimensions through the conjoined imaginations of the participant and researcher, with only the brief instance of photo-taking in the actual workspace post-tour bringing those now clarified images into focus. Thus, rather than report the tours as static isolated descriptions which is how they unfolded on-site on 8th May 2009, the sense of tour that revealed itself when the notes were being transferred onto the A1 acetates will be replicated below by reporting them as one string beginning at Classroom 1 and travelling through the school buildings to Classroom 11 at the other end. This means that there will be more of a horizontal overlapping of data than the vertical layering of School A’s tours’ data. The string of reportage for School B below will be interspersed with analysis at appropriate points along the way.
School B Overall Tour

SB1 began his partial tour in the reception area just inside the main front doors with some historical background stating that the building was 54 years old and the school 104 years old. He also gave some developmental context saying that the school’s pupil population had grown from 180 to 280 in the previous six years and that the limited 40-pupil intake in the Early Years meant approximately 20 potential pupils had to be turned away.

CLASSROOM 1 & SURROUNDING SPACES

SB2’s ‘tour’ took place in Classroom 1 before break and she took her photographs during break when her pupils were elsewhere. She said that there was capacity for 30 pupils in her class, but that there were currently 25 on the register. She then systematically went through each of the changes that had occurred in Classroom 1. These related to technology, space, storage and policies.

First, she pointed out the new IWB and its accompanying speakers above (see Image SB2A below), and she recounted how she had measured her pupils to ensure that the IWB was positioned at an accessible height. She said that it had originally been housed in the offshoot room at the end, but the space had been too limited there so it was moved to the main focal wall of the classroom. Now, in the small offshoot room, there were PCs on desks along one wall. SB2 called this “the Quiet Room which is never very quiet” and she said there was “a loss of space” in the Quiet Room because it was used by “unit children” for some sessions each week. She then pointed out a large space which the classroom had gained in recent years; through the two-year old double fire doors (see SB2B below), there was a new
covered play/study area with soft flooring and greenery at the end. However, SB2 said that both the classroom’s fire exits having to remain clear at all times added an extra restriction to the possible arrangements for the furniture and storage within. In addition to this open air space, SB2 also showed a new passageway that had been built to connect the main classroom to a new extension to the left of the wet flooring area. She told how this extension had provided an extra groupwork space and showed how the original window looking out from the wet flooring area was now filled in with coloured glass bricks which added to the privacy of the groupwork area at the same time as maintaining the sense of light within. She pointed out how this had also added an interesting visual feature to this potentially dark corner of the classroom. Off the new passageway to the right, the cloakroom area linked back towards the corridors to the centre of the school. Here, SB2 showed how the previous out-jutting coatracks had been replaced by fixed wall benches and wall hooks to maximise the circulation space and the toilets had been improved by putting three cubicles in each to replace the previous two in each. SB2 also showed where the new sinks had been placed in the cubicle area and removed from the outer cloakroom space. Their previous position was now the site of portable storage units. As well as these, SB2 pointed out a number of storage items within the classroom space – some of which she had introduced, others which had been there when she had inherited the space. Along the longest wall of the classroom, there was storage under the high and low sinks in the wet flooring area and in the main carpeted classroom area, storage boxes under the work surface tops. She pointed out how much storage had been lost when the double fire doors had been put in on this wall, but then indicated other spaces that had been utilised since:
storage boxes and files on shelves to the left of the IWB and to its right a storage unit with the teacher’s laptop on top (see SB2A), portable library shelves and a filing cabinet in the Quiet Room. She also pointed out how the data projector being ceiling-mounted created more space than if it had been on a table or platform and she said how the two nursery nurses doing a job-share assisting in her class “organise[d] the class resources very well”. In relation to policies, SB2 talked of the “national strategy for outdoor” which had led her to plan daily outdoor time for her class. She also now provided a bowl of fruit on a table in wet flooring area and, introduced in the last two years, there was the water cooler and clean cup tray in the wet flooring area. SB2 went on to talk about the new Early Years Framework and its focus on developing creative, independent learners working at their own speed, encouraging pupils to be autonomous and be free to choose their learning activities. She said how the government aimed to extend this philosophy to Key Stage 1 and that it implied the use of zoned learning spaces which she would like to incorporate into her classroom. However, she said her current space would need a lot of work done to it to make this possible and with the rebuild coming soon, there seemed little reason to spend the necessary time and money on adapting her current space and disorientate her pupils for such a short-term gain.

Image SB2A: Taken by SB2  
Image SB2B: Taken by SB2
During SB1’s partial tour, at this location when he indicated the extension at far end of Classroom 1, he talked briefly about previous and current issues with parking at the school which was just beyond. He related the importance of effictility – without using the term – in channelling pupils and parents from the car park and outside into their relevant parts of the school building, and how this had been affected by the lack of space.

**Observations about notes on Classroom 1 and its surrounding spaces**

There were nine spaces in the classroom and its surroundings that were not mentioned by SB1 or SB2. These were identified on the plan as 15 to 21, 24 and the Sensory Garden. The numbered spaces represent three large built-in storage cupboards, two sets of toilets, the fuel tank room and boiler room. As storage was one of the main themes of SB2’s tour, it was interesting that she did not specifically refer to the three large cupboards. This could have been because their contents were shut away and not obviously visible enough during the interview to trigger acknowledgement, unlike the storage units and storage restrictions that could easily be seen in her direct line of sight. There is also the possibility that her pupils’ trajectories may not have led her eye in the direction of these unhighlighted spaces whereas on another day, if the assistant taking the class at the time of the interview had asked one of the pupils to get something from one of the storage spaces, SB2 may have talked about it. Thus, with regard to all the above left-out rooms – and as with uncommented-on items at School A – the reasons could be categorised as *unseen* or part of the “community’s routinely forgotten memory” (Bowker & Star 1999:299).
Where the Classroom 1 teacher (SB2) talked about technological additions to the classroom, the lack of and creation of space, sound issues solved and current, and storage solutions in response to Fire & Safety regulations all within the immediate environment, SB1 (school governor) talked about the movement of people in general around the site when in this part of the building. This differing account of areas of inefficacy demonstrates the participants’ particular roles, interests and responsibilities, and echoes the same feature which occurred in the School A data, especially with the three participants with then current or previous responsibility for ICT. Indeed, the open nature of the researcher’s Phase One questions exhibit here how the participants’ specialisms show through; the workspace issues and interests impacting on their inner worlds (Alvesson & Kärreman 2000) expressed through outer world spatial narratives and hinting at their emplotment between the two (Entrikin 1991). In a similar vein, SB2’s mis-naming of the “national strategy for outdoor” which could have actually been the Growing Schools initiative (DfES 2003) or Learning Outside the Classroom Manifesto (DfES 2006), mirrors the emplotment of the these interventions between S- and N-term status (MacKenzie 2001).

CLASSROOM 2 & SURROUNDING SPACES

SB1 indicated the folding partition wall and talked of how Classrooms 1 and 2 used to be together. SB2 confirmed this saying that the previous teacher had had 28 pupils across the two spaces, but with current numbers this was not possible as there was not enough space to have all the necessary resources out at once. SB2 also said that this partition was often pulled back, such as on Tuesdays when both classes had their creative afternoons scheduled together. In addition, she went on
to say that for two to three sessions per week, the pupils from Classroom 2 were also permitted access to the outdoor covered area which involved moving through Classroom 1 to reach it. SB2 said that one of the small number of problems she had encountered with the relatively thin partition was when there was a numeracy lesson going on on one side of it as the same time as a singing lesson on the other.

In his role as a learning support assistant, SB7 worked in a variety of spaces throughout the school, but said that his main workspace was Classroom 2. However, he provided his ‘tour’ from within the staff room and did not take any photographs, indicating all his points of significance on the plan. Firstly, he gave some context by saying that his first class had been Year Three/Four and had contained 24 pupils, whereas now he supported 30 pupils in Reception/Year One – four of whom being ‘unit’ and two of those wheelchair-bound which had meant changes in furniture had been necessary. He then talked about the classroom partition which he said was opened for ‘Read, Write Inc.’ activities that took place in Classroom 1. He went on to say that the portable WB could be used to create a classroom within a classroom for such smaller group activities and referred to flexible teaching, giving the example of when one teacher leaves the space to do something else and the other teacher joins the groups together. Next, SB7 talked about having a “flexible attitude to work generally” and said he had recently undertaken Behaviour Management Training in Team Teach which included how to restrain a pupil who may be in danger of injuring him/herself or others. He said that he thought recent teacher training was more practical than it had been in the past.
SB7 then went on to talk about making regular changes in the classroom to keep the momentum going and he gave the examples of using the role play area and on-carpet movement variety mentioning the ‘Read, Write Inc.’ group, an activity called ‘Fireworks’ and indicating points on the plan where this occurred. Next, he talked about the new Reception play area and showed on the plan where it stretched from the outside door of Classroom 2 round to the end of the covered soft play area. At the end of the covered area, he pointed to the position of a new border of greenery where bulbs were planted and said that this was an extension of the Sensory Garden. He also pinpointed where the sand trays were positioned under the covered area as well as two equipment bunkers, the third being near the outside door of Classroom 1. He said that there had previously been an equipment bunker next to the outside door of Classroom 2, but it had been repeatedly damaged by bikes and so moved with the additional result of producing much more space. He said there was also a shed for bikes and go-carts over the other side of the covered area and showed on the plan exactly where he meant. SB7 then said that on his ‘wish list’ was one big shed for all the equipment, a shower and a grass area.

Observations about notes on Classroom 2 and its surrounding spaces
Like SB1 and SB2, SB7 did not mention his classroom’s built-in storage cupboard (22) or the storage cupboard (23) in the cloakroom area directly outside his classroom door, and again – as in the case of SB2 – storage had been a key talking point in his ‘tour’. The difference here was that SB7’s tour was ‘removed’ and he had felt compelled to talk about the outdoor spaces and corresponding equipment storage. This was interesting because, unlike SA4 who had had the outdoor scene framed around her
through the windows during her tour, SB7 had been sitting with his back to the
staffroom windows while studying the school plan. Thus, his outdoor storage attractor
not only reflected his role and responsibilities but also seemed especially strong due to
its pulling his attention that way without tangible real world stimulus. Alternatively, he
may have had a different way of thinking about and seeing the world – perhaps leaning
towards the contemplative rather than interpretative (Wittgenstein in Genova 1995) or
being drawn to something of particular efficacy. Conversely, SA4’s interest in outdoor
areas may not have reflected a true priority, but just been triggered by its surrounding
abundance during her tour. In addition, SB7 only referred to the division of the
Classroom 2 inner space with regard to the partition wall and portable WB, but as with
SB1 and SB2, this can be explained by the specifics of his particular role: outdoor
responsibilities for daily lunch duty and four afterschool clubs.

CLASSROOM 3 & SURROUNDING SPACES
SB6 provided her ‘tour’ within her classroom which she described as ”the only
warm classroom” as all the heating pipes to the rest of the school ran through it.
She talked about introducing “new innovative ideas” into her teaching and gave the
following examples: ‘Philosophy for Children’ which she said was a county initiative;
speaking skills and in particular expressing argument and opinion; and the ‘Phonics
Scheme’ which she said was a new method that has had positive results, especially
in writing.

She then moved back to physical matters saying that the pupils did not use the low
sink in the wet flooring area and that the IWB was too high (see Image SB6C) so the
pupils must use a step to reach the screen for activities where they needed to
interact with it through touch. She said that the IWB had blackboard around its edges, but that she had covered it up due to its impracticality and used a flip chart when extra writing space was needed. She also pointed out the new speakers above the IWB and said that these had been provided for the Year One classes and made “a big difference” due to their being larger than the old ones.

Another change that she had made to Classroom 3 was in the layout of the pupils’ desks. She said that there had previously been two long tables whereas now there were four group tables, three for eight pupils and one for twelve. Interestingly, the three eight-pupil desk groupings were interspaced between the two skylights so that the skylights were not directly over any of the desks but still provided light for them. The twelve-pupil desk was positioned next to the main windows. SB6 also said she had got rid of her own desk after a year in this room and replaced it with an armchair next to some drawers with a PC on top (see Image SB6B) in the carpeted area. She then indicated the off-shoot room saying that the eleven PCs therein had been donated by (a local private secondary school (see Image SB6A). Next, directing the line of sight to the large windows next to the off-shoot room, SB6 said that there was “supervised usage only” of the Sensory Garden outside. She said it would have been good if it had been fenced off to provide a safe enclosure so that the pupils could access it more freely, but as the building of the new school was immanent, no such changes were going to be made. She said that on her ‘wish list’ for the new build were quiet areas and a role play area.
After taking the three significant photographs above and on exiting the classroom space, SB6 indicated where the drinking fountain had been placed between the entrances to the girls’ and boys’ toilets in the cloakroom area (28) outside the classroom. During his tour, SB1 had also pointed out the differences in the current layout of this area in comparison to that on the plan: the replacement of out-jutting coat racks with wall mounted ones to maximize physical flow space, the removal of entrance doors to the toilet areas, the increase to three cubicles in each and the brightly-coloured mural on the wall facing the coats in Year One/Two and Two’s cloakroom. SB3, whose pupils comprised the Year One/Two class, said that having “ten boys round three sinks ... [was] chaos”.

191
Observations about notes on Classroom 3 and its surrounding spaces

SB6 set the scene for her tour by referring to the physical warmth of the temperature of the classroom and then after talking about notional and practise-related developments she returned to the physical, but solid rather than kinaesthetic or tactile. This was the first time in this research that such a VAKOG-related ideational pattern of flow (McPhee & Terry 2007; VAKOG relates to the individual’s sense preferences – visual, auditory/aural, kinaesthetic, olfactory and gustatory) had arisen, representing effictility and ineffectility from a different angle. Interestingly, although if unaware of the site of the tour one might assume the participant was taking a sensory memory ‘removed tour’, she was in fact within her classroom. As with SB7, this suggests a different way of thinking about and seeing the world, and if the questions had been unrestricted, the researcher could have exploited this participant’s tendency by following McPhee and Terry’s suggestions about tailoring the interview question route to the respondent’s conversationally emerging VAKOG preferences (ibid.).

Also interesting was the fact that this was the second time that a ‘wish list’ was mentioned – the first being referred to by SB7 – and that there was no mention of the nearby classroom storage cupboard or storage cupboard in the cloakroom area even though space was an issue. In addition to the aforementioned possible reasons – unseen or part of the “community’s routinely forgotten memory” (Bowker & Star 1999:299) - this recurrence could show that these participants were differentiating between storage and space, designating the former as a place to put archival items and the latter as a space to move through or circulate. In Lefebvrian terms, the former may be construed as a container of representations of space, of the “bureaucratic and
political authoritarianism immanent to a repressive space” and the latter could be considered representational space because “It embraces the loci of ... action and of lived situations, and thus immediately implies time” (1991:49, 42, respectively).

CLASSROOM 4 & SURROUNDING SPACES

SB3 began by talking about the peopling of her classroom space saying that she started the academic year with 25 pupils in her class and this increased to 32, of these 30 were classified as ‘mainstream’ and two as ‘unit’. She went on to say that there were four adults (teacher and teaching assistants) in the room on Thursdays and Fridays, and three adults on the other three days. The tables in the classroom were divided into six groups: three with seating for seven pupils, one for eight, one for five and one for four.

SB3 identified these seated areas and other spaces as zoned learning spaces within her classroom and said that they were interchangeable, apart from the small carpeted area which was particularly associated with reading. Nevertheless, she stated that on her wish list were a specific role play area, and sand and water play areas in order to continue the Foundation Stage principle of learning through play with these slightly older pupils. She went on to point out the skylights and describe how they allow in “great natural light” but this affected the IWB sometimes meaning the blinds needed to be closed. Other windows that had had to be permanently covered were the two onto the corridor from the wet-flooring area. SB3 said that she had had to put displays over the windows because close to home time, parents would disrupt the last lesson by knocking on or waving through the windows to their children within. The teacher said she was happy for parents to
enter the classroom at any time, but “not to bang on the windows”. She also
pointed to the windows onto the Sensory Garden as shown in Image SB3B and said
these were mirrored glass. SB3 said that she took her pupils into the Sensory
Garden for outdoor lesson activities and gave capacity work in the water troughs as
an example.

Image SB3A: Taken by SB3    Image SB3B: Taken by SB3

Image SB3C: Taken by SB3

SB3 said that at first she had had her desk in the offshoot room, but when the pupil
number had increased she moved into the main space and changed the offshoot
into a quiet space containing library book shelving, a portable book shelf and a
portable WB (see Image SB3C). Another space utilisation method that the teacher described was that of opening up the partition between this classroom and Classroom 3 next door to enable the eight groups in the ‘Read Write Inc.’ club to have enough working space and used the open plan ethic to allow two teachers to team teach.

**Observations about notes on Classroom 4 and its surrounding spaces**

During SB1’s tour, he had said Classroom 4 was for a Year One/Two class, but during the ‘tour’ with SB3, whose classroom this was, it was discovered that in this academic year, it was for a Year Two class. This highlights the adaptive nature (Kauffman 1995) of the school’s organisation with respect to year-to-year cohort differences and echoes the School A participants’ comments about operational concerns such as taking noise and space into consideration while timetabling in the open plan teaching areas. These are key issues in the efficiency of any school and such participant-centred research revealed their significance effortlessly. Indeed, this comparable data across the case studies suggests that it may, after all, be possible “to compare … the phenomenon … in a systematic way, to explore different dimensions of … research issues or to examine different levels of research variables” (Ghauri 2004:114), even though the data collection process was different due to unreplicability.

