

**The Sociomateriality of Literacy -
a Study of the Relationship Between
Institutions, Identity and the Internet in a
Primary Classroom**

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been indicated in the thesis.

ABSTRACT

This paper is about the relationship between schooled literacy practices, identity and digital technology. It is a case study carried out by a teacher to examine the impact of using an online technology platform (wikispaces) in a year 4 classroom. In line with recent thinking in investigating literacy in the digital age, it looks for new ways to theorize literacy which go beyond the notion of a literacy event to allow for the study of literacy practices across time and space. It posits a theory of the sociomateriality of literacy, drawing on recent developments in the field of IS (Information Systems). Researchers in this field have used theories such as structuration and agential realism to underpin investigations. However these theories, which see structure and agency as inseparable, have made the analysis of empirical data difficult.

More recent thinking uses the concept of sociomateriality underpinned by social or critical realism, following the sociologist, Margaret Archer, in seeing the 'people' and the 'parts' as separate. Such a theory allows for empirical research which can explain how the social and material imbricate or overlap over time and space. Using the concept of sociomateriality, this study finds that, given the right social environment and using the affordances which the technological intervention offers, new literacy practices which are more collaborative, decentred and linked to children's identity can develop. Because of the constraints of the school environment, the majority of these practices take place outside school. This paper argues that there is a possibility to harness and reconceptualise the Third Space through the use of digital technology, making a link between schooled norms and home. However not all children will thrive in this space. Part of the work of the thesis is to analyse the mechanisms which account for this.

IMPACT STATEMENT

NEW 'STEERS' MODEL OF LITERACY PROPOSED TO TACKLE SOCIAL INJUSTICE

This study highlights inequality, in particular the way technology in education has the potential to increase inequality rather than reduce it. Through detailed analysis of the writing practices and texts of primary school children online and the way the social and material elements of literacy are imbricated or woven together, it uncovers layers of disadvantage that technology cannot be seen as a magic bullet for. It urges educators, teacher training institutions and public policy makers to adopt a STEERS model of literacy to tackle social injustice and improve social mobility.

A **STEERS** model of literacy highlights the importance of sponsors, tools, emotions, experiences, reflexivity and syncretism. Schools will need to identify the level of support (or sponsorship) that children receive at home and supplement it if necessary; they need to recognize the way different tools for literacy can suit different children and allow them to achieve a feeling of competence and mastery. Teaching and learning in literacy is an affective experience – pedagogy must take account of this and build in rich experiences as a stimulus. Finally, students will achieve more if they are able to be reflexive about their position locally and globally. This can happen when teachers embrace, merge and assimilate different home cultures as part of their pedagogy – syncretism is not just positive for cohesion and inclusion but plays a vital role in learning.

This thesis uses new ways to theorise literacy, applying leading sociologist Margaret Archer's social realism as an underpinning theory and methodology and looking at literacy as a sociomaterial accomplishment. These methods and

theoretical stance could be of use in further research to others, in particular to classroom practitioners interested in analyzing their practice.

It is hoped that this work will be published in journals or as a book in order to disseminate the ideas in it. Some of the ideas in the thesis have already been presented orally at the UKLA (UK Literacy Association) conference (2018) which is attended by practitioners, academics and policy-influencing organisations. Ideas about the Third Space have appeared in an editorial for an international journal written by the author and others (IJSap). The most recent edition of the International Journal for Students as Partners published in May 2019 was a special issue about Third Space and was guest edited by the author and others.

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PART ONE

REFLEXIVE PROLOGUE

Public discourse around technology and education has changed dramatically in the time between the original conception of this thesis and its writing up. Cyberspace is increasingly seen as a much more negative place than it was – a place of badly-behaved shouting and swearing, threats and obscenities, a breeding ground for terror, an unregulated space where texts have a tendency to mutate and replicate far from their original context. The promise of freedom – a networked, more democratic utopia - seems to have given way to a cacophony of clutter and chaos where those who shout the loudest can at times drown out the voices of reason.

At the time I started working on this, pronouncements from politicians, policymakers and academics were repeatedly chivvying teachers to keep up with the times. Michael Gove, UK Secretary of State for Education in 2012, said in a speech at the time:

Almost every field of employment now depends on technology. From radio, to television, computers and the internet, each new technological advance has changed our world and changed us too. But there is one notable exception. Education has barely changed. The fundamental model of school education is still a teacher talking to a group of pupils. It has barely changed over the centuries, even since Plato established the earliest "akademia" in a shady olive grove in ancient Athens. A Victorian schoolteacher could enter a 21st century classroom and feel completely at home. Whiteboards may have eliminated chalk dust, chairs may have migrated from rows to groups, but a teacher still stands in front of the class, talking, testing and questioning. But that model won't be the same in twenty years' time. It may well be extinct in ten.

A few years down the road, it is still hard to see much change. Despite Gove's words, his introduction of a primary English curriculum replete with

grammar teaching which, in the words of the prominent linguistics and language expert, David Crystal, ‘turns the clock back half a century’ may have something to do with it. The English curriculum, which is the basis for heavy testing unlike the computing curriculum, makes one single mention of the digital.

But could it also be possible that technology will never revolutionise teaching and learning in the way it has other fields? An OECD report (2015: 15) noted that the impact of ICT ‘on student performance is mixed, at best. In fact, PISA results show no appreciable improvements in student achievement in reading, mathematics or science in the countries that had invested heavily in ICT for education’.

This thesis is about the use of technology to improve performance in writing, something which is not tested by PISA. Yet it will sound a more sceptical note than I imagined when I set out. When I began, I was a relatively new and inexperienced teacher very taken with Knobel and Lankshear’s (2007: 7) ideas about ‘new “technical stuff” and new “ethos stuff”’. Over time, inevitably my own views and experiences have changed too. Along the way, I have garnered more experience (and responsibility!) in school. I have come to see literacy in the digital age as part of a historical trajectory, rather than a new start.

In the meantime, researchers in the field of new literacies have started to move beyond the literacy event and the idea of literacy as situated practice. Different ontological frameworks are being talked about and tested – Actor Network Theory, Deleuzian rhizomes and assemblages (transcendental empiricism) and agential realism. Each of these speaks to those who are using them. The idea of the everchanging assemblage in constant flux is certainly alluring. Leander and Boldt (2013: 44) ask: ‘Can the teacher make space for fluidity and indeterminacy as the nature of things? Can he or she recognize difference, surprise, and unfolding that follow along paths that are not rational or linear or obviously critical or political?’

My honest answer is: I'm not sure, especially in the current climate of testing and heavy scrutiny. To this end, I have looked for something that can account for agency and structure - schools, pedagogy, curriculum - as well as the unexpected.

There is reflexivity involved in choosing an ontological framework. I have an interest in politics and philosophy since taking an undergraduate degree in these subjects. I conducted this research within and as part of the structure of a school, in formalised education rather than from an anthropological perspective. Crucially I am keen to study causality because of the pressure I am under to see if an intervention is worthwhile rather than to analyse complexity as it emerges/unfolds. This is a different starting point from those inspired by Deleuzian emergence (Cathy Burnett and Guy Merchant, 2014; Kevin Leander and Gail Boldt, 2013). For me, critical realism has provided a guide. The critical realism movement is a living, vital one in which to position work, allowing for the development of fledgling ideas while leaving questions unanswered as I inevitably will.