On the other hand, where during the tours in School A’s open-plan areas in particular, it was possible to see patterns of organisation and behaviour in action, the walls and static/removed interviews at School B made for a disjointed and incongruent research experience. For example, unlike Classroom 1, the storage space under the work surface in Classroom 4 along the longest wall of the classroom was mainly empty and
there was mirrored glass in the main windows of Classroom 4 unlike those that had been previously seen in Classroom 1. As the School B participants were not viewing their colleagues’ workspaces during the interviews, which is a situation that would have probably led to comparison talk, the differences between workspaces that the researcher saw were not discussed by the participants. This supports the view that “richer data … prompted by meanings and connections to the surrounding environment” can be produced by mobile methods (Evans & Jones 2011:849).

Again, nearby storage spaces were left unmentioned with no talk of the classroom storage cupboard or the storage cupboard in the cloakroom area.

**CORRIDOR 10 & SURROUNDING SPACES**

SB1 pointed out the corridor extension which he stated created a covered passageway enabling pupils and staff to move between parts of the school without having to go outside. He then led the way into the “small breakout room” (33) which was off the corridor but without a wall or doorway. He said that this had previously been a small library but was now primarily a “chill out zone”. He indicated the “TV for birds” in the top right corner of the room which showed a constant relay of a CCTV link into the bird box on the outer wall, so pupils and staff could keep up to date with the nesting birds and their offspring. SB4 also talked about room 33 saying that it was used as a resource area and breakout area, housed a photocopier and was used for ‘Read, Write Inc.’ sessions. SB4 then talked about the nearby toilets and said that 45 boys used them and that some boys had been discovered to have got out through one of the windows.
Observations about notes on Corridor 10 and its surrounding spaces

Although there were corridors in both schools, but especially in School B due to its layout, this was only the fourth time overall and second time in School B when corridors were actually acknowledged. It might be assumed that corridors could have a great impact on the efficiency or inefficiency of a school, but in School A, SA3 and SA4 had only referred to the pupils’ framed artwork that had been put on the corridor wall in the new large extension in response to an Ofsted inspector’s comment about it being unfriendly and SB3 had talked of putting displays over Classroom 4’s windows onto the neighbouring corridor to reduce parental disruption close to home time. The invisibility of the corridors to the other participants reflects their fitness for purpose as passageways and occasional resource box depositories – and thus, their omission reflects ineffectiveness in these cases. However, it also reflects the aforementioned notions of differing ways of perceiving place and space. For example, in the notes on Classroom 3 and its surrounding spaces, there was the suggestion that participants might be ‘differentiating between storage and space, designating the former as a place to put archival items and the latter as a space to move through or circulate’. Applied to corridors, this would suggest that although they are obviously ‘a space to move through or circulate’, they may be viewed by most of the participants as places of utility akin to the storage cupboards, toilets, kiln and other uncommented-on places. Alternatively, it could be that they were disregarded physical representations of notional boundary objects that are considered someone else’s responsibility or they could have been simply absorbed into the “community’s routinely forgotten memory” (Bowker & Star 1999:299) as posited before. Other spaces in this area that were not
mentioned are the large storage cupboard and storage spaces off the corridor which were not mentioned by any of the participants.

CLASSROOM 5 & SURROUNDING SPACES

The teacher based in Classroom 5 did not participate in the study and none of the participants referred to its interior, although the surrounding spaces were mentioned. SB4 said that 45 girls used the nearby limited toilet facilities (4) and that there were four topic boxes of resources in the sink area. She went on to point out that 90 pupils used the cloakroom outside so it could “get messy”. Through the window in the corridor (3), SB1 pointed out the Sensory Garden and vegetable patch which he stated were of particular significance to pupils with special needs and the Gardening Club. SB4 said her class “almost never do” the Sensory Garden and then went on to indicate on the plan that there was a science resource storage box at the end of the corridor in the corner between Classroom 5 and the entrance to the resource area and boys’ toilets.

Observations about notes on Classroom 5’s surrounding spaces

It became evident in Classroom 5’s surrounding spaces that the lack of suitable storage space meant that resources were being stored in toilet facility areas and the corridor. However, the matter-of-fact way in which these were pointed out gave a sense of resignation to there being nowhere else for them. Perhaps, in this case, this was evidence of a lack of investment in solving the storage issue due to the forthcoming move – the attitude of ‘why bother if we’re leaving soon anyway’; inefficctility with no sense of effectability. In addition, the Sensory Garden appeared not to have been integrated into school life for some staff and pupils. In particular, SB4’s statement that
the garden was ‘something to be done’ rather than providing an alternative classroom environment – whose stimuli and natural resources could be incorporated into everyday curriculum items and improve the pupils’ “health ... motor fitness, balance and coordination, and ... creativity” (Fjortoft in Maynard & Waters 2007:257) – hints at this lack of engagement. However, her explanation that her classroom had poor access to outdoors was also a very strong reason in this case, but this could equally have been another example of lack of investment due to the imminent move. In fact, this participant’s attractor appeared to be the move itself; she seemed removed from her current situation and already psychologically sited in the new build. This phenomenon demonstrates the fallibility of Pickering’s point about the “need to deploy research methods in a more participant-centred way ... [so as to avoid] detachment from an isolated object of research” (2008:19). In SB4’s case, the participant-centred nature of the interview with its loose stimulus question is the very thing that allowed the detached response to occur; the lack of interrogation and focus to the interview isolated the researcher from the object of research by permitting the interviewee to drift too far towards an external attractor.

In Classroom 5’s surrounding area, there was also a toilet for the disabled, but no one mentioned it even though this school had more disabled pupils than School A, where two out of five of the participants had talked about such facilities. However, at School A there had been relatively recent adaptations to the school with regard to a change of use in the reception area and new facilities for the disabled in the new large extension, so as something not yet absorbed into the routinely forgotten memory, these toilets were current and having a conscious impact. In contrast, at School B the perceived
common utility of the toilets may have meant they were embedded in the *routinely forgotten memory* or it could have meant that they were *unseen* or irrelevant to practice due to SB4 not having a disabled pupil in her class. A fourth reason could be that the participant was resentful of the upcoming merger with the local school for the disabled, which seemed to have enabled School B to win the sizeable budget for the new build, and this may have been manifesting itself in the *maladaptive defence mechanism of denial* (American Psychiatric Association in Bovey & Hede 2001:537). Without clear answers to these hypotheses in the data at this point, it was impossible to know the real reason. This made the measure of *effictility* less tangible than at School A where the teachers’ tours had painted a layered and mutually affirming picture of areas of *effictility* and *ineffictility*. At School B, the picture was becoming fractured by unknowns.

**CLASSROOM 6 & SURROUNDING SPACES**

SB4’s ‘tour’ took place in the staff room. She began by giving its good points: its central position, large open windows, its circumstance as a very good place for sharing and its good management of the space available. She went on to talk about her classroom (Classroom 6) and said that her new IWB had been the first in school, but that it was “not positioned thoughtfully” due to being on the wall opposite the fixed WB so pupils always had their backs to one of the boards. She went on to explain that a move of the boards would mean extensive rewiring. SB4 then talked of the aforementioned poor access to outdoors and as well as saying her class rarely accessed the Sensory Garden, she said the access issue was particularly troublesome for PE lessons. In relation to this and sounding like a *wish list*, she
talked of wanting more sockets, especially outdoor sockets for activities such as
dance, and also in wish list mode, she said she wanted central storage because at
that time stored resources were spread about. Returning to notions relating to her
classroom space, SB4 explained that due to the old heating, it was necessary to
keep the door and main windows open for a through-draught because the three
high windows onto the corridor did not open. She also said that she could not hang
displays diagonally across the classroom due to them setting off the motion
detector.

Next, SB4 talked about the peopling of Classroom 6. She said that last year there
had been 31 larger-sized pupils plus three adults and two ‘unit’ pupils, whereas this
year, there were 28 physically smaller pupils including one ‘unit’ in the mornings
and up to three adults: the teacher, teaching assistant and helper for a statemented
pupil depending on numeracy and literacy sessions; for instance, some pupils could
leave the classroom at different times for ‘Read, Write Inc.’ sessions.

SB4 then moved onto storage saying that there had been storage units all along the
main windowed wall, but that they had been removed to increase space. She said
that at that time, she was in the process of getting rid of other unnecessary
furniture; she said that a lot had already gone and that she was currently focusing
on getting rid of a trolley. Another item she identified on the plan that she
considered a waste of space was the high domestic sink in the corner which she said
did not have any hot water and the pupils did not use it. She took three
photographs of significant parts of Classroom 6 after the tour.
Observations about notes on Classroom 6 and its surrounding spaces

The most interesting part of SB4’s ‘tour’ was her then current engagement in adapting her space to suit her own and her pupils’ needs. This investment and eagerness to improve her classroom in such a manner contrasted greatly with the attitudes of the other participants and her own earlier wish list comments and attractor of the move. She appeared to have made a boundary between her classroom and whatever was outside. This drastically limited what she could offer to the narrative of the school’s efficicility as a whole and may relate to a combination of locus of control (Lefcourt 1982) and what Aldrich and Pfeffer called “the ‘press’ of the environment upon the organization” (in Manning 1982:123). Alternatively, looking at SB4’s biodata, it can be
seen that although mature in years, she was the most recently qualified teacher and therefore perhaps her still being in the process of claiming ownership over the profession was manifesting itself in *nest-building*. Equally, this behaviour could be interpreted as another *maladaptive defence mechanism: acting out* (American Psychiatric Association in Bovey & Hede 2001:537); or a quirk of SB4’s personality in that she felt the need to continue adjusting her environment even this late in the academic year (May) when other teachers had already organised (or resigned themselves to) their own physical surroundings. As with SB7, the departure from the pattern may have signified a different way of thinking about or seeing the world, but in this case rather than being more contemplative than interpretive, SB4 appears to have been more isolated as opposed to holistic in her view of her impact on, or relationship to, the school outside her classroom walls.

**CLASSROOM 7 & SURROUNDING SPACES**

As with Classroom 5, the teacher based in Classroom 7 did not participate in the study and none of the participants referred to the classroom’s interior, although the surrounding spaces were mentioned. In the staffroom, SB1 pointed out the new kitchen units, dishwasher, fridge, freezer and water cooler. He also indicated the pigeonholes, data projector, pull-down screen and ample single-style seating around the walls. All this, he said, meant the room could be used equally comfortably for classroom preparation, lunch, meetings and presentations. He also pointed out the new spread of windows stretching across the end of the room and contrasted these with a single small original side window that had been retained during the refurbishment.
During her ‘tour’ in Classroom 1, SB2 pointed out the quick diagonal walk past the Sensory Garden between the school’s main reception and the Foundation Stage classrooms demonstrating her pupils’ everyday access to that outdoor space as a matter of passage. SB8 also said the arc-shaped desk in the main reception area was new and that the television screen showing slides and messages gave the space more interest for pupils, parents and visitors.

Observations about notes on Classroom 7’s surrounding spaces

As well as there being no mention of the interior of Classroom 7, eleven of its surrounding spaces were not talked about: the kiln, store room, head teacher’s office, storage cupboard, toilet, secretary’s office, boiler room, fuel storage and access, toilet cubicle, toilet sink area and caretaker’s office. All but three of these spaces are understandably missing when considering the previous data collected across the two sites. However, no reference to the head teacher’s office, secretary’s office and caretaker’s office seems puzzling as one would assume that these were key people and that their offices would be representative of their significance. I expected these to represent hubs of efficacy generation. However, this type of mismatch between data collector/analyst assumption and apparent data reality leads to researcher reflexivity which is key to the social constructivist notion of making “sense of … [one’s] environment through an active process of engagement” (Berger & Luckman; Shotter; Hassard – in O’Connor et al. 2003:360).

On the other hand, in the staffroom SB1 was able to physically point out numerous changes that had occurred there explaining how they had impacted on the usage of the room, thus identifying elements of efficacy there. This once again confirms that
the tangible and immediately visible stimuli available in “walked interviews give access to richer understandings of place than can be generated by more conventional interviewing techniques” (Evans & Jones 2011:849), and it also implies that an interview about place conducted within its space is more likely to be reliable, focused and valid.

SB1 also contrasted the old and new windows which in situ gave the researcher an immediate and much clearer understanding of the effect their addition had made in terms of light, than would have been possible if the information had been provided in a displaced tour. This specificity was enhanced by SB1’s direct indication through gesture which enabled a closer connection between the participant and researcher’s communication of ideas, and a closer relationship between both and the object of research. This formed a similar interaction to that suggested by Warren with regard to reflexive photography – “discussing photographs in an interview context generates data through the triad of researcher-image-research participant” (2005:867) – but in this case, rather than the image being a photograph, it was the actual surrounding environment. This triad was also apparent when SB2 was physically indicating the walkway through the window of Classroom 1.

**DINING HALL, CLASSROOMS 8, 9 & SURROUNDING SPACES**

SB4 identified on the plan how the left-hand end of the dining hall was used as a breakout area, First Aid space at break time and for Read, Write Inc. sessions. At the opposite end of the hall, she indicated where the Design Technology resource boxes were kept. Nearby, SB1 showed where the ‘Unit’ should appear on the plan and said it was for pupils with special needs and particularly Key Stage 1 autism. He
talked of the upheaval that this permanent mobile’s construction had caused. Also in this area, SB4 identified (43) on the plan as the PE store and said it was too full and disorganised. SB1 said that Classroom 8 contained Key Stage 2 autistic pupils and gave the contrast with the cohort in Classroom 9 by describing them as “normal pupils”. SB4 said that the library (56) was used as a Read, Write Inc. breakout area and explained that the cloakroom (55) was used by 60 pupils.

**Observations about notes on the Dining Hall, Classrooms 8, 9 and surroundings**

The paragraph above is a clear example of what is becoming increasingly apparent in the data from School B: participants were classifying spaces according to their designated usage, identifying items and their positions, explaining problematic issues and, less often, talking of changes and developments. This static descriptive tendency made efficicility difficult to identify which clarified in my mind that the measure of efficicility requires the participant’s narrative to involve historical reflection – a sense of progression. Nevertheless, this pattern of not answering the question grew in interest for me so that where the attractors for the School A participants had appeared to be different for each individual, there grew the suspicion that at School B there may be a single overriding one. As Marion suggests, strange attractors can be “the medium of mapping” (1999:72) and this particular patterning of strange attraction began to nag at me in the ironic form of a semi-conscious attractor.

SB1’s definition of the ‘Unit’ added a sense of clarification to one aspect of the data collection process by explaining why some of the participants referred to pupils with special needs as units. This had seemed a derogatory classification because of its repeated association with intrusion upon class cohorts, activities and space, but on
looking at the annotated plans and rereading the notes, the term unit becomes a simple identifier for a particular member of the school cohort. In turn, the term’s usage in tours with the researcher symbolised the participants’ perceptions of the researcher as an objective and aware co-member of the teaching profession rather than a judgemental external assessor of some kind who would be perceived to expect political correctness. This is reminiscent of the findings of the study by Thapar-Björkert and Henry (2004) mentioned in Chapter 2 where having gender and race in common with the participants allowed the researchers insider status even though they were at the same time outsiders due to their roles, lack of local knowledge and usual geographical location.

Also in the Dining Hall and Classrooms 8 and 9’s surrounding spaces were the kitchen, kitchen stores, toilets, corridor, hall, Classroom 8 storage cupboard, sensory room, shower and Classroom 9 storage cupboard of which there were no mention.

CLASSROOM 10 & SURROUNDING SPACES

Classroom 10 belonged to SB8 who began with some contextual information saying that this was the first school she had worked in and that previously in this school she had taught in Classroom 6. She said that when the class sizes reduced, the distribution of the pupils within them changed, i.e. there was a mixed Year Four/Five class now, but not five years previously.

SB8 then went on to talk about space, light, access, technology and policies. She said that there was enough space in her storage cupboard and indicated the new storage and tables along the windowed wall of the classroom in addition to existing storage units along opposite wall. In terms of actual teaching space, she said that
more spaces were needed for quiet group work and that new activities demanded
different spaces giving the examples of drama, Kung Fu, punctuation and
philosophy. At this point, she also said that science lessons were affected by the
lack of hot water. With regard to light, SB8 said that the top window roller blinds
were almost permanently down due to the angle of the sunlight entering the
classroom and its effect in terms of heat and glare. She said she had heard of
photovoltaic glass as an alternative. Next, she turned to the topic of access saying
that better access to the playground was required for the youngest pupils and she
said that the long jump pit which had been popular with Year Five/Six pupils was
now under the ‘Unit’, and added that it had also been a sandpit for Year Three/Four
pupils.

SB8 now focussed on technology pointing out that that the IWB (see Image SB8B)
was directly opposite the blackboard and that there was a portable flipchart next to
the blackboard. She said that this board opposition was not problematic. She said
that the 0506 or 0607 target had been to improve support staff’s ICT skills and have
teachers using ICT as a teaching and learning tool, but she went on to say that an
ICT trolley containing 20 laptops would be preferable to the idea of a suite which
would require a special space being timetabled. She then identified the new
phones and extension numbers (see Image SB8A) which she said had freed up the
reception’s telephone and meant teachers did not have to leave the classroom so
often.

In terms of new policies, SB8 talked about the Behaviour & Reward Policy saying
that it was better with regard to being “up-to-date in thinking” and she said that
this meant that pastoral care at the school was excellent. She also mentioned the school’s homework and class size policies, and said that teaching the Foundation subjects in a cross-curricular manner was a move away from QCA policy. SB8’s photographs of significant parts of her workspace are below.