As Fenwick and Landri (2014: 5) explain, reflexivity is particularly important in sociomaterial research and researchers 'struggle with the processes through which they translate material enactments into symbolic representations,' needing to ask questions such as 'How are materials being anthropomorphised through a researcher's intervention?'. Our interpretation of the boundary between the social and material is necessarily subjective. Researchers in the critical realist tradition are just as prone to and bound by an emic perspective as interpretivist researchers:

CR assumes that our knowledge of the intransitive entities that comprise an independent reality is formed in the transitive dimension, mediated by the social structures to which we belong (i.e., other researchers, disciplinary groups, co-workers, etc.). This knowledge of underlying structures and mechanisms is not created ex nihilo but formed in conjunction with existing social interactions and beliefs along with our own sensory and conceptual interpretations. (Wynn and Williams, 2012: 793)

With that clear caveat, preconceptions and biases notwithstanding, this is my account of what happened in my classroom - warts and all.

Chapter 1 - Introduction

1.1 Metaphysical mindsets and the rise of the material

'He who would combat false consciousness and awaken people to their true interests has much to do, because the sleep is very deep. And I do not intend here to provide a lullaby but merely to sneak in and watch the way people snore' (Goffman, 1974:14).

In the course of this research, I have had to get metaphysical - venturing on tiptoes towards heights scaled by those with far more philosophical acumen than I will ever possess, while at the same time bearing down on and examining in detail the tiny microcosm which is the place where I work. I didn't start out with this intention but I have found that it is the only way to make sense of what I am seeing in my classroom. This work is firmly rooted in the empirical and practical, being the work of a practising class teacher. However, in order to understand and unpick what is going on, I have had to delve deeply into theory, in particular ontology. This is dangerous territory, once described by the Canadian sociologist Erving Goffman as 'two thirds corn flakes, one third taffy [*chewy candy*]' (Williams, 1998: 157). Goffman was described by Pierre Bourdieu (1983) as 'the Discoverer of the Infinitely Small'. Everyday life at a micro-level is my starting point but theory has been invoked for explanatory purposes, despite Goffman's caveat.

My work is inspired by those who are looking at new ways to examine what literacy means in the digital age (Burnett and Merchant, 2015 and 2014; Burnett et al., 2014; Merchant, 2013; Hamilton, 2012; Lankshear and Knobel, 2011 and 2003; Davies and Merchant, 2009; Marsh, 2005). I hope to build on their work and throw something into the pot of the current debate on how we theorize and research literacies. Of course, an effective way of theorizing the use of technology is becoming a priority in many fields; researchers are well aware that they need to peek out of their disciplinary confines to see how the digital is being dealt with by other departments. Researchers working at the interface of digital technology and literacy (in the field variously known as new literacies, multiliteracies or digital literacies) have looked to the work of Anne-Marie Mol (2002), an anthropologist, John Law (2004), a sociologist working in

the field of STS (Science, Technology and Society) and Gilles Deleuze (a philosopher) among others (Burnett and Merchant, 2014). Much of the new theorizing in the field is inspired by Actor Network Theory (Latour, 2005; Law, 2004).

I will propose an alternative, drawing upon a vibrant debate in the fields of Information Systems (IS) and Management on how to theorize the use of technology in organizations (Leonardi, 2013; Mutch, 2013; Orlikowski, 2010 and 2007; Orlikowski and Scott, 2008). The debate revolves around a key term – *sociomateriality* – which we will look at in more detail in Chapter 4. This work looks at the relationship between institutions, identity and the internet in a primary classroom. Drawing on the field of Information Systems (IS) for a theoretical basis to underpin this, it will use *sociomateriality* to theorise the relationship between technology and both literacy and pedagogy.

The field of IS has experimented with a number of theories, such as structuration and agential realism, to explain the use of technology in organisations. The debate around the term sociomateriality has now turned quite ontological and involves a wrangle between those in the agential realism camp (Barad, 2007; Orlikowski, 2007) – inspired by Actor Network Theory – and those who think critical realism has more explanatory power (Faulkner and Runde, 2012; Mutch, 2013; Leonardi, 2013). The agential realism camp has made huge advances in showing *what* exactly is happening when technology is introduced into organisations and work places. This work is now being challenged and extended by the critical realist camp which wants to explain *why* things are so. The advantage of this theoretical underpinning is that it allows an analysis of the social and the material separately as well as their imbrication or overlap.

We have then a focal theory, imported from management and information systems theory - the study of technology-use in organisations - which we can use to examine the use of technology in schools. In this work, I am seeking explanations to the question of how and *why* a technological intervention in my classroom around literacy is working better for some children than for others.

To return to Goffman's metaphor of the ethnographer as someone who watches people snore, the aim in this thesis is not only to explain how people snore but to use my privileged position as someone always in the room to try to answer the question why they snore or why indeed some of them don't snore, not to awaken them to their destiny but to rouse my own acuity and hone my sensitivity to potentially soporific platitudes about technology in education. For this reason, I will use critical realism to underpin my theory and methodology. Since such an ontological theory looks at the relationship between structure and agency, we can also use it to look at the pedagogy needed when implementing such technology use in schools.

At this point, it is worth noting the origins of this philosophical turn towards the ontological. In a variety of disciplines ranging from anthropology to sociology to organizational theory as well as in the study of literacy, there has been a noticeable move away from a representational epistemology (a focus on what texts and objects *mean*) to asking what they *do* in different circumstances. This may be no bad thing for, as Pels et al. (2002: 1) note, we have had 'a panegyric of textuality and discursivity' and it may be time 'to catch our theoretical sensibilities on the hard edges of our social world again, to feel the sheer force of things'.

So why does digital technology focus our minds on ontology? Why do we suddenly feel that '*Matter matters*', to borrow Karen Barad's (2003) much-quoted aphorism? Why are we taking a closer look at the 'material' when we talk so much of the 'virtual' and 'immaterial'? Much of Barad's own philosophical work is grounded in and inspired by recent developments in quantum physics which examines the behaviour of matter at the level of atoms and sub-atomic particles. Kallinikos (2012: 70) attributes the 'material turn' to advances in science and technology which have allowed us to penetrate 'the interior of matter' and recombine elements, for example in the development of nuclear power. We also now have vastly more sophisticated ways of making matter into objects in diverse areas 'from petrochemicals...to food crops'. Computer processors start off after all as sand! So understanding *matter* and

its different forms and functions is clearly an important part of unpacking many of the modern processes we encounter as part of our daily lives.

At first sight, digital technology appears to shift the spotlight away from the material, allowing, through algorithms, the development of intangible artefacts and disembodied action, divorced from both time and place. As Selwyn (2013b: 44) notes, ‘the discontinuity between the body and location and between the self and others is...seen by commentators to support the reconstitution of social relations’. Terms such as ‘immaterial’ and ‘virtual’ have been used to describe this apparently new state. However, as several commentators have noted, both terms are contested and wrought with difficulty. Fuller (2008: 4), in the introduction to the lexicon, *Software Studies*, insists that conceiving software as ‘immaterial’ is a ‘theoretical blockage’. Software, he says, has distinctive material characteristics and effects. Selwyn notes the same for networks:

It would be a mistake to assume that virtual technologies are *completely* distinct and differentiated from the concrete actualities of the physical world...the material realities of any form of virtual computing remain rooted in the global network of hundreds of thousands of miles of cabling’. (Selwyn, 2013b: 44)

The digital may in fact mean more materiality rather than less – the opportunity for an artefact to be replicated numerous times. Yoo (2012: 137) notes that ‘the digitalization of ..artifacts affords new forms of materiality to them ultimately making them more generative than their analog counterparts’. We will come to a clearer definition of ‘material’ and ‘materiality’ in Chapter Four. What is clear is that digital technology brings into focus the potential for something new at both the material and the social level and it is this that has given rise to a new term ‘sociomateriality’ (Orlikowski, 2007) to describe the relationship between the two.