Observations about notes on Classroom 10 and its surrounding spaces

Although more of SB8’s talk was about changes and developments than the other participants, there were still instances (space, glass, playground access and ICT trolley) when she moved into wish list mode like SB4 without actually mentioning the term wish list, whereas SB7, SB6 and SB3 had. This suggests that the wish list dialogue may have gained N-term status (MacKenzie 2001) for SB8 whereas it had remained S-term (ibid.) for those who mentioned it by name. It may also be a sign that SB8 had attained
a greater sense of empowerment and ownership (Coleman 1999) regarding the new-build preparation process. She may even be said to have gained *nonconsensus coherence* (Goldstein 2000) as opposed to the consensus incoherence or consensus coherence of her colleagues.

SB8 also talked about four specific policies unlike most of the other participants – SA5 having mentioned the *water for learning initiative*, SB2 the *outdoor education strategy*, SB3 the Foundation Stage policy and SB6 Philosophy for Children and the Phonics Scheme. There are three reasons for these participants to have been so specific in their naming of these policies, initiatives and strategies. Firstly, they may have perceived them to be *bounded* interventions (Manning 1982) that were somehow retaining *otherness* (Lee & Brown 1994) so they did not make the transition from *S-term* to *N-term* status (MacKenzie 2001). It could be that their practices had not yet been absorbed into the *routinely forgotten memory* of the community (Bowker & Star 1999). Alternatively, these participants may have *bounded* these interventions for ease of reference and utilisation due to their specific relevance to their individual workplace roles and responsibilities. Whatever the reasons for discussing these items in this way, the information was not presented in a way that enabled me to gauge specific effictility or ineffectility. In fact, it was SB8’s situated talk of coping with her boards’ positions, new classroom phone and the effects of the Behaviour & reward Policy on practice that gave clear signposts to effictility in action.

There was no mention of the toilets or storage cupboard in the toilet area near Classroom 10.
CLASSROOM 11 & SURROUNDING SPACES

SB5’s ‘tour’ took place in her classroom. She said that Classroom 11 was her second classroom since joining the school and that her previous class had been Year Four. She said this Classroom 11 had “no space for a classroom area” and that the pupils in this class were bigger so movement around the space was “tricky”. She said she had 29 pupils on the register including two ‘unit’ and one extra ‘unit’ in the afternoons. She said there were three adults including the teacher herself in the morning and two including the teacher in the afternoon.

Next, she went on to talk about the classroom environment saying that the colour scheme of the room was supposed to be blue, but the previous deputy head teacher had ordered new furniture and it had arrived in red. She also said that the low winter sun could be an issue and that the end wall was cold. She then indicated the IWB and rolling Bb on the end wall saying that she had “grown into the space” in terms of light, technology and furniture. To the left of the IWB, the windowed wall had storage units along it and on the end nearest the IWB, the teacher pointed to the printer saying that it was shared by three other classes which could be disruptive. Next to it was a laptop and there was another laptop on the teacher’s desk and a desktop computer for pupils on a desk next to the teacher’s desk. She said that she liked to be very tidy and to lead her pupils by example. The photographs that she took (below) demonstrate her tidiness.
When SB5 took her photographs, she said that her displays were significant to her and she would have taken photographs of them but they had had to be removed due to imminent SATS. Instead, she took photographs of the storage areas that she had organised and worked hard to keep tidy. Image SB5C was taken inside the cupboard at the back of the classroom.

Observations about notes on Classroom 11 and its surrounding spaces

This was the only mention in Phase One of there being some form of colour scheme at either school. Looking back at the photographic evidence, there was a mix of primary
and secondary colours used in both schools with a multi-coloured organisation of boxes and displays at the lower end of the age groups making way for larger blocks of generally-speaking darker colours at the higher end. This seems to echo the free-play (Wood 2007) to ordered practice extremes of the pedagogy continuum, which is employed at the school and encouraged through teacher training (Wood 2009) and the National Curriculum (DfEE & QCA 1999; DfE 2012). Although this minor investigation into colour usage was triggered by SB5’s mention of it, the conclusion above has been drawn directly from analysis of the images from both sites rather than worded explanations and descriptions. This demonstrates how photographs can provide evidential insights that not only back up hypotheses based on interview data, but stand as observational records for analysis in their own right and in so doing, as Warren puts it, “convey a richer sense of the research arena” (2005:879). However, that was not the intended purpose of these photographs and so the above deductions are incidental and invalid.

Similarly, noted on the plan by the researcher but not talked about by SB5 was the arrangement of the pupils’ desks in Classroom 11. The desks were organised in five equal groups of six in contrast to the other classrooms’ seating arrangements which were uneven presumably to “reflect the particular learning needs of the students” (Getzels in Bentham 2002:169). This is an example of how the surrounding environment can throw up contrasts suggesting that a participant does not fit into an emerging pattern and – having understood that “the role of furniture and objects and the way they are arranged in space … intervene in the quality and outcomes of the interactions they give rise to” (Värlander & Yakhlef 2006:724) – this particular contrast
made the researcher want to ask SB5 about her cohort’s abilities and this particular arrangement of furniture with regard to teaching methodology. However, the strict intention of Phase One was to ask the single initial stimulus question and then only ask for the clarification of any unclear points made by the participant, and not follow the researcher’s interests or agenda. This adherence to protocol was particularly important in ensuring that the research remained as participant-centred as possible and did not revert to the more common researcher-centred approach to qualitative interviewing (Riach 2009). Also left hanging in this way were other parts of the school and the outdoor areas, apart from when SB5 talked of issues relating to light and heat, and there was no mention by any of the participants about Classroom 11’s storage cupboard or the Nursery.

**Concluding Phase One remarks about School A and School B**

Three main topics arose during Phase One: the *uncommented-on*, questioning and the suitability of the participant-guided tour as a data collection method. Due to the large number of spaces (46 out of 66) at School B that were not mentioned by any participants, the notion of absence and invisibility occurred repeatedly in the data analysis. For example, the fact that the interior of Classrooms 5 and 7 were not mentioned in any of the *tours* might have been a result of the rooms not belonging to any of the participants, the non-open plan nature of the school making them invisible on the way past or having static and displaced interviews. This accentuated the feeling at School B that there was not enough historical reflection expressed in the Phase One participant-guided tours to present a clear sense of efficicility and ineffectibility confirmed by multiple teacher references. In contrast, such spatial data gaps did not occur during
the research at School A because the vast majority of the school is open plan and thus easily visible during the kinaesthetic tours that took place. Nevertheless, at both schools there were policy-related interventions that were not mentioned by name and the recurring themes that revealed themselves during the investigation above point to potential reasons relating to the unseen, S- and N-term status (MacKenzie 2001), the community’s routinely forgotten memory (Bowker & Star 1999) and the absorption – and thus un-bounding – of incoming boundary objects.

This adds another facet to the imagined communities notion (Anderson 1991): that there are layers of imagination between the near and the distant – a layer of almost seen or just out of view between the seen and unseen. This almost seen could also represent the taken for granted or currently unproblematic elements in a workspace signifying that physical items may grow and shrink or shift between foreground and background concern depending on their significance or problematic nature at any given time without actually changing or moving physically in any way. This idea in turn adds to the concern that Ofsted inspectors may miss vital development-related data due to a lack of true longitudinality or ‘joined-up-thinking’ in their reports. For efficiency to be measured, there needs to be a mapping of interventions, emerging practise, coping strategies and operational artefacts to provide tangible evidence. I do not believe this can be done in one inspection. It needs to evolve over a series of visits and self-evaluation events.

In terms of questioning, there were two issues that came up during Phase One at School B: the appearance of unresolved and potentially unresolvable questions on the researcher’s part and the concern as to whether the participants were actually
answering the question posed. With regard to the former, there was for example the apparent but ambiguous differentiation between practice space and storage space, and the switch to present and future wish list talk as opposed to the requested past changes and developments. The adherence to the single stimulus question and follow-up clarification questions did not and would not allow for later questioning during this stage after off-site analysis of the annotated plans had been undertaken or during the next stage when the stimulus questions were limited to three very specific ones. After much deliberation, it was decided that if these issues were of significance within the school, they would arise again as a matter of course in the future phases of participant talk. Allowing complexity theory to infiltrate the research to this depth was a new and unsettling experience for me as I was temporarily faced with unanswered questions, a sense of loss of locus of control (Lefcourt 1982) and forthcoming practical deadlines. Nonetheless, to maintain a distance from bias and remain as focused on participant-centredness was of paramount importance, so the endurance of such discomfort was necessary.

In relation to whether the participants actually addressed the stimulus question, it can be said that at School A they did and at School B they tended to go off-topic. Indeed, it was intriguing that SB1, a school governor, was the only participant to talk of the many changes in the staffroom, especially as a number of the tours took place there and it was a place where all the staff spent the majority of their non-contact time. This draws attention to the ironic fact that all the participants who were asked the question “How has this school changed and developed since you joined?” in this exact format spoke only of their own class spaces and a few areas very nearby. Later discussion
with the head teacher revealed that the School B staff had recently been asked to produce wish lists for the architect team who were designing the new build. She also showed me the website the architects had set up for the staff and pupils to interact with as a reflective space, which included a cool wall where pupils could position drawings and photographs of furniture and other environmental items in terms of whether they thought they would be good (cool) or bad for their new school. Thus, the School B participants’ preoccupation with the new build in their not-too-distant future and all the perceived solutions it would bring to their current problems kept drawing them away from the researcher’s objects of interest and towards their own outside the school grounds. Thus, whether explicit or implicit, the attractor was the new build.

On the positive side, the single stimulus question gave the participants at both schools the opportunity to demonstrate their engagement with their responsibilities and, especially obvious in the static and displaced tours at School B, was the variety of ways in which the participants chose to order their talk. This points to one of the main contrasts between them and the participant-guided tours at School A – the latter were structured by the environment that the participant and researcher passed through during the tour (Evans & Jones 2011), whereas the former were more a form of free association (Holloway & Jefferson in Squire 2008) with visual stimulus prompts. This demonstrates the importance of having just one stimulus question and a twenty-minute interview slot so the participants can freely identify their own points of significance rather than being pushed and focused by the researcher. The open question having the same effect here as Patton suggests of the open-ended interview:
it “permits the respondent to describe what is meaningful and salient without being pigeon holed into standardized categories” (2001:56). It is firmly believed that this interviewee freedom leads to such a rich, varied and relevant set of data, and allows for anomalies and quirks of personality rather than measures against a standardised tick-box ideal. That said, the School A tours were structured and held on topic by the environment they passed through and it is this that made their data much more relevant and useful to the study.

With regard to the suitability of the participant-guided tour as a data collection method, it worked well at School A where all five were a resounding success in providing the desired body of Phase One data. The annotated plans layered up easily on the A1 acetates to present a wealth of patterns across the whole school and its grounds (see Appendix D). At a glance, it has been possible to see the layers of affirmation appear and chart the course of the school’s response to its environmental and curricular issues. In addition, the data collection procedure was an exciting activity in itself because I could sense the building of the layers as the tours progressed and this led to a smooth and satisfying transfer process onto the acetate. Indeed, it was as though the flows and places of the school’s spaces (Merrifield 1993) were spontaneously emplotting (Entrikin in Merrifield 1993) themselves in the horizontal and vertical axes of the time and space of the acetate transcription process. A huge range of aspects of effictility and a small number of those representing ineffectility revealed themselves during the data transfer, so even at this early Phase One point, School A appeared to be in a positive position.
However, the story with the School B data was very different. Although the project had been explained to the head teacher and participants in exactly the same way as at School A, the data collection was limited in terms of spatial movement and expanded with regard to participant number. This was not of my choosing, but had been arranged by a very busy team with the assumptions that this research would somehow mimic that of the recently visiting architect team. The participants seemed, in a way, to have *reconstructed* the researcher’s identity (Thapar-Björkert & Henry 2004) to suit an existing ideational construction of other recently visiting researchers who had been engaging in interviews relating to the new build.

At the time, it had been frustrating for me to feel that valuable time was being spent in an environment where real participant-guided tours were not possible but, in hindsight, this experience was a true reflection of the complex nature of schools and, indeed, of research in practice. It also threw up contrasts with the ideal School A experience that another ideal collection may not have done, thus enriching the data once more. However, this points to chance playing a role not only in the fieldwork process but also in how it may play a role in Ofsted inspections – how can something be measured accurately when there is a chance that the assessor may not observe or encounter it on the assessment days? This is where layered participant-guided tours in conjunction with a longitudinal set of interviews show themselves to be better than overlapping static tours or observations, and how an organisation’s current state of flux must be thoroughly researched before participant-guided tours are attempted.
Phase Two: Follow-up interviews reflecting on tours and photos

The interview questions for this phase were:

1. I’d like you to talk about your photos and the plan for about three minutes.
2. How have the policies that have come into force since you started teaching here affected you and your workspace?
3. Have you or any of your colleagues brought about any new school policies here? If so, please tell me about them. If not, is there a reason why?

In all cases, the interviewees seemed very interested in the photos they had taken up to a year previously and went into a kind of reminiscence stage at the start. This had the effect of contextualising the research without much explanation; however, it also meant that there were some long silent pauses at the beginning of the interviews and some under-the-breath mumbling where the teachers’ inner thoughts were verbalised, many incoherently, before the first question was asked. Although there may have been a little useful material in these mumblings, it was considered inconsistent with the aim of Phase Two which was to obtain the answers to the above three questions. Thus, the analysis begins after the first question has been asked.

School A

The first Phase Two interviews took place at School A on 25th March 2009 and the talk revolved around the topic of space: the influences on space usage, outside space, the struggle to find space, ownership of space, possessing enough space and solving space issues. Therefore, the following analysis will be grouped according to these topic divisions and worked through with reference to the notions explored in the Literature Review and Methodology chapters.
The influences on space usage

Teachers SA2, SA3, SA4 and SA5 pinpointed the pupils, policies, lessons and furniture as the key influences on space at the school. The largest influence by far appeared to be the pupils in terms of their physical presence, academic abilities and personalities. For example, SA3 said of the larger open plan teaching area that “when you stand at the lower junior area in Year Three and look down, it is such a huge space and all of a sudden the children are in there”. This reflects the change in the nature of a space that occurs through its peopling and it relates directly to Lefebvre’s perceived space with its two facets: “everyday social life and commonsensical perception” (in Shields 2004:210). It also proves Kidder’s point that “space is not a predetermined process; it is only realized in the practice of knowing, strategic agents” (2009:311). In addition, SA3’s statement relates directly to the complex more than the sum of its parts notion where the peopled space must be considered not just as a place filled with individual bodies, but also in terms of what those bodies generate through togetherness as well in terms of effictility. As de Certeau posits, there are “the relationships of place as a fixed position and space as a realm of practices” (summarised in Crang 2000:138).

Although SA5 said “so we don’t need to keep moving the ability of the groups, we tend to put higher and lower abilities, put them together on tables”, she also talked at length about repositioning furniture to suit the changing needs of her pupils:

I: Do the tables always stay together in the middle or do they get separated?

SA5: Depends on the teacher and depends on the requirements of the pupils, depends on the range of abilities and the personalities as well, so
they will be, at the beginning of the year, you will put them as best fit as you can and then throughout the year, we’ve had a couple of changes because mainly due to personalities, so we don’t need to keep moving the ability of the groups, we tend to put higher and lower abilities, put them together on tables but then they have to sort out the personalities within those groups as well.

I: It’s an organic process, isn’t it?

SA5: Yes, it is, very. It does move and change around because they do have fallings out at this age – mainly the girls rather than the boys, so you try it and also because of the space that you have. My numeracy group has to change around from my main class because we have mixed, we change around our numeracy groups ... have the threes and fours together and split them into abilities.

This teacher’s recognition of the importance of adapting the environment in response to her pupils’ developing personalities and relationships exemplifies McMillan’s (2006:31) notion that one “property of complex, adaptive systems ... is that they are constantly reconsidering and reorganizing themselves as they gain experience”. It also relates to Kidder’s idea that “social relations are anchored in and mediated through physical space” (2009:311) and is a clear example of effictility at this school.

Furthermore, it could be said that the above SAS excerpt is representative of the fractal nature of the complex system of the school at work where Kolb’s experiential learning cycle (1984) can be seen at the organisational level of operations as well as at
the pupils’ developmental level. Also showing the relationship between levels, but this time between policy and operations, was SA2 who said:

**SA2:** I’ve changed sort of the layout of this classroom and we’ve moved things around to try and make some parts quiet so the carpet has now got, we’ve got a wardrobe sort of there [indicating on the plan] that blocks out noise and things and we’ve moved a few things around.

This demonstrates how the movement of furniture and fittings was undertaken in an effort to affect a suitable environment for the activities of the National Curriculum to be enacted in a particular teaching space. This confirms the above evidence of effictility with regard to the repositioning of furniture exhibited by SA5.