1.2 Why sociomateriality?

In order to understand the genesis of sociomateriality, it is necessary to look back at how technology has been theorized and researched over the past half century. During this time, scholars have encountered various pitfalls. New technologies can inspire hyperbole, and some public commentators and scholars have been prone to dramatic statements about how technological developments (such as the printing press) can alter or have altered the course of civilization. In the field of literacy, Marshall McLuhan in the *Gutenberg Galaxy* (1962: 5) stated that: 'Print, in turning the vernaculars into mass media..., created the uniform, centralizing forces of modern nationalism'. He along with Jack Goody (1977) and Walter Ong (1982), who argued for the civilizing power of the written word, have come in for criticism for these deterministic claims.

Scholars in their wake have learned the need to avoid rocks and hard places and to steer clear of the Scylla of technological determinism. But there is also a Charybdis lurking in the water. The ensuing two decades, from the 1980s onwards, saw a move towards social constructivism which, at its most radical, disavowed any role for technology at all. The debate focused on practices, social practices and communities of practice (Lave and Wenger, 1991). However, as we will see, this new focus, though a very valuable rejoinder to what preceded it, has led ultimately to some blind alleys both for those studying literacy and those studying technology.

Of course, conundrums that are unresolved will periodically be prodded from their slumbers like the Dormouse at the Mad Hatter's teaparty and in the past decade, a new kid has come on the block to do some prodding.

'Sociomateriality' is the new buzzword for those studying the use of technology and is the subject of a heated debate in the field of Information Systems which looks at how technology is and can be used by people in organisations.

Sociomateriality is still in its infancy, both as theory and as methodology, and as Leonardi (2013), Jones (2014), and Parmiggiani and Mikalsen (2013) note, there is a danger that without a clear definition, it is nothing more than jargon.

We will work hard to give it a clear definition in chapter 4 of this thesis and to outline its potential for empirical studies.

Sociomateriality is born out of an attempt to steer a middle course between the poles of determinism and situatedness. It has a hybrid heritage, being descended from the structure/agency debate that has raged since the 1980s (Giddens, 1984; Archer, 1995; Orlikowski, 1992) and the important work done in Actor Network Theory (ANT) to reconcile sociology with technology by focusing on the role of and relationship between both non-human and human actors. These two distinct bloodlines form the basis for the civilized sparring which has been taking place in the field of Information Systems between those working in the ANT/agential realism family (Barad, 1999 and 2007; Orlikowski, 2007) and those advocating a different philosophical 'underlabourer' (Locke, 1690) - critical realism (Mutch, 2013; Leonardi, 2013; Faulkner and Runde, 2010). What is common to both camps is the desire to look at the way the social and material are inter-related, assembled or entangled. What is different is the extent to which they see the social and material as distinct.

I hope to build on that debate, because it has the potential, I believe, to offer a useful tool for analyzing what is going in the classroom, in particular to answer the question of how and why technology interventions work better for some children than for others. As Tara Fenwick from the University of Stirling and Paolo Landri of the Italian National Research Council point out, 'Sociomaterial research still remains somewhat marginal in education, even though it is proliferating rapidly in other social sciences such as geography, environmental studies, gender studies, digital humanities, organization studies and new sociologies' (Fenwick and Landri, 2014: 3). This thesis is part of an attempt to redress that balance.

In particular, I will seek to ground my study in critical realism. Paul Leonardi (2013) and Matthew Jones (2014) both note that studies using sociomateriality will have a different focus and methodological unit of analysis depending on whether they are based on agential realism/ANT or critical realism. In the former, the analysis will be more about what the sociomaterial practice looks

like whereas in the latter it will be about how and why the social and material combine and what the implications of this are. The latter approach is more likely to take into account power relations in seeking to explain 'how organizations and technologies come to be as they are' (Leonardi, 2013: 74). Both are valid theoretical perspectives and methodologies depending on the researcher's starting point and what they are trying to achieve. I will argue that a teacher researcher's starting point, working within power structures (local, regional, national and international) from school hierarchy to PISA, is different from an academic researcher's who views the classroom from outside. Teachers are also having to contend with and implement an 'abstract' notion of 'literacy' as defined by the curriculum rather than just thinking of it as a situated practice. I will argue that sociomateriality is a useful tool for this.

In education, a focus on the material and sociomaterial allows us to build upon but go beyond theories of community of practice (Lave and Wenger, 1991) which look at the development of a learner from novice to expert. As Matthew Jones notes,

One contribution of sociomateriality may...be to highlight a latent aspect of practice theory and to encourage greater awareness of practice-based research approaches, especially those such as activity theory (Engestrom and Middleton 1996) that give greater attention to materiality compared to others, such as communities of practice (Wenger, 1998; Lave and Wenger, 1991)'. (Jones, 2014: 921)

One further advantage of sociomateriality is its move beyond practice theory to focus on performativity – what is performed by the sociomaterial nexus. This focus on performativity is common to both the critical realist and the agential realist versions of sociomateriality. What is key for this work (and the search to accommodate abstract notions of literacy) is the possibility, as Estrid Sørensen (2009: 90) observed, that abstract as well as concrete forms of knowledge (and literacy) could emerge when performativity is part of the theoretical framework. 'If we insist on knowledge being part of, and an effect of, practice or space, then knowledge necessarily varies with practice. Some forms of knowledge may be performed as abstract and others as concrete'.

Much of the recent debate about literacy (which will be examined further in Chapter 3) has focused on literacy as situated practice; much of the critique of situatedness in both the literacy and the technology camps has been about its failure to address the transcontextual characteristics of current practices and their trajectories across time and space. Ideas of topology and understandings of different concepts of space, including Third Space (Kris Gutiérrez, 2008) building on Bhabha, 2004) and 'fluid space' (Sørensen, 2009) will be important to this enquiry since it will involve studying what knowledge and literacy look like in this space compared with the traditional bounded space of the classroom - what Sørensen (2009: 101) calls 'regional space'.

Using sociomateriality as a theoretical lodestar, the aim of this thesis is to move beyond theories of situated learning and literacy to look at the possibility of *transformation*, the 'partial relocation [of knowledge] between spaces' (Sørensen, 2009: 182). Empirical studies on the use of technology in classrooms such as Rowan et al.'s (2002) analysis of Year 9 boys in Queensland and Estrid Sørensen's (2009) work in a Danish primary school, *The Materiality of learning*, point to the possibility that digital technology may bring about transformation in both pedagogy and the performance of children's knowledge. For Sørensen,

whereas transfer implies that a more or less well-delimited body of knowledge moves between places (or is re-performed in different places), and translation describes a movement of knowledge between spaces that implies a change of knowledge, we are now dealing with an understanding of how knowledge can relocate across spaces without even moving. Because the latter is a partial relocation between spatial forms, I call this process *transformation*.' (Sørensen, 2009: 182)

Sørensen goes on to make the convincing argument that pedagogy that acknowledge the importance of transformation could be very important in preparing children for an uncertain future - a truth universally acknowledged by policymakers and educators. As we will see in later chapters, the notion of transformation is a key tenet of critical realism. Critical realism seeks to

understand society using metaphors from biology. Archer (1995) uses the term *morphogenesis* (from the Greek) to describe transformation, comparing the way society evolves to the biological process of an organism developing (*genesis*) its shape (*morphe*).