In contrast, space became countable when SA2 showed her apparent resignation to the effect of the policy on pupil numbers saying that “they’ve changed the numbers and things and the amount of the spaces and that’s affected me because I’ve got 31 in my class so because we’re open plan we can have, we can sort of go over a little, so I’ve got one more”. She also appeared resigned to dealing with her current space as best she could rather than complaining about it or wishing for something more: “I’m trying to make the most of sort of the space I’ve got at the minute”. If Bryman and Bell’s advice that “In qualitative interviewing, the researcher wants rich, detailed answers” (2003:343), the neutrality of these two statements might lead them to be considered useless to the investigation, but in fact they are telling and of interest because of this very neutrality. The fact that the policy on numbers has led to SA2 having an extra pupil in her class being presented as an end in itself without consequences being given is a sign that she has been able to cope with the extra
responsibilities that go with this stretch in capacity. In addition, the understatement in both sentences – “go over a little” and “at the minute” – signifies a sense of temporariness in circumstances even though both situations would most likely be in effect for a full academic year. This defies Lefebvre and Régulier’s (2004:99) broad rhythm-analytic claim that “there is a struggle between measured, imposed, external time and a more endogenous time”; SA2’s statements imply that in the case of the numbers policy in relation to her own classroom space, there is little or no struggle. This conjures another clear sign of efficacity where an embedded teacher is resiliently coping with the constraints of her spatial context now because she knows that it is her turn and sees it as a temporary situation even though it is for a year. Her following statement – “but apart from that it [policies] doesn’t, it hasn’t really affected me. We sort of, everything’s the same almost as when I started” – also testifies to these notions of embeddedness, resilience and temporariness because, in fact, there had been significant policy changes during her years at the school, but she did not appear to have struggled with them enough to give them much credence or mention during her interview.

Further in relation to policies, SA4 said that they had “affected the way that we plan lessons and the way that we structure lessons, so in that respect they’ve also impacted on the way in which we set up the classroom”. This demonstrates the direct relationship between imposed policy and the realities of the physical classroom – an unambiguous reference to the process of developing efficacity in relation to top-down policy intervention. Again, the matter-of-fact nature of the statement points to a lack of struggle and confirms that successful coping strategies have been employed to deal
with the incorporation of new policy implications – thus, signifying individual or team resilience. On the other hand, also relating to furniture adjustment for lesson requirements, SA5 said with a negative tone, “Sometimes, we have to move them around. One time, we had to do a dance class in the area as well so we had to put all the tables and chairs aside”. In the second sentence she uses *had to* twice, but it is unclear as to whether this was in relation to the impact of an imposed policy item, because of the lack of choice of another space due to the small size of the school and timetabling issues for the hall, or because the teacher was not enamoured with moving furniture or dance itself. This exemplifies Marion’s statement that “Systems do not act in a vacuum, they do not control their own destinies. They are products of their environments” (1999:64), and in this case the *environment* clearly includes its actors and possibly the *boundary object* as well.

Despite this possible issue with the dance class, the teacher leading on Arts at School A seemed very positive:

**SA1**: *I’ve just initiated an overall arts policy to incorporate dance, music, drama and art. We’ve done that because I’ve applied for the Arts Mark award, so we’ve had our visit and we’re very hopeful that we will get it, but I had to initiate the overall arts policy because you had to do that for the Arts Mark. All our arts are very strong, but we didn’t actually have an overall policy, which we’ve now written and we are working on and we need to probably develop more.*

Her repeated use of *we* makes the school’s overall arts policy appear to be a team creation, but when considering SA5’s comment above, it might appear that the
enactment of the policy is not going as smoothly as its development. This shows how even policies and strategies developed through a bottom-up process may not suit all involved when it actually comes to carrying them out. This type of mismatch in the data hints at inefficility here or yet-to-be-achieved efficility in development. SA4 gave another example of such impact saying: “I suppose they’ve [policies] affected what we teach with regards to the Literacy Strategy ... we started doing some stories with flashbacks for example ... so it’s changing the style and also how we teach it”.

Although in her voice there was nothing to suggest she was unhappy with this type of effect on her practice, an understanding of different teachers’ reactions to change would suggest that there would be some reluctance amongst any staff team at least at the start of such an intervention (Howser 1999). Thus, in relation to Hudson and Lowe’s (2004:161) suggestion that “Institutions play a crucial role at the meso-level of the policy process. They provide a context for micro-level human interactions and filter broad macro-level trends”, it could be said that the macro-level trends of Artsmark attainment and the Literacy Strategy were having a definite impact on the micro-level human interactions at the school with varying practical success, and that the meso-level institutional role of mediating filter was being suitably fulfilled. This could be seen as evidence of inefficility turning to efficility.

Outside space

SA1 and SA3 talked about outdoor spaces of the school that could be considered boundary objects, but were not identified specifically as such. First, both teachers defined the newly developing woodland area, being created in partnership with the Woodland Trust, as an “outside” or “outdoor classroom”, and SA3 also described it as “Really exciting. Lots of opportunities for the children to learn”. This woodland area
can be considered a boundary object for three reasons: its physical position on the edge of the school’s grounds, its physical attribute of being an area of natural wilderness in comparison to the rest of the grounds’ well-kept-ness and thus a metaphorical footnote towards the untamed world, and its representative quality of partnership with an external organisation. As Prigogine and Stengers suggest, it can be “the boundary conditions that describe the relation of the system to its environment” (1984:106) and, in this case, the woodland area demonstrates the school’s physical and notional integration into the wider world with its alternative environment and additional community of practice (Wenger et al. 2002). This, in fact, physically and notionally enlarges the school’s structure through its addition to the grounds as a usable space and addition to the timetable for outside activities. Thus, it exemplifies Bowker and Star’s point that “The activities with their stuff, their routines, and exceptions are what constitute the community structure” (1999:294) and I suggest that the interview narrative emerging on the topic of the woodland area is a good place to find evidence of efficient and effective utility in a forward-moving, grounds-expanding process.

In contrast, one instance was mentioned at School A where the opposite had occurred due to space, time and stress efficiencies as described by SA3: “nursery used to come over and have their lunch in the hall, but it was a bit too much for them when the older children came in and it was quite disruptive and moving from outside inside and backwards and forwards, so they now have a special trolley that takes their dinner over to them”. The nursery is housed in a separate building linked to the school by the car park and play area, and it operates as a pre-school centre; it is funded slightly
differently and is not compulsory – all of which would qualify it as a boundary object.

However, the negative features of the activity of lunchtime on main site were seen to outweigh the inter-relational benefits, so the newly transferred nursery leader (SA3) acquired the appropriate furniture and equipment, and changed the procedure – another example of ineffictility being identified and turned into effictility at School A. This proves the exceptions to Wenger’s (2000:12) statement that “Most organizations are not designed to encourage boundary interactions”. In this case and the woodland area example above, the school has clearly been designed to encourage boundary interactions, but because of this abundance, not every opportunity has needed to be exploited and pragmatism has conquered lunchtime issues at the nursery.

The Astroturf is another boundary object that has caused the development of new patterns of activity relating to reorganisation and the redesign of time-related practices. SA3 simply stated that it “makes a bit more space on the playground and at lunchtimes as well” and SA2 explained that:

They have days when they can go play on it ... they [pupils] had the hockey ball on there yesterday. They’re just sort of initiating it themselves which is great, so sort of from that I’m thinking about doing some [noise interference made speech inaudible] because they’re showing interest in it and hopefully when the weather picks up a bit more we’ll be able to take them up for PE as well.

Thus, the way the teachers are managing the usage of the new Astroturf is developing at least partly from the pupils interests in it (together with the viability of weather conditions). This exhibits a fluidity in the emergence of effictility which reflects
strength and confidence in the staff team to turn the constraints of their spatial and temporal context into opportunities and allow their pupils to dictate terms within these boundaries. This also points to the chaos theorists’ assertion that “The best management structures ... do not adapt to their environment but emerge from it” (Buchanan & Huczynski 2004:550) and means that the bottom-up motivation for using the space will be captured and enhanced.

SA3 also talked enthusiastically about a fourth boundary object, the planned garden development:

\[\text{yesterday we had a garden designer who’ll be working with me and [the Head Teacher] and the area at the front of school, if you cross the car park, the grassland there we’re going to landscape and it’s going to be split into the four seasons ... we wanted somewhere that the children can grow things, and vegetables and fruit, and that’s really the only space left that they don’t go out after playtime to that we could use ... And then in the winter area, there’ll be some turf and some little mounds that the children can sit on and holly planted all the way round and witch hazel, but it should just make another huge space that’s actually usable}\]

This and the aforementioned woodland area and Astroturf exemplify Massey’s (2005:9) definition of “space as always under construction ... never finished; never closed ... a simultaneity of stories-so-far” and Lefebvre’s description of a present space as “the outcome of a process with many aspects and many contributing currents” (1991:110). The nature of the woodland area and seasonal garden also present the fractal qualities of being developed for usage by human actors at the same time as
developing in themselves on a very fundamental natural level reminiscent of the nurtured development of the children who will benefit from both. This fractal quality was highlighted brilliantly and yet unwittingly by SA3 who said: “you’ll walk through lavender and there’ll be tall grasses that swish so the children can see the movement”.

Making a general comparison with indoors, SA3 said that “the children have access to the outside which is something that’s a real luxury for us ... in the area [open plan teaching zone], you sometimes feel a bit penned in”. This is a very interesting statement as one would not usually consider that working in a large open plan area would lead to a sense of feeling penned in, but it highlights this teacher’s concern with the wall-less borders of her teaching space and the potential for even mobile 0.5m high storage units to signify a fixed enclosure. This represented an instance where an individual teacher expressed an aspect of ineffictility in the school which was only related by her and not confirmed by other interviewees. In research that was trying to generate generalisations, this would be ignored, but here with the importance of participant-centredness, it is remembered that it could be the occasional, ambiguous yet critical incidents that complete the research jigsaw (Flanagan 1949).

With a specific focus on space, SA3 went on to say that “Space-wise, ... having the access to outdoors is also really important and we’ve always known about that”. This last clause reflects resentment at the imposition felt about the Learning Outside the Classroom Manifesto (2006), which actually states nothing about the rumoured amount of time pupils should spend outside regardless of weather conditions, and does in fact take practicalities into consideration. This not only confirms the notion of the reluctance to in-service change (Howser 1999), as mentioned in the previous
section, but also demonstrates how policies that appear to *preach to the converted* may not always be gratefully received. SA3’s statement also shows a longitudinal state of awareness about the value of the outdoors in education and resilience in pursuit of its utility – another sign of efficiency with regard to space at School A.

**The struggle to find space**

Now turning to aspects of inefficiency identified at School A, SA1 and SA3 talked about having difficulties in finding space. For example, SA1 said that “we could do with a bigger hall, to be honest. We do struggle with space” and also with reference to the hall, she said “it’s not really big enough and, you know, you have to, it has to be cleared early for lunches and when you get the big kids in there doing PE, there’s not a lot of room, but obviously the Astroturf will help with that”. This little turn to positivity at the end shows how efficiency is envisaged in the coming Astroturf. SA3 gave two more detailed examples. First, she said: “one thing I do notice is sometimes because of the lack of space, we bump into each other and try and move round tables, and I was showing somebody round yesterday and you sort of have to backtrack”. This reflects the problem-solving aspects of working within the spatial constraints of School A and relates directly to Värlander and Yakhlef’s (2006:724) point that “the role of furniture and objects and the way they are arranged in space … intervene in the quality and outcomes of the interactions they give rise to”. Secondly, SA3 gave an example regarding the Head Teacher and her office: “she’s often moved out of her room and doesn’t have anywhere to go”. This surprising revelation represented in a single sentence the Head Teacher’s self-sacrifice, her leading by example and her relationship with the school, its staff and pupils. This and the examples above affirm the idea of Hillier and Hanson (1984:ix) that the built environment “has a direct relation … to
social life, since it provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realization — as well as sometimes the generator — of social relations”. This is why the measurement of effictility with its specific inclusion of non-human resources and spatial constraints is more representative than efficiency as it allows unique working environments to be taken into consideration with respect to their particular components.

As well as the choice of the Head Teacher to give up her office for others being described by SA3 using the passive voice (“she’s often moved”), the interviews brought up other situations where people or things were being moved rather than moving. For instance, SA3 said that “This room [indicating on the plan] used to be the caretaker’s room, the Premises Officer’s room, but we’ve moved him” and in the interviewer’s summary of SA4’s false start, she paraphrased that “in the same place but WB moves up and down, and the red button’s been moved” when describing the school’s main emergency power shut-off switch which had originally been positioned just below the whiteboard in SA4’s classroom. On the other hand, there were instances where staff had been moved to a different class, but explained it with active voice as though they had had a choice in the matter. For example, SA2 said “I’ve actually moved year groups now, so I’m not in the same place” and with reference to SA1, SA2 said “She’s moved Key Stages as well”. This use of language suggests that the teachers felt that they had a say in the change even though the decision was probably made at a strategic level. Interestingly, with none of the examples above was there the sense that the move was resisted or resented, or that there was any lack of control
over one’s own physical place in the school, and this could be seen as another sign of staff team resilience and efficiency at work.

**The ownership of space**

During the interviews at School A, there surfaced two different types of space to own: the physical space and the practice space – the former being the tangible enclosed spaces encompassed by the school’s boundaries and the latter being the notional spaces in which the staff and pupils undertook educational activities. For example, with regard to the ownership of physical space, SA3 talked of “their space” with ‘their’ meaning belonging to the pupils, but SA5 used personal and possessive pronouns to designate usage:

**SA5:** Because it’s roaming round rather than ‘this is your classroom area’, ‘that’s your classroom area’, ‘you’ve got to do everything in there’, ‘you’ve got to do everything in there’, now it’ll be ‘well, this morning, I want to work with something that we don’t need a WB for’ so ...

Another contrast can be identified here: where in the case of SA3 the implication was to allow pupils to have ownership, in the above SA5 excerpt the suggestion is to potentially remove it through having multi-class access to a modular open teaching area for three classes. In practice, this could either mean that the teaching and learning participants expand their sense of ownership over the whole space or that they lose the sense of owning any space at all. As Higgins *et al.* (2005) warn, “purely physical design solutions that are not owned by their users or supported with effective systems and behaviour change will not work”.

233
In contrast to feeling a sense of ownership over a space due to its physical usage, wall displays are a different way of tagging a space with territorial markings and this was a current topic during the interviews due to the new school-developed Arts Policy and external assessment for the Arts Mark. SA1’s comments demonstrated this sense of territorial ownership: “I’m still in charge of display in the school, so obviously those classrooms are not my responsibility but in the area now a lot of that is my display and in the hall, it’s my display work.” Here, she differentiated between responsibility and ownership by laying claim to displays that she had created in spaces that she saw as another member of staff’s domain. However, talking about SA1, SA3 said: “She’s obviously set very high standards in terms of the art that we do in school and display work which is really important, and encouraging us really to bring our displays to life for the children.” This shows a much broader impact of SA1’s leadership on the Arts Policy than just marking out spaces. It suggests a depth of creativity being inspired in the staff team for the pupils’ benefit. This exhibits effictility in the bottom-up development of the Arts Policy and its implementation that did not appear to be as clear to the instigator as to the participants; this reflects the complex feature of the individual elements not being aware of the behaviour of the whole system of which they are a part (Cilliers 1998).

There was also a crossover between the physical and notional in the talk on displays where it seemed that there had arisen an organic testing of the boundaries of the physical space by instigating the emergence of 2D wall art that displayed the pupils’ notions of their personal and educational trajectories.
SA2: I feel that displays are quite important and I think that as a whole staff we do. This one in particular [indicating Image SA2C] was all about them thinking about where they needed to go and I just thought, you know, it started off as a small idea and then at the end it sort of turned into that and we, you know, we used it and they could move them around and things as well.

Having pupils’ work displayed around the school is seen to encourage a sense of “welcoming ... [and] increase feelings of ownership and involvement, leading to improved motivation” (Maxwell; Killeen et al. – in Higgins et al. 2005:27) so it seems that this too should be seen as a sign of efficicilty.

In the opposite direction, the teachers showed how they had taken ownership of policy-related practice by relating it to existing practice and developing it further to maximise their claim. For instance, SA3 said, “I’ve put paper recycling bins in all the classes, so we now recycle as a whole school. We’ve always been keen on doing that but I’ve also set up a club called the Wombles and we go and litter-pick.” This relates to the Sustainable Schools Framework (launched in 2006; Eco-Schools n.d.) but there was no direct mention of it. Another situation relating to practice space was given where the Healthy Living Blueprint for Schools (2004) had become so well integrated into school practice that protocols had developed from emerging patterns of behaviour and, in turn, the policy itself had become absorbed into the routinely forgotten memory (Bowker & Star 1999) and fully owned by the staff and pupils.

I: The last time I came someone was talking about the water coolers and the children having access to them. ... Was that a government-led idea?
**SA1:** I can’t remember. I think it’s all this healthy stuff came in so that’s probably, I mean, that at first it was causing queues because it was a novelty, but now you don’t even notice them and they just, you know, they just help themselves. It works really well.

Similar implications for spatially adapting practice to suit policy and vice versa were detailed by SA3:

**SA3:** The Early Years Foundation Stage that became compulsory as from September; that has made a big difference.

**I:** Was that last year?

**SA3:** Yes, the one just gone, yes, because the welfare guidance in there has made us really think about things like the reception children having constant access to the water. Whereas before they had their water bottles, it wasn’t ideal for such small children with the unscrewing, so having the water cooler there that they can go to. I’ve got a snack stop now which is a permanently set-up table in the classroom, so the children can go and have their milk and snacks – [beep, beep interruption] in the nursery when they come in and out the door it bleeps – and that’s another thing. There you go; their space. So the children can come and go when they want their snacks so we don’t have a set sit-down snack time.

**I:** Is that not a bit disruptive to the continuity of the lesson?
**SA3:** Well, no, because in the Early Years everything is so free-flow and the children are moving about, I think trying that in Year One or Two or Three, it would be quite hard, but it works really well in there [indicating the nursery].