Recent theoretical work on literacy has stressed the importance of acknowledging the way practices take place across different spaces as new technology has facilitated the movement of language, communication and knowledge. The paradigm of *language in context* is being replaced by a paradigm of *language and literacy in motion* (Kell, 2015; Rampton and Blommaert, 2011; Potter and McDougall, 2017) but if literacy is on the move, we have to ask where on earth it is coming from and where it is going? We need to have a theory that accounts for the spaces it occurs in and the way in which it moves between them. Chapter 5 will look further at issues of space and agency.

Language experts such as Blommaert (2007) and social geographers such as Massey (2005) use metaphors from geometry such as scale as the mechanism to analyse and explain the links between the local and the global. Actor Network Theory has invoked distinctions between regional (local), network and Euclidean space (Sørensen, 2009; Law and Mol, 2001) and stressed the importance of network space in explaining movement across contexts – ‘the immutable mobile’ (Latour, 1987). This work joins the move away from thinking of space as a container and develops ideas of social space (Lefebvre, 1991) into a conception of space as something living – more of a biotope. It searches for ways to see how practices move from one biotope to another, developing metaphors of stretching or extensibility to describe connections between these. It invokes the metaphor of the *vector* - in the biological sense of a *carrier* that moves between places rather than the geometrical sense of a *directional arrow*, used by Deleuze and Guattari (1987).

These ideas from biology are different from metaphors of fluidity (Law and Mol, 2001) and liquidity (Sørensen, 2009) because they stress existing structural forms which can evolve or remain the same depending on sociomaterial

interactions or practices. They have more in common with Barton's (2007: 29) ecological approach which 'takes as its starting point the interaction between individuals and their environments' and 'is concerned with how the activity – literacy in this case – is part of the environment and at the same time influences and is influenced by the environment'.

1.3 The educational context

So what is the context in which this research into technology, literacy and knowledge takes place? Despite digital technology transforming many organizations and communication practices, educational establishments have undoubtedly been behind the curve. As Cuban (2001) and Selwyn (2011) point out, technology-enhanced teaching and learning in schools has been painfully slow to take-off and erratic in many instances.

Numerous surveys, reports and statistical analyses confirm that while the physical presence of digital technology in school systems may continue to rise, its bearing on institutional practices and processes remains limited and often focuses on matters of school management and administration rather than teaching and learning.' (Selwyn, 2011: 25)

This is the result of a complex combination of factors such as teachers' workload and the difficulty for them of experimenting in the classroom with the sort of literacy practices going on outside, whilst under ongoing pressure to deliver a curriculum assessed by conventional means with ever-shrinking budgets. Real fears over e-safety have been a further hampering factor as was the promotion of institutionally managed VLEs in the late 2000s (Waller, 2013) although these have by and large now fallen by the wayside.

Web 2.0 was touted by many outsiders as the way forward for educators at the beginning of this century, and clarion calls abounded from educational technology enthusiasts, researchers and policymakers across the political spectrum for schools to use it as a way to leverage the new social reality to empower learners and make them more employable. According to an independent committee of inquiry into Web 2.0 use in higher education in the

UK, 'the types of skills developed through the processes of engagement with Web 2.0 technologies match both to views on 21st-century learning skills and to those on 21st-century employability skills' (Hughes, 2009: 24).

Nevertheless there have been considerable difficulties in meshing innovative Web 2.0 practices with school cultures as will be detailed in the literature review (Chapter 2).

The blame has often been laid at the door of Luddite teachers and establishments who, as Bulfin and Koutsogiannis (2012: 333) bemoan, are characterized as incapable of making literacy anything other than 'dull, dry, inauthentic, rigidly formal and lifeless'. However, Selwyn (2011: 54) argues that 'there is a need to move research agendas away from overtly pro-technology or anti-school stances, and towards producing more disinterested analyses that seek to reconcile schooling and technology'. This thesis is the work of one teacher-researcher to find a way forward in that spirit.

One of the key problems in an institutional setting is the Catch 22 scenario that:

Whereas on one hand [teachers] should not be expected to design such innovations on their own, on the other, there are generally few ways in which someone else could do it for them. In order for curriculum innovations to really succeed in a classroom, ...[they] must be involved in their design and customization for specific contexts. (Peters and Slotta, 2010: 206)

However, with teachers' time at a premium amid many competing demands, technological innovation is only likely to happen in isolated contexts. In the UK, a survey of Web 2.0 use in secondary schools found that

the current contexts and cultures of schools often offer teachers limited scope to incorporate them, with other requirements taking precedence, such as e-safety, privacy, hierarchical organisation and infrastructure, set bodies of knowledge, assessment, and a long-standing pedagogical tradition that favours the individual over the group, the text over other

modalities, and the enclosed environment over the open. (Luckin et al. 2009: 102)

But can a sociomaterial approach help us ask different questions and find a way out of this impasse? As Sørensen notes,

The fact that educational technologies may contribute to educational practice in ways that are different from the expectations of their creators, implementers, users and investigators is generally neglected. We find descriptions of technologies failing to deliver the expected educational outcome (e.g. Boyd, 2002) but researchers rarely ask what was performed by and through the technologies in place of the expected outcome. (Sørensen, 2009: 7)

A focus on what is actually being performed or enacted when a technology intervention is put in place leads us to frame our findings in a different way. Sociomateriality may help us to ask why technology interventions work in some environments and not others – why do factors such as teacher workload, a reluctance to innovate and insufficient or substandard technical support hinder uptake and outcomes in some settings but not others?

1.4 The way forward

Selwyn, seeking ways forward beyond disappointment in and distrust of the digital in education, calls for academic research into educational technology to be

strengthened by a broad and rigorous engagement with theory. There are many theoretical approaches and traditions that currently are underutilized in the educational technology literature, yet might support the building of better questions, highlight otherwise neglected issues and act both as a point of reference and a point of correction (Selwyn, 2013b: 162).

An enduring blind faith in technology's transformative powers seems to be a result of buying into the fallacy of technological determinism. It is tempting to

ascribe agency to technology – in fact both Actor Network Theory and the different camps of work on sociomateriality do insist on accounting for both human and non-human agency. However these new theoretical traditions which underpin the study of sociomateriality lead to a nuanced understanding of what is going on in each situation – on how the two agencies combine - rather than relying on deterministic claims.

As Matthewman (2011: 23) notes, technology can both solve and create problems and ‘we have no idea if a technology is a help or a hindrance until we see it used in a concrete context’. For Livingstone (2012: 19) there are only 3 lines of questioning worth pursuing when it comes to technology: ‘What’s really going on, how can this be explained, and how could things be otherwise?’. These are the questions this thesis hopes to explore in the microcosm of the primary classroom in order to find out whether we are witnessing ‘genuinely new learning opportunities, centring on possibilities of child-oriented digital creativity and on collaborative communication’ (Livingstone, 2012: 21) - what Golding (2000) calls Type Two technologies (as opposed to Type One technologies that simply make existing forms of activity easier or more efficient).