These examples directly confirm aspects of effectivity in the school and confirm Massey’s explanation that space is “the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny” and her view of “space as the sphere of the possibility of existence of multiplicity in the sense of contemporaneous plurality; as the sphere in which distinct trajectories coexist; as the sphere therefore of coexisting heterogeneity” (2005:9). In this case, the interrelations occur between the government via their EYFS guidelines and the teacher, the product is the pupil’s access to water, the multiplicity is in the possible ways that this could have been achieved and the trajectories are the bifurcation tangents that exist in the multiverse (Taylor & van Every 2011). Thus, space is not just the physically tangible here, but also transitory, imagined and alternate. This is also exemplified in SA4’s statement regarding the varying limits imposed by Key Stage guidelines: “The last Stage was very restrictive about what you could do, whereas with this one you’ve got the freedom to adapt it to your particular needs, to your school, classroom or children so it is quite nice in that respect.” This reflects how the new top-down curriculum item encourages effectility, perhaps signifying a shift in Key Stage set-up protocols.

At the assessment level, School A also showed their bottom-up adaptation and response to standard assessment tests:
**SA2:** I’m doing Year Two SATs this year and compared to the optional SATs in the juniors and the Year Six ones, they’re much better anyway because they’re our SATs papers and it’s based on your teacher assessment, so you kind of move with them and keep track of them as you go along.

In a way, this is representative of the “strong evidence that educational professionals have challenged, subverted and adapted centrally generated curriculum and pedagogic policies and have buffered students from the worst effects of the new assessment policy” (Ball, Gipps et al. and Pollard et al. in Fitz 2006:99). However, rather than ‘buffering’ the pupils from the ‘worst affects’, SA2 talks of taking the principle of SATS and applying them to the school’s own assessment practices using their own materials; thus, taking ownership and making the tests more relevant, as well as more regular with a focus on their formative and cumulative characteristics rather than summative and standardising features. This is another example of the School A staff turning potential inefficibility into efficibility through team confidence and resilience.

**Possessing enough space**

During the interviews at School A, it became apparent that although there now seemed to be the necessary space for the school to operate effectively, that space was not always appropriate to its desired usage. One situation where the available space was successfully exploited for a specific purpose was described by SA3 with regard to the Reception classroom: “we’ve got the space that they can leave it [pupil’s model] out and carry on making the model later and evaluate it”. This demonstrates how physical space can relate to and directly enable longitudinal cognitive development (Nash in Higgins et al. 2005) and it also affirms Jupp, Fairly and Bentley’s point that
“Children often need long periods of time to explore and complete work once engaged in it and cannot productively be hurried or neatly slotted into standard timetables. This relates to the need to design space, both temporal and physical” (2001:6.2) and these are key aspects of effictility.

SA3 also talked about her own involvement in the design of the Reception classroom and explained how she created spaces within spaces:

*When that was refurbished I helped to design it such that I wanted a huge space with wet flooring so that the children could paint, have the sand, have the water, and only a small bit of carpet for them to sit on because most of the time they’re up and about and doing things; having the space as open as possible, the movable storage so it’s accessible for them.*

SA3 shows here the importance of the consideration of stakeholder activity when designing school spaces. Her explanation clearly demonstrates the need for spatial layout to be intertwined with the realities of movement and accessibility, and thus intrinsically implies the necessity for teachers and pupils to be involved (Woolner *et al.* 2007). The above excerpt from SA3’s interview is also a clear example of Lefebvre’s *conceived space* (1991) where SA3 became the *planner* of the classroom at a fundamental structural level and then a verbal *cartographer* in her description of it to the researcher. This shows that effictility can be planned and guided, and does not just emerge through practice and interaction.

In contrast, there were three instances given in the interviews where the possession of enough space was shown to not always mean it was the right type of space. Firstly,
SA1 said, “I’ve always felt that the Year Two teacher’s almost working in a corridor [laughs]”. As mentioned in Chapter 1, the lack of traditional corridors in the open plan part of the school is the combined result of the political and economic environment of the 1960s when schools like School A were built and which led to “a physical manifestation of a mass production model of education” (Design Council 2005:14) and “more clustered designs with less corridor space” (Woolner et al. 2007:234). The funnelling effect in the case of the smaller of the two open plan areas where the thoroughfare to the right leads to the door into the larger open plan area did indeed seem less delineated in terms of its classroom borders and more disruptable by passers-by, from the researcher’s perspective. However, on seeing the school in action during the tours, there was nothing obvious in the staff or pupils’ behaviour in that thoroughfare or class space that made this appear any different to the other imagined thresholds and boundaries in other sections of the open plan areas. As Bachelard (in Fleming & Spicer 2004:88) said, “our sense of a space is as much a product of how we socially imagine it as it is of the physical dimensions of the built environment”. Thus, efficicility in these parts of the school existed where I would not have been able to gauge had I not spent time in the school during the working week.

Secondly, SA1 also said that, with regard to finding “areas of quietness to go to. It’s a job to find a space”. Bachelard’s notion above could be applied to this issue as well: if one’s trust in the socially constructed invisible walls of one’s classroom is strong enough, then one’s pupils’ voices may be distinguishable from one’s neighbours’. Regardless of whether this is truly the case, the problem with the lack of quiet spaces is a common concern in the literature on open plan schools (e.g. Conners 1983; Stone
2001; Evans 2006) with the main focus being on the negative effects of the increased noise levels that occur therein, but Woolner and Hall (2010) present the issue from a different angle. Some of their findings point to:

*teachers … being more, rather than less, conservative in their methods.*

*Fears of disturbing other classes made them less likely to encourage active, and so more noisy, independent learning than were teachers in traditional cellular classrooms … [and] open plan offices … can discourage, rather than facilitate, social interactions, as people are concerned about disturbing their colleagues.*

(Woolner & Hall 2010:3262)

Thirdly, SA3 said “one of the big problems we had there was the lady would be doing her piano lessons but would get constant interruptions from people trying to get to the paper because that was a storage room as well”. Having so few enclosed spaces where one-to-one instrumental lessons could take place meant that in this case the single space had had two different types of usage, which led to a conflict between ad hoc access and a programmed session – a clear sign of inefficacility that was solved by putting a door on another space.

Other problems with storage spaces came from SA3, SA4 and SA5. Indicating on the plan, SA3 said “Storage. We need a school that’s twice the size now”, SA4 said “my storage is still messy like that! [laughs, indicating Image SA4C]” and SA5 said “It’s a bit of a squash there [indicating on plan] – storage really”. The light-hearted way in which the participants made these comments points to Bond’s suggestion that “humour is strongly associated with good coping and reflects an individual’s capacity to accept a
conflictual situation while taking the edge off its painful aspects” (in Bovey & Hede 2001:544) – another sign of resilience and perseverance in the School A team.

**Solving space issues**

SA3 and SA5 talked of some of the solutions to the school’s space issues. For instance, when questioned about a new sliding door, SA3 said that it had “created more space than in the infant area”. This points to the effects that changes in boundaries and thresholds can have on their surrounding areas. In addition, SA5 talked of removing and replacing furniture as a way to create space:

> when me and [my colleague] came into the area, we managed to move all the, quite a lot of the, all these, we had tables at the end of the, big benches we had that we got rid of to open our area up, so it stretches out, although it still comes really to the walk area, we’ve got round, we’ve managed to get round tables as well for, round tables at the end of one of the areas … it feels more, you know, welcoming the way you flow into the classrooms. And them being round and it stops it being a dumping area as well.

This exemplifies how furniture within the open plan areas at School A can become barriers when not managed as well at the agreed furniture walls that divide the space. Such a differentiation in furniture utilisation in an open plan environment is crucial to its efficient operation (Bennett & Hyland in Cooper 1981).

As well as space being affected by physical structures, SA3 talked conversely of space affecting non-physical structures:
I: Anything else interesting? [indicating plan]

SA3: Space as well. We’re just jiggling the timetable again and although it was set up at the beginning of the year, it was felt that people, the whole timetable isn’t working so well, that everyone’s getting the times they want, but trying to fit in the hall timetables with the ICT suite timetables with when the teachers have their PPA time and playtime duties.

This demonstrates how space can be directly associated with the temporal and resource management aspects of effictility, but its effects are intrinsically linked to environmental factors as the World Health Organisation suggest: schools should “adapt their timetables in order to set aside certain periods of the day and areas of the school for noisy activities” (in Woolner & Hall 2010:3262). This necessity to respond to organisational complexity and develop adaptive systems manifests itself in “The activities, events, routines, behaviours and human interactions existing ... at a specific point in time” (Houchin & MacLean 2005:151). However, Goodwin warns that such systems are drawn to the edge of chaos due to some innate knowledge that they can reach the height of their dynamical activity there as is crucial to their continuing existence (2001). An example of one such instance of adapting existing practices to make for more efficient use of space and equipment (partially aforementioned on page 228), and better stakeholder experience is detailed in the following excerpt:

SA3: I think those regulations were introduced a while ago and it’s going to affect secondary schools more so, but one of the things is nursery used to come over and have their lunch in the hall, but it was a bit too much for them when the older children came in and it was quite disruptive and
moving from outside inside and backwards and forwards, so they now have a special trolley that takes their dinner over to them and they have a family service around the table which is lovely, and they have a member of staff sitting at each table eating their lunch with them as well, and, but the Reception Stage, we eat in the hall. We’ve changed so we’ve got smaller tables for the children now, because I think up till last year they were still on the same, in the classrooms we had the miniature tables and miniature chairs, and then at lunchtimes they were expected to sit on the big tables all of a sudden, and actually that’s not very comfortable for eating when you’re so little.

School B Phase Two interviews with analysis

Although the Phase One participant-guided tours at School B had not been successful in practising the new research method, the data drawn from the interviews had produced an overall tour of sorts and comparable patterns of spatial narrative after a struggle. However, the Phase Two interviews at School B immediately showed themselves to be even more off-course when the overwhelming attractor of the imminent new build dragged the participants away from the researcher’s questions once again and towards their preoccupation with the wish lists being asked of them by recently visiting architects. For most of them, their negative responses at being removed from class to answer even more questions about workspaces was enough to impact poorly on the data from the start of the interviews. However, we were also placed in unsuitable ad hoc spaces which meant the interviews had a lack of privacy, space and quiet. This compounded all the other problems and made for poor focus and recording. The few scraps of data that were retrievable were found to be
irrelevant. This was clearly not the right time to be talking to these teachers and it would have been unfair to them to measure the effictility and ineffictility of School B at that time.

**Phase Three: Follow-up interviews reflecting on previous interviews and bottom-up and top-down policies**

This phase involved the researcher showing each participant their Phase One photographs, accumulated annotated plans on layered A1 acetates and a list of strategies, policies and developments specific to the school and drawn from previous interviews and research into top-down interventions. First, the teachers were given a little time to remember the context of the research by looking over the photographs and plans, and then they were asked the following question:

*Which of these strategies, policies and developments have improved efficiency? Please score them 1-5 where 5 is a great improvement.*

The results for School A are shown in Table 7 overleaf.

The four strategies, policies and developments that the respondents perceived as having improved efficiency greatly at School A were the introduction of small tables and chairs into the hall, the introduction of digital cameras into the school’s equipment range, the integration of Astroturf usage into the school’s curricular and extra-curricular activities range and the *Behaviour Strategy*. The first three were school-led interventions and the fourth a government initiative. Other high-scoring strategies, policies and developments whose sum totals appear low due to their irrelevance to some respondents were the Snackstop and family-style meal in the Nursery – both of which receiving 15 out of 15 for improving efficiency at School A.
<table>
<thead>
<tr>
<th>Origin</th>
<th>Strategy, Policy or Development</th>
<th>SA1</th>
<th>SA2</th>
<th>SA3</th>
<th>SA4</th>
<th>SA5</th>
<th>Head Teacher</th>
<th>Sum Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov</td>
<td>Numeracy Strategy</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Gov</td>
<td>Literacy Strategy</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2-3</td>
<td>3</td>
<td>16-17</td>
</tr>
<tr>
<td>Gov</td>
<td>Water coolers</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>Sch</td>
<td>Arts Policy</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Gov</td>
<td>Early Years Foundation Stage</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>-</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>Gov/Sch</td>
<td>Snackstop</td>
<td>-</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Gov/Sch</td>
<td>Free-flow play</td>
<td>-</td>
<td>3</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Sch</td>
<td>Nursery Dinner Trolley</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Sch</td>
<td>(Nursery’s) family-style meal</td>
<td>-</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Sch</td>
<td>Small tables and chairs in hall</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Sch</td>
<td>Paper recycling bins</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Sch</td>
<td>Wombles’ Club</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Sch</td>
<td>Digital cameras</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Sch</td>
<td>Astroturf-related break times</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Sch</td>
<td>Astroturf usage</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Sch</td>
<td>Woodland area usage</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Sch</td>
<td>‘Classroom Monitor’ software</td>
<td>3*</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Sch</td>
<td>Three progress tests per year</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Gov</td>
<td>Behaviour Strategy</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>Gov</td>
<td>Teaching &amp; Learning Strategy</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Sch</td>
<td>ICT Policy</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Sch</td>
<td>Assessment Policy</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Sch</td>
<td>Consulting staff, parents and pupils</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>21</td>
</tr>
</tbody>
</table>

*Table 7: School A Phase Three: Question 1 Responses*

* SA1 felt that ‘Classroom Monitor’ did not give a true level: one could put in the pupils’ marks but the software averaging them out meant a true level would not be produced meaning that human assessment was still required.

**KEY:** Sch = school, Gov = government
Strategies, policies and developments that were identified by the respondents as being worthy of between 28 and 22 points were the water-coolers (28; gov), Astroturf-related break times (28), Numeracy Strategy (26; gov), paper recycling bins (26), three progress tests per year (26), Wombles’ Club (24), Teaching & Learning Strategy (24; gov), ICT Policy (24), Assessment Policy (24), Arts Policy (23), Early Years Foundation Stage (23) and the ‘Classroom Monitor’ software (22). These had close scoring of within two points (i.e. 4-5 or 3-4) which shows a clear consistency of opinion apart from the Arts Policy which was rated by two respondents as 3, by three as 4 and by one as 5.

Next, the researcher asked:

*Have there been any other strategies to improve efficiency?*

The School A interviewees responded as follows.

<table>
<thead>
<tr>
<th>Strategy identified by:</th>
<th>Strategy</th>
<th>SA1</th>
<th>SA2</th>
<th>SA3</th>
<th>SA4</th>
<th>SA5</th>
<th>Head Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA3</td>
<td>Termly Foundation Stage meetings</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>SA3</td>
<td>Parent Mail</td>
<td>3</td>
<td>-</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SA3</td>
<td>Phone options – nursery or school</td>
<td>4</td>
<td>-</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SA3</td>
<td>Team planning emails</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Head Teacher</td>
<td>Foundation Stage staffing rearrangement</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
</tbody>
</table>

*Table 8: School A Phase Three: Question 2 Responses*
The bottom-up problem-solving of operational issues specific to this unique school environment are clearly evident in the strategies given in the table above. However, they could also be considered coping mechanisms for emerging current or new practices in an effort to enable the absorption of top-down interventions into the school’s routine. The fact that SA1, SA2, SA4 and SA4 did not contribute any other strategies during their interviews suggests that any others in existence may have become so absorbed into the school’s routine that they may have reached N-term (MacKenzie 2001) status and become unseen at part of the organisation’s forgotten memory (Bowker & Starr 1999).

The third and final question asked in the Phase Three interviews was:

*How do you think efficiency should be measured?*

The head teacher and teachers’ responses can be simply summarised: they saw the current Ofsted process to be a useful tool for benchmarking and maintaining standards, but that it could be improved. They also saw it as a useful internal evaluation check due to the preparation for inspections involving making sure all the paperwork was up-to-date and accessible. However, due to their successes, they were at the point of providing self-evaluation documents which seemed to be perceived as a bureaucratic way of getting schools to conduct their own inspections and ‘save Ofsted the trouble’. Whether this was seen to be a cost-saving exercise was not explicit.

What was clear from their responses was that they felt a middle ground needed to be found between the inspection visit process and the self-evaluation process. Suggestions to meet this desire will be offered in the concluding chapter.
School B were not responsive to repeated requests to revisit for the third phase. It is assumed that they had either found the previous visits to be too disruptive or, perhaps more likely, were too busy with their pending knock-down, new build and merger.

To conclude, the data collection at School B was poorly sited in terms of time because there was not enough historical reflection expressed in the Phase One participant-guided tours to present a clear sense of effictility and ineffictility. This was confirmed by multiple teacher references showing that the attractor of the new build was too strong at that point in the school’s life cycle to allow the required historical reflection to take place. This exacerbated my concern that Ofsted inspectors could miss key development-related data due to a lack of true longitudinality or ‘joined-up-thinking’ in their reports. The mapping necessary for effictility to be measured required teachers to co-produce a narrative involving past interventions, emerging practise, coping strategies and operational artefacts in order to provide tangible evidence, but there was little of that available at School B.