1.5 Research interest and question

The main aim of this study is to explore and describe the extent to which the integration of technology into the writing process (a wiki) affects students’ writing skills, with particular reference to the way in which their literacy learning is affected by social and material factors.

Professor Tom Hughes, one of the pioneers to study the history of technology, introduced the metaphor of a ‘seamless web’ to describe the relationship between technology and society (1986). This powerful image of ‘an endless bale of [tissue] unrolling through time, without break or cut’ (Archer, 1998: 362) parallels the way Actor Network Theory and agential realism view the social and material as inseparable. By contrast, critical realism suggests a different metaphor which I would like to take up to describe entities - that of ‘a garment

handed down through the human family, showing the wear and tear accumulated on the way, the patching and over-patching, the letting out and the taking in done for different purposes' (Archer, 1998: 362).

This thesis attempts to approach the relationship between the social and the material from a critical realist perspective, asking the principal research question:

- a) How do social and material agencies become woven or imbricated over time to shape literacy practices when a wiki is integrated into a classroom of 8-9 year olds?

With subsidiary questions:

- b) Does this weave result in the same outcomes for all children and if not, why not?
- c) What kinds of learning and (new) literacy practices emerge from this weave?

For practical reasons, a lot of the work expected of children on the wiki has been done out of school. But do all children thrive in this Third Space which operates at the semi-permeable membrane (Potter, 2012: 6) between school and home? Why do some children participate more than and differently to others?

1.6 Reflexive aside

At this point, it may be necessary to put in another cautionary and reflexive note. I came relatively late to education as a career changer, having previously experienced a workplace bursting with technology. I arrived in the classroom an unequivocal digital evangelist, impressed by the potential of technology for my own children in the home and amazed that anyone could be as sceptical as Neil Selwyn. However, more experience in school has made me distinctly more agnostic. If teachers and schools are to embrace technology wholeheartedly in the classroom, they need to be sure it improves outcomes for all groups of learners – it is no good if they feel, for whatever

reason, that they can make just as much impact without it.

My continued interest in this topic stems from an ICT specialism project I carried out in a primary school as part of a PGCE and further research I conducted for an MA dissertation as a class teacher, using the Web 2.0 software of wikis in both instances to complement class-based offline writing instruction. My experience in both cases was that they offered a tool which made easier some of the current calls on educators: for personalisation, the extension of links between home and school, the fostering of autonomy and collaboration in learners and the incipient teaching of multi-modal text-writing.

The use of the wiki for the MA dissertation as a class teacher was something I incorporated into my pedagogy, with a positive effect on both the achievement in writing of some children (mainly under-attaining boys) and their perception of themselves as writers. The school were keen for me to try to incorporate this practice into our VLE (Virtual Learning Environment), which I did using a similar decentred, participatory and playful (Marsh, 2011) pedagogy, the results of which form the pilot study for this thesis. This time, with a different class, the most positive effects were seen in some middle-attaining girls (see Chapter 6). My conclusion from these two experiences was that the pedagogy was far more important than the tool. The literature review in Chapter 2 examines other empirical studies of Web 2.0 use, in particular wiki use, in education, looking in particular at the importance of pedagogy.

1.7 Conclusion - The three 'i's

If you type into Google the question, "what is the meaning of the 'i' in iPod, iPhone etc?", a frequently-repeated piece of anonymously-authored text comes up. Steve Jobs apparently intended the 'i' to mean internet. "However", the excerpt continues, "'i' also means individual ...[and] instruction". These three 'i's have represented three dissonant poles in many schools (see Fig. 1).

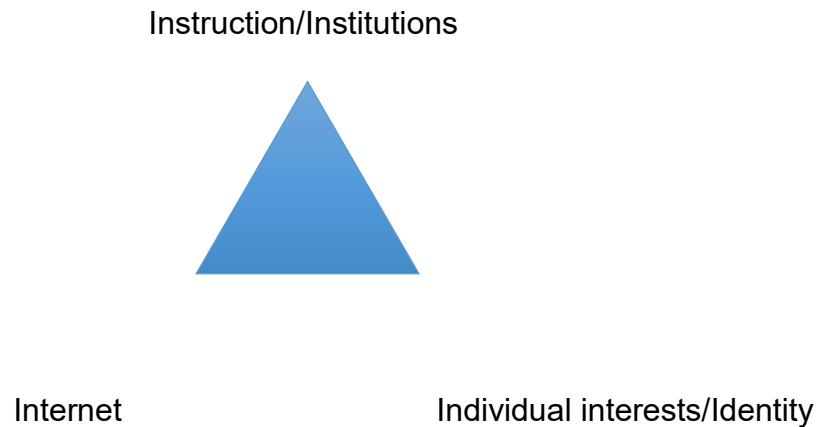


Figure 1: Internet, institutions and individuals represented in some sort of triangular, partially oppositional relationship

This thesis aims to look at the relationship between the 3 'i's - '*internet*', '*institutions*' and '*identity*' to see whether it is possible to join them into more of a trinity. Can the introduction of a web-based intervention to support writing and a pedagogy that takes account of children's identity and individual interests, help join up the three elements of the triangle in Fig. 1 into something more integrated - more of a virtuous circle (Fig. 2)?

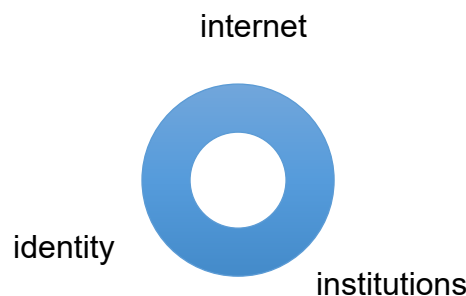


Figure 2: Three i's represented in a more connected, rhizomatic way

A distinguished group of scholars (including Mimi Ito, Kris Gutiérrez, Sonia Livingstone and Julian Sefton-Green) have made calls for 'connected learning' which they define as

learning that is socially embedded, interest-driven, and oriented toward educational, economic, or political opportunity. Connected learning is realized when a young person pursues a personal interest or passion with the support of friends and caring adults, and is in turn able to link

this learning and interest to academic achievement, career possibilities, or civic engagement. (Ito et al., 2013:6)

In their work, looking largely at digital content produced by motivated children outside school hours, they observe that: 'Digital and networked media offer new ways of expanding the reach and accessibility of connected learning so it is not just privileged youth who have these opportunities' (ibid:6).

I set out hoping to find this in my classroom. Generation P (participatory) (Kalantzis and Cope, 2012) would, I believed, when given

more engaging and more varied learning spaces, more relevant to the kind of world that [they] already inhabit in their everyday lives....take greater responsibility for their learning, in part because they are given greater autonomy and scope for self-control. ..They [would] continue to learn beyond the classroom, using the social media to continue their reading, writing and learning anywhere and at any time (Kalantzis and Cope, 2012:11).

However, during my study, it became clear that not all children were benefitting from the intervention in the same way. Some children were participating enthusiastically with a positive outcome on their classwork; others were participating enthusiastically without a positive outcome on their classwork while still others were not participating at all despite their evident interest in and enjoyment of the digital outside of school. It was for this reason that I turned to critical realism to help ask why.