On the other hand, at School A, signs of effictility were seen in the participants’ talk on adaptations they had made to their working environment; for instance, in the repositioning of furniture in response to the pupils’ developing personalities and relationships. Effictility was also demonstrated through the narrative referring to timetabling, room changes, the woodland area and the organic adaptivity of staff in the response to pupil usage of the new Astroturf. Another physically visible manifestation of effictility was the pupil’s work in displays around the school. Alternatively, effictility was also exhibited in the way a teacher talked of resiliently coping with the constraints of her spatial context despite an increase in pupil numbers
and also how teachers referred to difficult spaces such as the open plan teaching space that encompassed a pathway to another space. In addition, evidence of elements of inefficility being transformed into efficility were seen in the mediated impact of Artsmark attainment and the Literacy Strategy, and further in the narrative on the nursery lunch procedure changes. It was also seen in the narrative around the standard assessment tests and the school’s own assessment practices, as well as in the responses relating to the conflict between ad hoc and programmed session spaces. However, as I will discuss later in the concluding chapter of the thesis, the above should not be seen as a tick list of places to search for efficility in other such research projects.
Discussion, Conclusions & Recommendations

This section of the dissertation provides a summary of the chapters, presents the conclusions from Phase Four, makes overall conclusions which respond directly to the research questions and gives a series of recommendations which are followed by my reflections.

Summary

This research project has drawn on the theories of complexity, organisation and education, and has used participant-centred qualitative methodology to carry out its two case studies. As an underpinning philosophy and way of seeing, complexity theory has encouraged a view of organisation and organisations that would not have been afforded by any other theory to the same extent. For example, Chapter 1 demonstrated how “The language of complex systems is useful for describing any system” (Maguire et al. 2006:166) in contrast to other popular theories which were exposed as being less expedient. In addition, complexity was shown to be suitable for analysing the formal elements of organisational structure as well as the less tangible components of boundaries (e.g. Diamond et al. 2004; Bowker & Star 2009), decision-making processes (e.g. Daft & Weick 1984; Martínez-León & Martínez-García 2011), trajectory or movement (e.g. Johansson et al. 1980; Akkerman & Bakker 2011), evolving and engineered organization (e.g. Whittle & Spicer 2008; Steen 2010) and emergence (e.g. Heylighen 1989; Goldstein 1999).
With regard to effecttility, the transformative flows across boundaries and the stagnating flow towards entropy were identified as signs of effecttility and its antithesis, and the complex nature of effecttility was seen in the dynamic equilibrium of social systems within their many different strands of activity operating at different speeds and with various momentums, motivations and directions. In Chapter 1, I also discovered that effecttility was being discussed in the literature without being named as such – for instance, Allen (1998) called the concept *performance* – and authors like Spoelstra were using the common terminology of complex systems research without referring to complex systems directly. This confirmed my feelings that we have been trying for some time to describe things we do not have the words for and complexity theory is still creeping into the social sciences from its physical scientific origins.

Chapter 1 also gave me the chance to briefly touch on the idea of organisational becoming which Clegg *et al.* (2005) suggested is intuitive. This affirmed my belief that qualitative, and especially participant-centred, research methods are best placed to access the inner progress of becoming in an organisation and to monitor its effecttility. The appropriacy of longitudinal participant-centred research was also found to be particularly apt when considering the issues of componential interactions being typically short-range (Cilliers 1998), so when change occurs quickly, trends that would have been mapped against false regression patterns can be mapped according to the participant’s narrative timeline. This makes long-term effecttility mappable and more accurately measurable.

With regard to the roots of effecttility, I asked the questions: does effecttility grow from areas of peak dynamic activity and is it perpetuated by boundary interactions? Marion
(1999) provided an affirmative answer in his discussion regarding the edge of chaos and Mullarkey (1999) suggested that the use of creative imagination is a prerequisite for those who need to adapt dynamically and immediately to what is going on around them. However, this does not apply only to the participants within the system, but also to the researcher who must develop the ability to recognise, track and measure creative imagination as a key component of effictility. Another requirement of the researcher identified in Chapter 1 was the ability to step out and away in order to gain a broader view of the operations concerned situated within their context of multiple perspective scales. A combination of participant-centred methods and complex underpinnings was seen to empower the research to do just that. Indeed, complexity and effictility were seen to go hand in hand as both hybrids and being perfectly suited for mutual descriptive purposes.

The Chapter 1 literature review also pointed to some warnings, such as “Emergence is a charged concept and as such can obfuscate as much as enlighten” (Goldstein 2000:197) and space is “a field of differences always under construction” (Massey in Arias 2010:39). These highlighted early in the research the extent to which the concept of flow might infiltrate every aspect of the planned project with unnerving fluidity and transience, but other advice like “radically new insights often arise at the boundary between communities” (Wenger 2000:12) suggested that the investigation may throw up some worthwhile findings. Indeed, the literature repeatedly focused in on the significance of boundaries and boundary objects (e.g. Roth & McGinn 1998; Bowker & Star 1999; Goldstein 1999, 2000; Wenger 2000) especially in relation to their qualifying characteristics (e.g. Cilliers 1998; Akkerman & Bakker 2011). Regardless of
whether they were tangible policy documents, specialist equipment or ambiguous operational guidelines, the literature’s recommended boundary object features made the notion of classification simple and easy to carry forward into the following chapters.

Chapter 2 dealt with the issues of organisational measurement and used metrology (Mari 2003; Ferris 2004; Howarth & Redgrave 2008) as the guide to a better understanding of the requirements of qualitative organisational measurement in relation to effictility. One of the main problems addressed was how one might measure the effictility of a complex adaptive system (Holland 1995) that was operating at the edge of chaos (e.g. Cunha and da Cunha 2006; Goodwin 2001) or its antithesis – i.e. at its most generative or most stagnant – where the line between conflict and cooperation could be fuzzy (Ragin 2000). The two case studies explored for this thesis were examples of each state where the first was operating at its most generative and the second was almost in stasis awaiting its move and merger.

Another issue that arose was that of dealing with measurement systems driven and possibly skewed by the current need for accountability (e.g. Buckmaster 1999; Smith 1995; MacBeath 2006), but there was little evidence of this at the schools visited; thus, it was either not a relevant concern of the staff interviewed or was not revealed by the heavily situated methods used. Other warnings from the Chapter 2 literature included “Measurement ... is a negative process of failing to reveal difference rather than a positive process of demonstrating equality or equivalence” (Ferris 2004:102); “the more complex an organism is, the more it needs reflection in order to adapt itself to its environment” (Durkheim 1977:6); and “In rhythmanalytic terms, ... there is a struggle
between measured, imposed, external time and a more endogenous time” (Lefebvre & Régulier 2004:99). These were combatted by the participant-centredness of the research and its search for positive effectivity with the discovery of aspects of ineffictility along the way. However, reassurance came in the form of statements such as “Science is impossible without an evolving network of stable measures” (Wright 1997:33), so the exploration of the literature progressed into its third and more applied stage.

Chapter 3 detailed how the current school inspection and reporting system had expedited the marketization of state education in England and Wales. This seemed to have been exacerbated by the structuring of local competition whereby schools “sell themselves to applicants ... and vice versa” (Kirp & Holman 2002:1). This boundary exchange demonstrated that when a complex view is taken on organisations, it is easier to identify how “it is the connections themselves, rather than features peculiar to a specific system, that control ... [its] structure or behaviour” (Bossomaier & Green 1998:107). In addition, the threat of the special measures designation and its consequences was shown to put stakeholders on all sides of the community boundary under pressure (Baker 2005). Ironically, in this instance, a great positive effect appeared to emerge from the state of conflict on this stagnating edge of chaos because it had dynamically led to a strengthening of the educational community of practice and greater engagement from a wider range of stakeholders. Thus, a co-existent bifurcation (van Eijnatten 2003) had occurred: simultaneous marketplace competition and cross-communities cooperation.
Rather than see this as a failure in the breaking-down of immanence in order to control and standardise the educational community (Wragg 2003; Fenwick 2010), the most recent evolution in the structuration of school development and inspection processes was detailed in Chapter 3 as having exploited this resultant rallying cooperation through the engineering of greater self-management opportunities, external partner collaborations, and self-evaluation reporting (Grewer & Taylor 2006). None of this was mentioned in the government documentation as being the intended end process when the inspections were introduced nor in the Education (Schools) Act 1992 when Ofsted replaced Her Majesty’s Inspectors and there have been numerous changes in government and education ministries since. This suggests that the governmental departments and other agencies responsible, such as the Department for Children, Schools & Families and the Qualifications & Curriculum Authority, have been as responsive to socially constructed organisational emergence as the schools have had to be. Indeed, as Hudson and Lowe (2004:157) suggest, “While the effects of institutions are complex and often unpredictable, it is clear that institutions impact upon a government’s room for manoeuvre and upon its power and autonomy.” As a result, it would seem then that the schools themselves have become a contested terrain (Kidder 2009).

Although one might assume from the complexity and organisation literatures that this type of environment could make for an edge-of-chaos scenario that produces great innovation, the pragmatic reality was shown in Chapter 3 to be rather different. In fact, the resulting double feedback loop has actually forged a type of “[fearful cooperation that] requires the organization and the clients to maintain constant
vigilance and to expend considerable resources in maintaining it” (Hasenfeld 2010:21).

Through this, the standard assessment tests introduced with *Education Reform Act 1988* have been re-legitimised for transparency and accountability’s sake by reporting directly to every stakeholding layer the data they need to make choices that they perceive to be better informed. Moreover, the media and the measurement agency, Ofsted, have created an arena where *constant vigilance* is now possible. Thus, the S-terms in this narrative becoming N-terms (MacKenzie 2001) means that there is no road out of the *routinely forgotten memory* (Bowker & Star 1999) of the general public and any future evolution of these assessment, inspection and reporting systems must build on the currently existing one.

The recognised unreliability of standard assessment test results and free school meals eligibility as measurands was shown to be a sign that investigating effictility is indeed a more reliable way to measure schools. However, favouring qualitative over quantitative data in this way may scare traditionalists who have yet to realise that what we count need not always be weighed against a numerical measurand. As I demonstrated in Chapter 3, the lack of reliability in the current measurement system and intrinsic longitudinal nature of education mean that the measurement of effictility with its practical, accessible and current narrative on the state of any school is a more reliable source of data for choice-makers. In addition, it also allows schools to openly pride themselves in their innovations in response to their unique environments, cohorts and staff. Indeed, in Chapter 3 I gave a detailed suggestion of one way inspectors could deal with *non-protocol* teaching activities witnessed during a school visit – asking the teacher to contribute their lesson plan to an online database of
lesson plans that is accessed by colleagues globally, such as the National Curriculum Online (QCA 2008), where feedback can be given by other teachers and possibly their pupils, too. As I stated, this process takes a small conflict and turns it into a huge co-operative act that could lead to greater effictility and the measurement is still achieved, but this time allowing for the reality of teaching, and self-, peer- and stakeholder evaluation to take place. This is just one example of how adaptations to the current inspection process can allow the search for effictility to turn it into an effective learning tool. Another adaptation I mentioned in Chapter 3 was that of the refocusing of inspection process objectives so that rather than meeting minimum standards in practice, they present a ladder or cycle of self-/peer-/stakeholder-evaluated development steps that involve schools choosing the quality aims, awards, accreditations and affiliations most appropriate to their contexts and components. I suggested the Rights Respecting Schools Award from UNICEF (2011), the Green Flag award from Eco-Schools (2012) and the Artsmark award from the Arts Council (2012) which some schools are already associated with and I put that this would allow schools to build their own unique site- and community-specific learning environments where they could take full advantage of all their stakeholders’ interests in education and evolve into truly multifaceted learning organisations (van Eijnatten & Putnik 2004). I firmly believe that such emplotted innovation would give schools the freedom to revel in their uniqueness and develop their own unique versions of effictility.

In contrast to the Part I chapters, Part II’s exploration of participant-centred methods and their application proved to be less pothole-filled and more enabling in the sense of offering resolution. However, this relatively new field of methodology threw up some
concerns regarding the extent to which participant reflexivity can be accurately transcribed, researcher positioning and the necessity for the researcher to hold a depth of contextual knowledge (e.g. Pickering 2008; Riach 2009). These issues were dealt with through applying notions from complexity theory that allow for patterns in apparently chaotic systems to emerge and afford the researcher the power to relinquish themselves of their *locus of control* (Lefcourt 1982) and submit to the participant’s transient positioning. This was a leap from the attempts at distance and objectivity in the pilot study where relatively traditional photo-elicitation (Collier & Collier 1986) was used to what had appeared to be good effect at the time.

The seeds for the positive potential in taking the onus off direct participant-researcher interaction by adding the third element of the image were planted during the pilot. This small success led to the discovery of other confirmatory studies in the exploration of the methodology literature (e.g. Warren 2005; Mannay 2010) in Chapter 4, and was affirmed empirically in the case studies in Chapter 5. In practice, the multipurpose nature of photo-elicitation was demonstrated in terms of providing participants with opportunities for *ownership* (e.g. Heisley & Levy 1991; Coleman 1999) and an increased sense of access, familiarity and safety, and thus *empowerment* (Hurworth in Packard 2008). With regard to ultimately providing the researcher with richer data (Abusidualghoul 2010; Evans & Jones 2011) and examples in the narrative plotline that were not linguistically apparent in interview transcripts or required verification where they were audibly unclear or lexically ambiguous, photographs proved themselves to be ideal props, triggers and records (e.g. Warren 2005; Keightley, Pickering & Allett 2012). During the case studies, the *image as prop* notion carried over from
participants’ workplace photographs to include architectural plans (Crilly, Blackwell & Clarkson 2006) annotated with interview data as well as the immediate surrounding physical environment itself. Under the participant’s analytical eye, their surroundings also became a canvas for study and memory jogging, and this defined the differences between displaced, static and moving interview techniques (e.g. Davis & Ayers 1975; Elwood & Martin 2000; Büscher & Urry 2009; Evans & Jones 2011).

In Chapter 4, it was also discovered that since the start of this study in January 2007, some similar alternative qualitative research methods have been developed in other sectors of the social and health sciences. Where my new method is called the participant-guided tour and, in this study, aimed to measure organisational effictility through giving participants a situated opportunity to reveal how policy had been integrated into practice while taking workplace environment into consideration; the alternatives are called the walking interview (Jones et al. 2008), guided walks (Ross et al. 2009), mobile methods (Büsher & Urry 2009) and a constituent method of sensory ethnography (Pink 2011), and they tend to focus on the outdoors and everyday experiences. There has also been research involving guided tours in the field of travel and tourism (e.g. Holloway 1981; Heung 2008), but these have mainly focused on the relationships between tour guides and their clients, and the characteristics of successful presentation techniques; and so were not considered relevant for comparison. Where the participant-guided tour and other mobile methods seemed most in tune was in terms of the spontaneous character of the participant-environment-researcher interactions and resulting potential for organic, directly responsive and phenomenological data (e.g. Jones et al. 2008; Abusidualghoul 2010;
Evans & Jones 2011). This has led to highly productive analysis opportunities in all accounts as well as having to deal with the issues of coping with such rich data. Where the participant-guided tours and walking interviews differed was in their research purposes, the details of the chosen environments and the subsequent data that emerged.

In relation to operating as a tool for organisational measurement, the participant-guided tour was found in Chapter 5 to be rife with potential. The tour experiences reported in Chapter 5 proved that “our understanding and ordering of the world is deeply connected to our experience of it” (Weaver 2008:2). Furthermore, the here and now effect of the tours – although containing “a myriad of there and thens” (Ho in Nóvoa & Yariv-Mashal 2003:432) – seemed to demonstrate right from the first what Cohen et al. (2000:267) say of the generic interview: “it is part of life itself, its human embeddedness is inescapable.” This also fulfilled the conditions of de Certeau’s practiced place (1984) which Gray describes as “where historically and culturally situated people create a locality of familiar heres and theres” (emphasis as in original; 2003:224). However, to access the there and thens and heres and theres of effictility, pattern recognition was necessary and the overlaying of A1 acetates during the participant-guided tours, the interview transcripts and data tables made this possible. To put the final pieces of the School A case study into place, here is Phase Four.
**Conclusions and recommendations drawn from Phase Four**

Phase Four of the research draws together the findings of Phases One, Two and Three and maps them against the academic and policy literature. The conclusions and recommendations are discussed below according to the patterns that arose during the Phase Four analysis process. They form four broad areas: space, place and positioning; membership, boundaries, boundary objects and attractors; the uncommented-on; and research methods. The overall purpose were is to ascertain whether their patterning is of value in assessing effictility.

**Space, place and positioning**

One of the arising patterns led to confirmation of the idea that place is a perceived location created within transient space as part of a social process (Merrifield 1993) and thus a necessary component of effictility. Within this transience, loci of control and expertise (Lefcourt 1982; Wenger 2000, respectively) revealed themselves in either the participants’ perceptions of themselves or of colleagues; and the various patterning of these circles and cycles of perception pointed to the participants’ different ways of thinking about and seeing the world. Specifically, individual participants showed themselves to be contemplative or interpretative (Wittgenstein in Genova 1995); to prefer to relay information in a sense-related pattern (McPhee & Terry 2007); to present themselves as being in isolation or part of the whole; and to demonstrate notions of empowerment and ownership (Kelman & Lawrence in Lefcourt 1982; Coleman 1999) through verbalising instances of nonconsensus coherence (Goldstein 2000), consensus incoherence or consensus coherence.
Another pattern that emerged was that of containment, its description relying upon the individual participant’s experiences and the details therein giving rise to a variety of perceptions of the forms of different instances of containment and their physical and notional construction. This led to recognition of spatial transience again, but this time where the mapping of the participants’ physical and temporal trajectories showed qualified spontaneity (Goldstein 2000) in terms of representations of space (Lefebvre 1991) and representational space (Merrifield 1993). This in turn pointed to the adaptive nature (Kauffman 1995) of organisational features relating to operational issues contained by temporal constraints which were intrinsic to the practicalities of teaching spaces, timetabling and noise levels, and provided instances where efficiency-focused problem-solving processes were witnessed.

**Membership, boundaries, boundary objects and attractors**

Community membership showed itself to be less transient and thus more of a located position than a space, although any individual participant could have multiple membership locations depending on their job roles, responsibilities and aforementioned perceptions of *loci of control* and *expertise* (Lefcourt 1982; Wenger 2000, respectively). Together, these individual memberships were seen to have evolved into a patterned *community of practice* (Wenger et al. 2002) in each case study, as well as into an overall educational community. The artefacts of documentary boundary objects (Bowker & Star 1999) and their environmental manifestations presented tangible evidence of these communities, but there was no clear bounding to locate a point in their bottom-up creation or top-down intervening where purposeful engineering (Wenger et al. 2002) could be identified as having taken place. Less
tangibly but equally as real, further evidence was discovered in the expression of individual participants’ imaginings (Anderson 1991) and their self- and shared emplotment (Entrikin 1991) through references to perceived accountability and the aforementioned ownership and empowerment (Kelman & Lawrence in Lefcourt 1982; Coleman 1999). How participants related their narrative responses to the simple interview questions signified their perceptions of the above and relationships to the effectility of their workplaces – the participants in School A with responsibility for IT are a case in point.

Around their physical and notional instances of emplotment (Entrikin in Merrifield 1993), the participants seemed to have drawn physical and notional boundaries (Silver 1983). For example, the former appeared in one case study in the form of mobile low-level storage units acting as classroom walls and the latter was seen in the other case study where perceived locus of control (Lefcourt 1982) hit up against “the ‘press’ of the environment” (Aldrich & Pfeffer in Manning 1982:123). This gave rise to an alternative pattern of emplotment (Entrikin 1991) between the participant’s inner world (Alvesson & Kärreman 2000) and their expression through outer world spatial narrative of workspace issues and interests.

Boundary objects (Bowker & Star 1999) were found to exist in a multitude of places, but were always seen to be emplotted (Entrikin 1991) in some state of organic motion. This motion related to the top-down meeting the bottom-up – for instance, in the absorption and adaptation of the standard assessment tests – and also became apparent in the process of transformation of boundary objects from S- to N-term status (MacKenzie 2001). In the latter, single objects were seen to travel at different
parallel rates for different participants depending on each participant’s experience of them. This signified multiple trajectory speeds and possibly directions as well for certain objects, such as wish lists and government interventions like the Healthy Living Blueprint for Schools (DfES 2004), the Growing Schools initiative (DfES 2003) and Learning Outside the Classroom Manifesto (DfES 2006). This confirms the importance of investigating the responses of a number of participants over a period of time to get a broad picture of institutional effictility.

In addition, the bounded objects (Manning 1982) mentioned above were usually referred to in part or as a whole without any actual or accurate name-giving taking place and this signified that both top-down and bottom-up interventions were being successfully adapted and absorbed into the routinely forgotten memory of the community (Bowker & Star 1999). I suggest that this might be considered a process of un-bounding and that objects that did not make the transition were retaining otherness (Lee & Brown 1994) or being bounded purposefully for ease of reference and practical utilisation. An object such as the watercoolers originating from the Healthy Living Blueprint for Schools (DfES 2004) being found to achieve both S-term and N-term at the same time indicates the multiverse (Taylor & van Every 2011). However, government description of a crucial intervention – the National Curriculum (Directgov 2008) – which defined it as a structuring (Giddens 1984) and standardising tool was discovered in practice to qualify wholeheartedly as a boundary object due to its “flexibility ... [and] different meanings in different communities of practice” (Roth & McGinn 1998:404). This confirmed that there may be instances where government
guidelines might indeed be construed as rules (see Chapter 3) and thus more likely to be resisted against (Lefcourt 1982) and left over the boundary.

Bias towards particular attractors (Newman 1996; Marion 1999:72) arose in all participants’ talk to some degree, but when mapped (Marion 1999) there appeared to be a difference in the patterning of location and strength amongst them. Some attractors were located in the physical environment in terms of items of issue, such as noise in the first case study, and others were underlying community preoccupations, such as the move to the new build in the second case study. Individual participants also exhibited inner world (Alvesson & Kärreman 2000) attractors that related to their workplace roles, but in the second case, the underlying community attractor overrode them to produce a contamination that rendered the data collection process and data itself troublesome and ultimately invalid. As I stated in Chapter 5, it would have been unfair to assess efficicility at School B at that point in time.

**The uncommented-on**

In addition to the above mentioned boundary objects in transition that were referred to unnamed or misnamed, there were a number of items that were not commented on at all. Possible reasons for this were that they may have been perceived as not worthy of mention due to their common utility, as in the case of toilets; taken for granted due to complete absorption into the routinely forgotten memory (Bowker & Star 1999); or unacknowledged due to resentment at their top-down imposition (Howser 1989). It was also proposed that they might have been uncommented-on due to an alternative underlying resentment, such as that which may exist regarding the upcoming merger, and a link was made to the maladaptive defence mechanisms of denial and acting out
However, the strongest argument for the lack of mention was that the rooms had been physically or notionally unseen due to tangible walls, lack of visual trigger, perceptions of responsibility or lack of problematisation. Consideration of these possible reasons led to a potential extension of Anderson’s *imagined communities* theory (1991) where I suggested that there may be multiple layers of imagination between the near and distant – a layer of *almost seen or just out of view* between the *seen* and *unseen*. The idea that physical items could move between foreground and background concern depending on their problematisation location at any given time added credence to the apprehension that Ofsted inspectors could miss crucial longitudinal reference points that may indicate this type of transition in their current measurement methods.

**Research methods**

During all four phases of the study, the longitudinal issue of researcher patience for “results to emerge” (Cohen *et al.* 2000) was not experienced due to the short-term rewards of the various layering processes: repeated tours, acetate transcription, retrospective photograph stimuli, narrative and critical incident overlaying. The first case study’s fieldwork landscape emerged rapidly and seemingly completely to fulfilling effect, but this ideal made the data collection and analysis issues for the second case all the more frustrating. Nevertheless, the knowledge gained from the comparison of the studies is invaluable. For instance, in both cases the horizontal and vertical patterning exhibited in the acetates demonstrated the crossover of territories and operational concerns, and created a visual whole representing pictorially the evidence that the participants, their items and objects conjured more than the sum of
their parts (e.g. Cave & Wilkinson 1991; Marion 1999; Gilbert & Sarkar 2000). The ease with which such rich Phase One data could be gathered was a testament to the success of the participant-guided tour as a new mobile method (Evans & Jones 2011) and adding the Phases Two and Three data layers to Phase One’s confirmed the necessity for time and context specificity in making any qualitative generalisations (Johnson & Onwuegbuzie 2004). Indeed, the interlinkedness, temporal focus (Ho in Nóvoa & Yariv-Mashal 2003) and “human embeddedness” (Cohen et al. 2000:267) of Phases One, Two and Three made for a firm grounding in the data collection process, although at times this led to unsettling reflexivity on my part where there were unanswered questions that may relate to effictility and a feeling of loss of locus of control and expertise (Lefcourt 1982; Wenger 2000, respectively).

Another effect of the multiple layering of and within the phases resulted in a slightly uncomfortable sense of repetition when writing up the findings, but as this was reminiscent of the repeated notes on the acetate layers darkening vertically to confirm strength of issue, it was felt that this was the same process occurring in a longitudinal and linguistic manner. In fact, during Phase One, iteration of data was fractally evident from the individual tours – where their processual construction provided participants with multiple sightings of the same objects of enquiry – through to the aforementioned vertical patterning once all the tour data at each site was collated. This was seen to expedite, validate and strengthen this process further and counter the narrative progression analysis approach that would have occurred if the participant-guided tours had been static displaced interviews (Mishler 1986). Rather than the traditional narrative, the tours were found to be highly effective in the
creation of spatial narratives *jointly told* (Ricoeur 1991) through the participant’s interaction with their surroundings.

As well as the research’s necessity for this situatedness, its general visual methods bias was also found to be crucial to the success of each phase, in terms of reinforcing participant-centredness through photographic ownership and re-contextualising the research focus through photographic and annotated building plan stimuli. However, the participants’ relationships to the images threw up some very interesting insights in their own right: the double-framing of the photograph of the view from the window that added a new aspect to “the triad of researcher-image-research participant” (Warren 2005:867); the three-dimensional image of the participant’s immediate surroundings being used as a canvas for reference during a static tour; and the unspoken data provided by participants’ photographs that triggered free-play and National Curriculum (Wood 2007, 2009; DfEE & QCA 1999; DfE 2012) questions in the researcher’s mind. Thus, the Phase One photographs were found to provide not only the opportunity for participant engagement for the promotion of ownership and investment, and memory activators (Büscher & Urry 2009), but also for evidential insights, observational records for analysis in their own right and the general effect of “convey[ing] a richer sense of the research arena” (Warren 2005:879).

The decision to limit drastically the number of fieldwork questions in an attempt to encourage participant-centredness – as opposed to the usual researcher-centredness of qualitative interviews (Riach 2009) – was shown to be a correct one. As a result, and in conjunction with the looseness of the questions, the temporal interview space provided meant that participant talk was maximised and communication was in the
most part fluidly forthcoming and revealing (Alvesson & Kärreman 2000). In addition, the patterns of annotated and transcribed data confirmed that location plays a key role in interviews (Jones et al. 2008; Evans & Jones 2011); for example, the responses to the Phase One question were triggered by and situated in their tour surroundings in the first case study, focused on familiar parts of the building plan in the second study’s displaced interviews and bounded by the workspaces of the static tours also in the latter case. In the follow-up phases, the reminiscences and memories prompted by the few questions took the participants to the realm of the historical remnants of their imagined communities (Anderson 1991) and past practices. This success in the question number and type was only slightly dented by the occurrence of the researcher’s responsive and yet unresolved curiosity, such as in the appearance of a pupil seating arrangement that did not concur with the emerging patterns of other classrooms visited that fulfilled Getzels recommendations (in Bentham 2002). There was also the problem of participants not answering the question posed, specifically in the case of the second site where the aforementioned underlying attractor of the new build seemed to be pulling participants towards wish lists rather than past and recent changes. Indeed, in one instance the participant was identified as being psychologically sited in the new build and removed from her physical location and thus at odds with the notion that participant-centred research avoids detachment (Pickering 2008).

In the second case study, there were also many rooms that remained uncommented-on and I was surprised at some that were missed, such as the head teacher’s office. This demonstrated instances in the data collection process where a mismatch between
researcher assumptions and data reality led to reflexivity and the sense-making that occurs when dynamically engaging with one’s surroundings (Berger & Luckman; Shotter; Hassard – in O’Connor et al. 2003). Another point of researcher reflexivity came during the second case study where the term ‘unit’ was used in what first appeared to be a derogatory way, but on reflection was seen to be a symbol of the researcher being afforded insider status (Thapar-Björkert & Henry 2004).

Although the data collected at both sites displayed patterns that could be considered snapshots of trend data, the strongest identifiers occurred where instances of tangible cause and effect could be mapped. For example, there was the standard assessment tests affecting outdoor activities; the adaptations to practice that had occurred after the watercoolers were introduced; manipulations in timetabling to meet Key Stage guidelines at the same time as responding to environmental constraints; and operational changes responding to staff, pupil and parent feedback, such as the automated telephone choices introduced to direct callers more efficiently to the appropriate person. All such instances showed the potential to track efficiency with a view to projecting possible futures (Dooley 2002). Even where the visits to the second site did not allow the desired collection procedure – with the forced interview settings resulting in a co-construction of reality (Hennink et al. 2011) – the data clearly demonstrated the notion that measuring the efficiency of schools is a difficult task that demands time and participant-centred methods if the results are to be valid and useful for developmental and measurement purposes. All in all, these Phase Four conclusions and discussion have shown that the patterns arising in the participant-
centred data from the first case study are indeed of great value to the assessment of efficiency at the school.

**Overall conclusions responding to the research questions**

This section *steps out and away* from the detail of the conclusions above and gives a broader view of the research findings which directly responds to the research questions.

- Does complexity theory provide a suitable underpinning for the analysis of educational organisations?

The answer to this first research question has been shown to be a resounding ‘yes’. Both the features and language of complexity provided a depth of analysis and detailed description of the schools’ operations that other theories could not. It allowed the research of these adaptive complex systems to be open and holistic (Van den Berghe 1963; Amaratunga & Baldry 2001; Prigogine & Stengers 1986; van Loon 2006; Georgiou 2007) in its approach to the contexts and participants. It equipped me with the ability to deal with *thick descriptions* (Latour 1999; Geertz 1973; Spicker 2006) and be able to approach each organisation afresh, without assumptions or predictions (Kvale 1996; Stengers 2000). I was empowered to capture the essence of mediators (Derrida 1995; Shackley & Wynne; Star – in Roth & McGinn 1998; Latour 1999), re-representations (Roth & McGinn 1998; Latour 1999; Cohen *et al.* 2000; Schaurhofer & Peschl 2005) and loops (Santos *et al.* 2002; Giddens 1984; Houchin & MacLean 2005). I was able to ensnare their transient nature (Beach 1999; Bohm 1983) and their motion...
(Gleick 1987). Complexity also helped me bring items to the foreground for focused consideration without negating the existence of the background for potential causes/effects (e.g. Fuchs 2003; Giddens 1984; Georgiou 2007). My research view became un-isolating (Prigogine & Stengers 1986; Georgiou 2007; Pickering 2008) and unbounded (Lilley et al. 2004; Schaurhofer & Peschl 2005), yet contextualised (Devlin 1997; Cohen et al. 2000; O'Connor 2000; Walker 1980) and situated (Schneider 2001; Kidder 2009). Furthermore, in the School A case study, I was able to knowingly conduct the interviews in relatively stable physical conditions (Schneider 2001). Thus, with complexity at the root of the project, I was able to confidently meet my own criteria (see pages 147-8) for revealing and measuring effictility.

- Is effictility a more useful and measurable construct than efficiency for school assessment?

Measurement of the efficient and effective utility of human and non-human resources within the constraints of a spatial and temporal context, i.e. effictility, provides a reading of organisational operations in their current state with regard to how they have reached that state over a period of development. As this dissertation has shown, the construct of effictility has an immediacy and access to it that allocative and x-efficiency (Brown & Jackson 1990) do not. This makes effictility more attractive for reporting purposes to short-term governments and departments and, as I mentioned above, complexity and effictility work well together because they are both hybrids and are perfectly suited for mutual descriptive purposes. Using them together for school assessment releases the school from the current straightjacket measurands of, for instance, free school meals, attendance and Standard Assessment Tests. The
exploration of effictility also encourages the positive assessment of innovative teaching practices that have evolved in response to unique site or cohort characteristics. Further adaptations to the current inspection system, such as the aforementioned use of the National Curriculum Online (QCA 2008) for peer and pupil feedback, can transform a small conflict into a co-operative act that could lead to greater effictility. This is at the same time as providing the opportunity to relinquish another aspect of the inspection process to those who have a currently operational locus of expertise (Wenger 2000) and use the inspection process as an organisational learning tool.

Signs of effictility and its antithesis were found, for instance, in the transformative flows across boundaries and the stagnating flow towards entropy. However tempting it may be to make a checklist of places to search for effictility, the point of conducting participant-centred research was to allow the signs to emerge organically through the participants’ narratives and thus ensure that every institution is treated as unique.

Along similar lines, I maintain my insistence that the researcher’s “new mode of astonishment” (Stengers 2000:72) or deliberate naïveté (Kvale 1996) is of paramount importance also in safeguarding the site-specific uniqueness of results. Indeed, the complex nature of effictility was seen during this research in the dynamic equilibrium of the social systems under investigation within their many different strands of activity operating at different speeds and with various momentums, motivations and directions (as mentioned on pages 27 and 252), so it would be wrong to now straightjacket this dynamism with a checklist.
It is evident from the layering and patterning of this thesis’ two case studies’ data that – although league tables are not condoned here – a comparison of schools using a mixture of longitudinal inspection and self-evaluation data that takes all the above complexity-related findings into consideration could be designed to provide “a systematic way, to explore different dimensions ... [and] examine different levels of research variables” (Ghauri 2004:114) within schools. However, I suggest that this may create false matching and negate the significance of uniqueness, participant-centredness and emergence.

- Is the participant-guided tour a viable first round research tool for recognising effictility?

The participant-guided tour provided a perfect kickstart to the case study interview process. Its overarching participant-centredness gave locus of control and expertise (Lefcourt 1982; Wenger 2000, respectively) to the teachers immediately and its procedure of the researcher noting each teacher’s points on a plan of the school during each tour meant that the data was not only very rich and instant, but also very site-specific. This meant that it was possible to clearly identify triggers or resonances (Prigogine 1980) in the tours in School A and benefit from de Certeau’s *immediacy andnowness of walking* (1984). As mentioned in Chapter 5 and on page 252, from early on in the participant-guided tour phase of the research, I was also able to get a sense of institutional becoming, which Clegg *et al.* (2005) suggest is intuitive, but in this case was evidenced and tangible. This affirmed my belief that qualitative, and especially participant-centred, research methods are best placed to access the inner progress of becoming in an organisation and to monitor its ongoing effictility. The participant-
guided tours also allowed early on for aspects of inefficibility to be revealed even though the research question focused the participants on change and development which I had assumed would draw out positive rather than negative comments. This affirmed Allen’s warning that “Evolution is not necessarily progress” (1998:160) and also showed how the participant-guided tour can stimulate a balanced response.