In my MA work, I suggested that new practices do emerge and new pedagogies are called for when a wiki is brought into the classroom. I have called these *iLiteracy* and *iPedagogy*. The small 'i' has connotations that are both both social and material. If we take sociomateriality as a theoretical approach, will we uncover new practices or will we find that these are really just an extension or amplification of what already goes on? Very often we find old wine in new bottles. A focus on the material environment and the way it mediates cognitive activity is resonant of Vygotsky's socio-cultural theory. We may end up finding nothing new; however at least we will have escaped the clutches of technological determinism.

The next chapter sets the context in the ed tech field and includes a literature review of empirical studies where wikis have been used. The following three chapters develop a theoretical basis for analyzing the empirical work which follows. Chapter 3 is an exposition of the current debate around literacy in the digital age looking in particular at relational theories which explore materiality. Chapter 4 explores the concept of sociomateriality and looks at its theoretical basis and empirical applications. Chapter 5 examines the spatial turn and seeks to align theories of agency, pedagogy and the Third Space with a critical realist perspective. Part Two of the thesis describes the results of the pilot study (Chapter 6) and lays out a methodology underpinned by critical realism for the main study (Chapter 7). Chapter 8 is an account of what happened during the main study. Finally, Chapters 9 and 10 are the analysis and discussion of those findings.

Chapter 2 - Literature Review: the 'Ed Tech' Debate and How Wikis Fit In

"Our work is focused on taking full advantage of the kinds of tools and technologies that have transformed every other aspect of life to power up and accelerate students' learning." Bill and Melinda Gates Foundation

2.1 The Ed tech context

Digital technology is fundamentally changing so many aspects of our daily life that it is reasonable to assume that education could and must also reap the benefits. As Neil Selwyn (2013b, viii) notes: 'Many enthusiastic proponents of the apparent benefits of educational technologies are amongst the most astute, well-intentioned, right-minded and clear-thinking people one could meet'. And why shouldn't they be? The post-Fordian social contract assumes a critical role for technology in empowering individuals. As Nikolas Rose (1996) and Andrew Barry (2001) argue (in Foucauldian vein), neo-liberalism has made use of technology in order to govern society at arm's length, giving citizens 'unprecedented responsibility for governing his or her own affairs...Seen in this context interactive devices had a function for they might foster agency, experimentation and enterprise thus enhancing the self-governing capacities of the citizen' (Barry, 2001: 135).

The advent of Web 2.0 and SNS (social-networking sites) and their proliferation over the last decade have undoubtedly profoundly altered our notions of communication, community and identity (boyd, 2007; Turkle, 2011). In the early days of Web 2.0, researchers in universities (Davies and Merchant, 2009; Selwyn, 2008) as well as those attached to policy-making and political bodies such as the European Commission (Redecker, 2009) espoused the benefits of its use to enhance learning. Selwyn (2008: 10) pointed to the 'strong links between web 2.0 and socio-cultural theories of learning, which see active and authentic learning taking place best where knowledge can be constructed actively by learners who are supported in communal social settings'.

Before launching into a literature review of empirical work conducted around wikis, it is necessary to set the context and launch some caveats about the educational technology field in which much of this work is located. This field is composed largely of enthusiasts who promote the use of the digital in education. These enthusiasts range from academics and policymakers to corporate interests.

As Neil Selwyn (2013a:12), now a prominent dissenter in a field where dissent is rare notes, 'digital education is a remarkably consensual, convivial and uncontroversial area of society'. It assembles a curious coalition of people with an uncritical enthusiasm for technology in education - from anti-establishment educators who see it as the way towards social justice to more market-driven interests looking at ways for schools to provide 21st century workers. As Buckingham (2007: ix) points out, 'critical questions...have been marginalized in favour of a superficial infatuation with technology for its own sake'. And, as Peter Golding warns in response to Bill Gates's 1995 book The Road Ahead which heralded an unrecognizable future thanks to the global information superhighway:

We run toward the sound of the funfair, as the increasing digitization of everyday technologies apparently opens vistas of freedom from the constraints of material scarcity, and from the mundane barriers of power, privilege and place. This is not, however, the stuff of serious sociology (Golding, 2000: 166).

In fact, the ed tech field is plagued by several problematic assumptions or biases. The term '*interactive*' itself is, as Lucy Suchman (1987) observed, a reflection of the tendency of designers to attribute (wrongly, she argues) anthropomorphic powers to devices, such as the art of conversation. From here it is a short step to assuming pupils will happily go home and 'complete their homework in an online intelligent tutoring system' (DiCerbo and Behrens, 2014: 3) to a high standard. Meanwhile our own dealings with and perceptions of machines can leave us equating their *opacity* (Daniel Dennett (1978) and Lucy Suchman (1987)) with our own. The fact that we can no more see inside a computer than each others' heads - the view is opaque in both instances -

can lure us into the sense that these machines are as agentic as we are. (A fuller discussion of agency will be engaged with in Chapter 5).

As the quote from the Bill and Melinda Gates Foundation at the start of the chapter exemplifies, one of the first problems in the discourse around ed tech is the tendency to lump all technology together without identifying the difference between technologies which automate (largely removing the human subject) and those that require the presence of the human subject and may provide new models and opportunities for learning. There is also often a lack of clarity over what the aim of employing technology in school is. The educational technology literature does not always distinguish between technology used by teachers and administrators for data analysis and technology which involves the pupils' presence (either as consumers or producers of content). For example, a report published by Pearson entitled Impacts of the Digital Ocean on Education, quotes several statistics:

85% of teachers in the United States (US) report using technology in their classrooms daily. While the adoption of technology in the classroom has been a relatively lengthy process, the most recent statistics available indicate that, in 2010, 97% of US teachers had at least one computer in the classroom every day, and the ratio of learners to computers in the classroom was 5.3:1. Further, 69% of learners used computers sometimes or often during teaching and learning time.

(DiCerbo and Behrens, 2014: 5)

Distinctions are not always made between what the teachers are doing with the technology – whether they are using it before or after lessons for preparation, emails and data input/analysis or sharing information from the internet via a whiteboard during a lesson. Neither is it made clear exactly what the pupils are doing – whether they are engaged in skills and drills practice on the computer, searching and surfing the internet, playing educational games, word-processing previously prepared paper-based work or creating new digital content. As Abrams and Merchant (2013: 327-8) note, 'there needs to be a better categorization of technology in the classroom to distinguish student-driven capacities, higher-order thinking, and dynamic integration of digital resources from extensions of 'drill-and-skill' activities'.

Here it may be helpful to look at a distinction made by Ekbia and Nardi (2012) between what they call *technologies of automation* and *technologies of objectification*. They argue that:

Popular narratives of technologies portray them as tools in the service of human welfare and well-being.....On close scrutiny, however, these portrayals are untenable ...technologies of automation such as banking and financial systems..are designed to disallow human intervention at nearly all points in the system. (Ekbia and Nardia, 2012: 157)

Many of us can readily point to examples of automation which have made our lives simpler, happier or more efficient, such as software for data gathering, aggregation and analysis (in school) and catch-up TV programming or satnav (at home). Sometimes disallowing human intervention can be beneficial because of increased accuracy (for example the removal of the human error element in map reading on car journeys for example can bring marital harmony which might not be possible without the technology!)