I am certain, however, that the participant-guided tour should not be used alone for organisational measurement; there need to be follow-up visits and a variety of instruments to triangulate and verify the data so that a clear and valid case can be built. The participant-guided tour can give the researcher a quick and broad picture of the institution to lay the foundations for further investigations, but I would not want to try to use it alone to base any recommendations or predictions on for organisational learning or measurement. Complexity theorists warn that although “outcomes typically cannot be predetermined … there is a sense of the predictable about them” (Marion 1999:27) and although it is not possible to predict systems in the longterm, it is not necessarily impossible to comprehend them in behavioural terms (Kauffman 1995). Indeed, the purpose of this research was not to predict the next evolution of an organisation’s development or the next area for policy change. The purpose was to find a way to measure effictility so as to ascertain whether an institution had been and was successfully responding to interventions and was organised enough, resilient enough and had the coping strategies to face whatever change may next appear. The patterns that emerged in the completed case study demonstrated that the particular team that was in place during the research period, their physical and community environment, procedures and organisational methods were indeed operating with
efficilility and that they were ready for anything. Thus, I firmly believe that if enough of a pattern has been seen to make a judgement about its continuation, then a tentative prediction about the evolution of a complex system could be made. However, as the case studies demonstrated, patterns appear in quick succession as the layers of qualitative data pile up and one could be tempted to make assumptions too early, so it is of paramount importance to remain true to the longitudinal and multi-phased structure of such a project and ensure its participant-centredness. If this methodological recipe is followed faithfully, it is hoped that it will add an easily replicable interview alternative to the social scientist’s research repertoire.

**Final recommendations and reflections**

As Wragg (2002c:43) pointed out, “The very word ‘initiative’ is rooted in the Latin for ‘beginning’, it is only the start. You have to keep running with the best ideas in education over a sustained period, so they take root.” My exploration has led me to see that this notion is not confined to educational institutions and could be applied to any type of organisation. However, in relation to the measurement of primary schools in England, the current Ofsted inspections appear to look at the end result of taking root, whereas I suggest that it is the running with ... over a sustained period that should be the focus of any type of efficilility measurement. I feel that this should not only take into account the process of adopting new or changed policies or initiatives, but also the adaptation of any resultant protocols and the creation of any work-arounds that occur. This type of assessment has to be conducted in conjunction with observance of and contextual situation in the built and non-built environmental conditions that exist at each unique site because of their proven impact on daily operational reality,
something which the participant-guided tour and following phases of my project saw in action.

This necessary situatedness also means that a detailed evaluation of space (Lefebvre 1991; de Certeau in Crang 2000; Massey 2005; Dale & Burrell 2007), place (Merrifield 1993; Tuan 1997; Olwig 2006) and positioning or emplotment (Entrikin 1991) needs to be conducted along with an investigation of community membership (Wenger et al. 2002; Thapar-Björkert & Henry 2004), boundaries and attractors (e.g. Marion 1999; Newman 1996) operating on a continuous basis, as well as in relation to specific boundary objects that are introduced or evolve. Thus, I strongly recommend that the current inspection method make better use of its longitudinal access to sites by incorporating, for example, an annual rotation of phased assessment exercises that incorporate participant-guided tours, follow-up interviews, self- and peer evaluation, and stakeholder focus groups. However, whatever the next evolution in the inspection process is, it must take participant-centredness into account – as Wragg states: “The art of humanising our complex bureaucratic society is to keep it as intimate and personal as is feasible” (2002a:73) – and leave the current name, blame and shame accountability culture out altogether. The intricately intertwined nature of organisational complexity makes accountability impossible to place accurately, so I suggest the reverse instead. The idea is to encourage – through legitimising training – a culture of taking ownership and holding oneself and one’s organisation accountable for every decision at all times – to paraphrase Leicestershire County Council (in MacBeath 2006), a school always prepared to be held accountable is a self-evaluating school.
An approach like Wallace’s (1991:161) model for flexible planning, which Scheerens (1997) classifies as retroactive, would enable a cyclical process of evaluation, feedback, learning and corrective action in line with education’s already popular Experiential Learning Cycle (Kolb 1984) and the management field’s performance management process (Santos et al.2002:1251). In fact, as I suggested in Chapter 3, any practicable model which includes the realities of feedback loops, adaptability and historicity could help us construct theories which explain a system’s overarching properties without knowing about the smaller elements and interactions (Kauffman 1995).

In terms of theory, in the future I would like to pick apart many of the issues touched on in Part I, such as the boundaries or continua between human and non-human systems, open and closed systems, performance measurement and metrology, physical and intangible environmental conditions, and quantitative and qualitative research methods. With regard to practical research, having tested the participant-guided tour and follow-up interview process both successfully and unsuccessfully, I now feel ready to try out the same process in other contexts, perhaps in other types of educational institution and most definitely in other types of organisation, such as open plan offices and factories. In preparation for such research, it seems wise to devise a better reconnaissance procedure to assess whether an organisation is at an appropriate point on its developmental trajectory and I would also be interested in communicating with colleagues in, especially, human geography who have also been conducting walking interviews. As Büsher and Urry encourage:

*The mobilities paradigm ... is transformative of social science, authorizing an alternative theoretical and methodological landscape. It enables the ‘social world’ to be theorized as a wide array of economic, social and*
political practices, infrastructures and ideologies that all involve, entail or curtail various kinds of movement of people, or ideas, or information or objects. And in so doing, this paradigm brings to the fore theories, methods and exemplars of research that so far have been mostly out of sight.

(Büsher & Urry 2009:99-100)
Appendices

Appendix A

Image of school corridor from 1968
(Ahrends et al., 1991:52)

Image of school corridor from 2007
(Abusidualghoul 2007b)

Appendix B

Fig. 3: “Tired of being measured?” (Abusidualghoul 2007b)
### Appendix C

<table>
<thead>
<tr>
<th>Research Name</th>
<th>Date of birth</th>
<th>Year of gaining QTS</th>
<th>Responsibilities</th>
<th>Years at this school</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA1</td>
<td>10.05.51</td>
<td>1974</td>
<td>Assistant Head, Art Co-ordinator and Year Six Teacher</td>
<td>11</td>
</tr>
<tr>
<td>SA2</td>
<td>05.05.83</td>
<td>2007</td>
<td>ICT Co-ordinator and Year Three Teacher</td>
<td>2</td>
</tr>
<tr>
<td>SA3</td>
<td>16.03.80</td>
<td>2002</td>
<td>Foundation Stage Co-ordinator (Senior Management Team), Religious Education Co-ordinator and Reception Teacher</td>
<td>5</td>
</tr>
<tr>
<td>SA4</td>
<td>22.05.72</td>
<td>1994</td>
<td>Assessment Co-ordinator, Gifted &amp; Talented Co-ordinator, Educational Visits Co-ordinator and Year Five-Six Teacher; News Club</td>
<td>13-14</td>
</tr>
<tr>
<td>SA5</td>
<td>30.07.67</td>
<td>2007</td>
<td>Year Four Teacher and on-site ICT technical support</td>
<td>6 (plus 6 years as a pupil)</td>
</tr>
</tbody>
</table>

[Note: QTS = Qualified Teacher Status]  
**Table 9**: School A Phase One Participants

<table>
<thead>
<tr>
<th>Research Name</th>
<th>Date of birth</th>
<th>Year of gaining QTS</th>
<th>Responsibilities</th>
<th>Years at this school</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB1</td>
<td>-</td>
<td>n/a</td>
<td>School Governor</td>
<td>-</td>
</tr>
<tr>
<td>SB2</td>
<td>29.11.74</td>
<td>1998</td>
<td>Area Leader for Foundation Stage, Music Co-ordinator, Nursery Liaison</td>
<td>7 part-time incl. maternity leave</td>
</tr>
<tr>
<td>SB3</td>
<td>22.10.77</td>
<td>2003</td>
<td>Year One/Two Teacher, SEN &amp; Intervention Co-ordinator</td>
<td>4</td>
</tr>
<tr>
<td>SB4</td>
<td>04.06.69</td>
<td>2007</td>
<td>Year Three/four teacher, Co-ordinator of Geography &amp; History, and DT in summer</td>
<td>2</td>
</tr>
<tr>
<td>SB5</td>
<td>15.08.81</td>
<td>2005</td>
<td>Year Four/Five Teacher, Science Teacher, Gymnastics Specialist</td>
<td>4</td>
</tr>
<tr>
<td>SB6</td>
<td>22.05.69</td>
<td>2006</td>
<td>Year One/Two Teacher, Literacy Co-ordinator, Gifted &amp; Talented Co-ordinator, Leader on ‘Philosophy for Children’</td>
<td>3</td>
</tr>
<tr>
<td>SB7</td>
<td>19.12.85</td>
<td>2011</td>
<td>Reception/Year One Learning Support Assistant, daily lunch duty, four after-school clubs – cricket, football, tag, rugby, athletics – and also pyramid club, unit club, two RWInc groups for three sessions per week</td>
<td>2</td>
</tr>
<tr>
<td>SB8</td>
<td>24.02.73</td>
<td>1996</td>
<td>Numeracy &amp; Key Stage 2 Co-ordinator, Leader on Teaching &amp; Learning Quality, Athletics Club</td>
<td>5.5</td>
</tr>
</tbody>
</table>

[Note: QTS = Qualified Teacher Status]  
**Table 10**: School B Phase One Participants
Appendix D

Image of School A layered A1 acetates

Image of School B layered A1 acetates
Bibliography

Abusidualghoul, V. (2007a) *An ecological analysis of a UK primary school informed by teacher interviews involving visual stimuli*. Pilot Study Assignment submitted as part of first year Research Methods assessments for School of Management, University of Leicester

Abusidualghoul, V. (2007b) ‘Tired of being measured? Complexity Theory & the Measure of Organisations’ Refereed Research Poster exhibited at the *Postgraduate Festival of Research* at the University of Leicester and selected to enter the UK GRAD Midlands Hub Regional Poster Competition at Warwick Arts Centre


Barber, M. (2000) ‘Large-Scale Reform is Possible’ Education Week Nov 15 Issue available online:


BBC News (2003a) ‘Failing primary school to close’ Available online in BBC News Archive: http://news.bbc.co.uk/1/hi/england/kent/3191459.stm [accessed 12.05.06]

BBC News (2004a) ‘Ofsted to name struggling schools’ Available online in BBC News Archive: http://news.bbc.co.uk/1/hi/education/3466075.stm [accessed 12.05.06]

BBC News (2004b) ‘School placed in special measures’ Available online in BBC News Archive: http://news.bbc.co.uk/1/hi/england/leicestershire/3491472.stm [accessed 12.05.06]


Business Dictionary (2008) *Definition: deskill*ling Available online at:
http://www.businessdictionary.com/definition/deskilling.html [accessed 06.03.08]


Commons Select Committee for Education (2011) *Participation by 16-19 year olds in education and training: 3. Financial support for 16-18 year olds – Item 78*
Available online at:


Eco-Schools (n.d.) *About Eco-Schools: Sustainable Schools Framework* Available online at: http://www.ecoschools.org.uk/about/ [accessed 30.04.10]
Eco-Schools (2012) *Green Flag*. Information available online at:


Education Forum (n.d.) *Education Reform Act 1988* Available online at:
www.educationforum.co.uk/sociology_2/ERA.ppt [accessed 06.03.08]


*Emergence* 2(1):5-22

Goodwin, B. (2001) *How the Leopard Changed its Spots: The evolutions of complexity*


299


Mannay, D. (2010) ‘Making the familiar strange: Can visual research methods render the familiar setting more perceptible?’ *Qualitative Research* 10(1):91-111


McPhee, N. & R. Terry (2007) *The Hidden Art of Interviewing People: How to get them to tell you the truth* Chichester: Wiley & Sons


Milne, J. (2007) *Heads need training in work-life balance* Available online at: http://www.tes.co.uk/2404491 [accessed 06.03.08]


Packard, J. (2008) ”’I’m gonna show you what it’s really like out here”‘: The power and limitation of participatory visual methods’ Visual Studies 23(1):63-77


QCA (2008) *National Curriculum Online* Available online at: http://www.nc.uk.net/webdav/harmonise?Page/@id=6016 [accessed 06.03.08]


309
http://education.guardian.co.uk/egweekly/story/0,5500,1042385,00.html
[accessed 06.03.08]

Sociology 43(2):356-370

Narrative and Interpretation London: Routledge


Risse, T. & A. Wiener (2009) “‘Something rotten” and the social construction of social
constructivism: A comment on comments’ Journal of European Public Policy
6(5):775-782

methods to explore the everyday lives of young people in public care’
Qualitative Research 9(5):605-623


by using system dynamics and multicriteria analysis’ international Journal of
Operations & Production Management 22(11):1246-1272


Sawyer, R. D. (2001) ‘Teacher decision-making as a fulcrum for teacher development:
Exploring structures of growth’ Teacher Development: An international journal
of teachers’ professional development 5(1):39-58


Tuan, Y. (1997) *Space and Place* Minneapolis: University of Minnesota Press


Learning to Teach in the Secondary School: A Companion to School Experience

Psychotherapist 37:1-3


Thinker (June issue)

Wenger, E. (2000) ‘Communities of Practice: The Key to Knowledge Strategy’ in Lesser,
E. L., M. A. Fontaine & J. A. Slusher (eds.) Knowledge and Communities Woburn,
MA: Butterworth-Heinemann p3-20

Wenger, E., R. McDermott & W. M. Snyder (2002) Cultivating Communities of Practice:
A guide to managing knowledge Boston, MA: Harvard Business School

29(4):611-629

International Journal of Primary, Elementary and Early Years Education
35(4):309-320

Theory, Policy and Practice’ in D. S. Kuscher (ed.) From Children to red Hatters:
Diverse Images and Issues of Play Plymouth: University Press of America p166-190
Woolner, P., E. Hall, K. Wall & D. Dennison (2007) ‘Getting together to improve the school environment: user consultation, participatory design and student voice’  
*Improving Schools* 10(3):233-248

*International Journal of Environmental Research and Public Health* 7:3255-3269


*Education, Education, Education: The best bits of Ted Wragg* London: 
RoutledgeFalmer p49-51


Turner (eds.) *Learning to Teach in the Secondary School: A companion to school 
experience* London: RoutledgeFalmer p313-325

Learning’ *Journal of Business Ethics* 51:229-243

Organizations* San Diego: Harcourt Brace Jovanovich
<table>
<thead>
<tr>
<th><strong>Glossary</strong></th>
<th><strong>Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>attractor</td>
<td>a place or thing that someone or something is drawn toward regardless of their starting position</td>
</tr>
<tr>
<td>boundaries</td>
<td>the real and perceived borders of space, place, time, the self, others, the societal group and interaction</td>
</tr>
<tr>
<td>boundary object</td>
<td>Lesser et al. (2000:ix) give workers’ boundary objects as “the rules, norms, procedures, tools, and other artifacts [sic] that communities use to accomplish their tasks ... mechanisms for documenting and sharing what they know and how the work they perform should be accomplished”</td>
</tr>
<tr>
<td>circulating reference</td>
<td>the notion of an identity transfer string from world to sign in research projects (Latour 1999)</td>
</tr>
<tr>
<td>community of practice</td>
<td>“the context in which an individual develops the practices (including values, norms and relationships) and identities appropriate to that community” (Handley et al. 2006:642)</td>
</tr>
<tr>
<td>complex adaptive system</td>
<td>a complex system whose components are also complex systems themselves (Holland 1995)</td>
</tr>
<tr>
<td>complexity</td>
<td>“a property of a system, its parts and their interactions” and “a property of a given interpretation, representation or simulation of a system” (Maguire et al. 2006:170)</td>
</tr>
<tr>
<td>disequilibrium</td>
<td>the dynamic between stability and instability (MacIntosh &amp; MacLean 1999)</td>
</tr>
<tr>
<td>edge of chaos</td>
<td>where emergent order and disorder co-exist</td>
</tr>
<tr>
<td>effictility</td>
<td>the efficient and effective utility of human and non-human resources within the constraints of a spatial and temporal context</td>
</tr>
<tr>
<td>elements</td>
<td>the organisation’s stakeholders, resources and equipment, and this includes the built and other environments</td>
</tr>
</tbody>
</table>
engineered  used to describe an artefact or situation created purposefully by a human individual or organisation

equilibrium  steady state or stable conditions

feedback loops  in human organisations, they can be seen in the response-and-improvement mechanisms and ad hoc processes of problem-solving and decision-making that occur during day-to-day operations

fractal  used to describe self-similar patterns

imagined community  a socially constructed community which exists because of the perceptions of its participants (Anderson 1991)

locus of expertise  “the core of a practice” (Wenger 2000:12)

new mode of astonishment  a way of seeing to be adopted by the researcher which potentially affords them the opportunity to see the world as if for the first time and thus objectively (Stengers 2000)

routinely forgotten memory  the community’s routinely forgotten memory is where something new becomes naturalised (Bowker & Star 1999)

situatedness  like the state of being embedded but with a focus on physical location

space of flows  “the technological and organizational possibility of organizing the simultaneity of social practices without geographical contiguity” (Castells 2000:14)

structuration theory  Giddens’ theory looking at the interactive operation of structure and agency (1984)

zone of proximal development  the position a little beyond immediate abilities but within potential capabilities (Vygotsky 1978)