However, the picture when humans are inserted as subjects into complex technological systems is much more nuanced. Ekbia and Nardi call these *technologies of objectification*. I might rename them *technologies of presence*. Ekbia and Nardi scrutinise electronic health records and online video games to argue that in these environments, technology can be either 'fragmenting' or 'totalizing'. In the case of electronic health records, physicians 'interact with digital data about the patient rather than with the human body itself' (ibid: 158) – so the technology is 'fragmenting'. In the case of multi-player online video games, 'players make a strong connection to the game in terms of hours played, affective engagement, and participation in game-related activities outside the game' (ibid: 163) so it is 'totalizing'. I will argue that in education, *technologies of presence* have the opportunity to be either fragmenting or totalizing. A sociomaterial focus may help us to identify both *what* is actually happening and *why* this is the case. Sørensen (2009: 170) notes the potentially fragmenting effect of technology in education: 'In the computer lab the teachers were recurrently connected to and disconnected from the fluid process with the virtual environment. The relationship between teachers and

children was much looser. So was the relationship among the children' (2009: 170). However, there are also examples in education where technology can be totalizing such as the games authoring software like Missionmaker developed by Andrew Burn. These distinctions are useful to bring to bear on the current debate in educational technology where there are calls for more nuanced research and theorizing (Selwyn, 2013a, 2013b and 2016).

A second problem in some ed tech studies is the prevalence of arguments about the use of technology which privilege the intentions of the software designer and run as follows: a description of what the software is designed for (theory) and how it was applied (empirical study); a theoretical discussion about whether or not the goals of the designers were made (many of the accounts of wikis in education later in this chapter follow this pattern). In all these cases, when digital uptake is slow or outcomes are wanting or software is seen not to work as its designers intended, the blame is invariably laid at the door of Luddite teachers or establishments. Indeed, the failure of teachers and schools to keep up with the times is the subtext of much of the literature in ed tech: 'The future is racing with technology. The gist of our report is that pedagogy and change knowledge will have to dramatically step up their game in order to contribute their essential strengths to the new learning revolution' (Fullan and Donnelly, 2013: 10). However, as Bulfin and Koutosgiannis (2012: 332) explore, such narratives are not adequately nuanced to account for the 'variation and complexity' of what actually goes on either in schools or out of them.

A third problematic assumption made is that linking children's interests out of school with what they do in school will necessarily foster learning. This assumption is compounded by two more – that young people have a digital fluency that will translate into learning and that the use of technology is inclusive and will benefit those who are disadvantaged. Although Marc Prensky's (2001) metaphor of children as 'digital natives' has come in for scrutiny (for example by Jenkins et al. 2006a), there is still often an implicit assumption that engagement with technology has given all children new attributes or dispositions which will automatically make them better learners.

Kalantzis and Cope (2012), building on the work of Gee (2004) and Jenkins (2006a), speak of today's young people as **Generation P** (for participatory). Out of school, they are cast as 'prosumers' (Toffler, 1980) – both consuming and producing media voraciously. For many years now, commentators have expressed concern about the apparent disconnect between the classroom and the vibrant multimodal outside world where children negotiate 'hardware, software and friends' (Rowan et al., 2002: 142). The way in which the material and social apparently gel *out of school* have led to many calls for schools to address this deficit inside institutional doors (Livingstone, 2003; Buckingham, 2007; Jewitt, 2006; Lankshear and Knobel, 2003).

The left-of-centre UK think-tank, Demos (2007) in a 2007 report *Their Space, education for a digital generation* exhorted schools 'to start in the right place – with the interests and enthusiasms of their students [and] to develop strategies to bridge formal and informal learning, home and school. They should find ways that go with the grain of what young people are doing, in order to foster new skills and build on what we know works' (Green and Hannon, 2007:16-17). The UK independent committee of inquiry into Web 2.0 use in Higher Education argued that there is 'considerable untapped potential for exploitation of ...a third space...somewhere between pure study/work and pure social – to support learning and teaching' (Hughes, 2009: 24). This is a reference to work done by Kris Gutiérrez (2008) building on Bhabha (2004) on the Third Space, described by Marsh (2005: 30) as a place where there might be a meeting of 'schooled-norms and student-lived experience ...[to]...ensure that children have agency and voice'. (A full discussion of Third Space theory and the potential to link it with sociomateriality is presented in Chapter 5). Nevertheless, there is a difference between the targeted work done by Gutiérrez's project among underprivileged Latino youth out of school and transferring these undeniably positive outcomes to the school context.

In fact, Web 2.0 technology has been slow to take off in schools, despite its apparent promise to facilitate the personalization of learning and knowledge construction as well as foster the sort of skills employers are looking for (McLoughlin and Lee, 2010; Redecker, 2009; Crook, 2012). Crook (2012: 77)

notes that there may have been ‘an exaggeration of digital fluency among young people...Digital fluency should not be abstracted as if it was an idealized characteristic of people – decoupled from the situations in which they act’. What has been observed repeatedly with children and digital technology is that they are ‘readily engaged by Web 2.0 tools’ (ibid: 77), showing interest in and enthusiasm for them. However, a notable thread running through the debate is the assumption that harnessing children’s interests will improve outcomes *and* that, because the digital appeals across socioeconomic backgrounds, this will automatically lead to more social justice.

Progressive educators and philanthropists appear to have latched on to technology as the magic bullet or holy grail to combat injustice. The following quote from the Bill and Melinda Gates Foundation’s website illustrates the links often made between technology and inclusion – the power of technology to disrupt is assumed to favour disadvantaged learners:

“We are targeting the best new ideas that hold the greatest promise for improving the odds for low-income young adult learners,” says Hilary Pennington, director of education, Postsecondary Success and Special Initiatives for the Bill & Melinda Gates Foundation. “The power of technology is its ability to connect people, foster collaboration, empower learners and teachers, and challenge the status quo.”

Yet, as Selwyn (2013a, 2013b and 2016) notes in his diatribe against ed tech, many of those who promote the transformative power of technology in education are persisting in a naïve optimism which has little basis in evidence so far. In fact, much of the evidence points to the contrary (a bias in favour of those already privileged, who already have ‘technological capital’ (Selwyn, 2013b: 78). An OECD report in 2015 found that frequent use of computers in school was associated with lower outcomes in the PISA tests. The OECD’s education director, Andreas Schleicher said on publication of the report that “school technology had raised too many false hopes...One of the most disappointing findings of the report is that the socio-economic divide between students is not narrowed by technology, perhaps even amplified”.

These findings have led to the call for new theory to underpin the ed tech debate. Neil Selwyn in his book Distrusting Educational Technology calls for some 'simple but realistic shifts' such as

- the stimulation of vigorous ongoing public debate about education and digital technology – leading to the framing of digital education as a public controversy, and allowing digital education to be challenged, contested, problematized and de-reified...
- more rigorous and far-reaching problematizing of digital education, involving the pursuit of academic writing and research that is better able to demonstrate the links between the various types of dominance and inequality inherent in digital education. (Selwyn, 2013b: 154)

This thesis is a modest attempt to engage with such problematizing. Chapter 4 will propose a theoretical framework (using sociomateriality) to underpin analysis of an 'ed tech' intervention using a wiki. The remaining part of this chapter is a literature review of work already done in classrooms using wikis.

2.2 Writing with wikis and blogs – the potential

Most famous in the incarnation of Wikipedia, a wiki (named after the word for 'quick' in Hawaiian by its inventor, Ward Cunningham, in 1994) is arguably one of the Web 2.0 tools with the most potential in education. Franklin and Van Harmelen (2007: 5) define a wiki as 'a system that allows one or more people to build up a corpus of knowledge in a set of interlinked web pages, using a process of creating and editing pages'.

Broad claims have been made about the potential benefits of wikis such as that

wiki use could encourage change in our approaches to writing. It could broaden the definition of writing to include new media elements and deep collaboration. It could complicate the already-tangled relationships between teacher and student authority, encouraging us to purposefully rethink and negotiate those relationships. (Lundin, 2008: 445)

For Lamb (2004: 9), wikis are good not only for teaching writing skills but also 'for teaching the rhetoric of emergent technologies'.

There has been some debate (Duffy and Bruns, 2006; Schwartz et al., 2004) about the relative merits of wikis in education versus blogs. Wikis 'encourage knowledge sharing around topics while blogs are a sharing of spontaneous thoughts' (Parker and Chao, 2007: 66-7). They lend themselves to the building up and refining of knowledge round a topic while blogs are chronological, spontaneous postings that cannot be edited. Both are claimed to have the potential to 'improve literacy instruction' (Whittingham et al., 2013: 40) a point also made by Lundin, (2008) and Richardson (2008). Many studies use the contested notion of 'affordances' (Norman, 1988) to investigate perceptions of the potentials of these technologies. (A fuller discussion of affordances - problems with the term and ways in which a sociomaterial focus may help us resolve those – follows in Chapter 4).

Wikis and blogs overlap in some of their affordances, with the technology in both cases providing an audience and purpose to writing and opportunities for developing multi-modal texts and online collaboration around project-based work. Both have been claimed to foster higher-order thinking skills (Angelaina and Jimoyiannis, 2012; Richardson, 2008). Crucially uses of both pieces of software blur the boundaries between home and school and between formal and informal learning. In practice the two are becoming more hybrid, with most wiki software now offering the blog-like option of a discussion forum/posting space on each page (Bradley et al., 2010).

Drexler et al. (2007) report success in engaging and motivating elementary-age children with writing using blogs. This is echoed in the UK by educators such as Martin Waller (2013), who has successfully used Twitter with young children and David Mitchell (2012) who founded quadblogging to provide authentic global audiences to schools as a way of keeping blogs alive. 'Too often blogs wither away leaving the learners frustrated and bored' (quadblogging.net). Barrs and Horrocks (2014: 54) in their study of blog use in primary schools in South London concluded that 'blogging enthused the pupils

in this study and gave them access to new kinds of writing and new audiences'. However other researchers argue that blogs can be restrictive since there are

two important capabilities lacking .. in [them]. The first is that blogs can become hypertext but they can just as easily become a series of self-contained posts where there is little communication, let alone the development of discussions about alternative hypotheses. The second is that it is difficult to establish viable end products in blogs. (Glassman and Kang, 2011: 13-14).

Several commentators, like Prensky (2004) and Augur et al. (2004) argue that a wiki's functionality make it a crucial piece of new generation teaching software since 'all a user needs to edit and read a wiki is a web browser' (Augur et al., 2004: 1). Because there is no need for teacher or learners to master html (HyperText Markup Language) before getting going, it is a 'flexible, user friendly and cost-effective interface for collaboration, knowledge creation and archiving' (Schwartz et al., 2004: 4). According to Roussinos and Jimoyiannis (2013: 318), 'wikis are widely promoted as dynamic learning environments because of their functionality and their affordances ...wikis can simultaneously offer extensive opportunities for group working and sense of autonomy, thus supporting learners to build new knowledge and acquire collaboration skills'. These affordances include the chance to write for a real audience (Forte and Bruckman, 2006), as well as opportunities to express oneself using different modes (McPherson, 2006; Lundin, 2008) and to collaborate on texts (Forte and Bruckman, 2006).

Lundin argues that wikis allow for more creativity in the authoring of multi-modal texts than blogs do.

Many blogs have a format that encourages writers to post images, but that format may not allow users to radically change the design of a post or to include a variety of new media elements...The blankness of an empty wiki page can encourage writers to view everything they put in that space, including new media, as a rhetorical choice. Essentially, the technology can open writing to easy and rhetorically sensitive

incorporation of new media elements. (Lundin, 2008: 441)

One of the biggest advantages of a wiki is that its pages can be edited and revised, while previous versions are stored. Pifarré and Fisher (2011: 454) note the value of a pedagogical tool which foregrounds the process of drafting and writing as much as the finished product: 'The preservation of a record of all steps in a writing process and the accessibility to material from earlier versions by multiple participants can provide a powerful environment for fostering critical revision of the writing'. Others claim that this function leads to deeper engagement by learners.

In blogs or Internet forums, users cannot modify entries, only leave responses or comments. In a wiki, however, users can modify existing entries and add new information. It is evident to them at all times that they are dealing with an artifact that was created as the product of collaboration. This may encourage users to examine other people's opinions more closely, and increase their knowledge more deeply as well. (Moskaliuk et al., 2009: 3)

Glassman and Kang (2011: 109) believe wikis can also foster the kind of problem-solving approach to knowledge advocated by John Dewey - 'wiki technology may fit the promise of Web 2.0 in education more than any other technology. It fosters integrated problem solving, and advanced understanding of the fungible nature of information and cooperation'. Nevertheless, despite these bold claims about the transformative potential of wikis, the reality on the ground has been somewhat different.

With age-restrictions or other considerations of appropriateness and privacy largely ruling out the use of the SNS software like Facebook within schools, educators did begin experimenting with wikis and blogs with varying degrees of success. By 2009, in the US, more than 1 in 5 teachers was requiring their students to contribute to wikis or blogs according to a Fast Response System Survey (FRSS) conducted by the National Center for Education Statistics. Reich et al. (2012) however assessed almost 200,000 wikis which had been created in US elementary and high schools and discovered that only 1% of

these were being used for collaborative writing and 25% for individual student assignments and portfolios. The remainder were used by teachers as content delivery platforms or as a way of sharing resources with colleagues. In the UK, Luckin et al. (2009: 100) in a survey of Web 2.0 use in secondary schools noted 'a lack evidence of higher-order thinking' except in rare cases where there was support from 'a more able partner, such as a teacher or more experienced collaborator in a shared field of interest'.

2.3 Wikis and pedagogy - wiki failures

Research on wikis in the classroom has been published since about 2005. The majority of studies describe the use of wikis in higher education with very few in secondary or primary schools. There is considerable discussion in the literature about how much control the teacher should exert when setting up a wiki in the classroom. Some of the early users of wikis in education wondered whether the teacher should be anything more than a 'more knowledgeable peer as well as a designer of learning activities and environments' (Lund and Smørðal, 2006: 38). Lamb (2004: 10) argues that 'in a wiki, the instructor may set the stage or initiate interactions, but the medium works most effectively when students can assert meaningful autonomy over the process'. However, a review of the empirical studies reveals some cases of failed wikis where such a hands-off pedagogy ran counter to student expectations of scaffolding or input from teachers. The utopian collaboration of experts expected to develop simply did not emerge because it conflicted with institutional norms and expectations.

Several accounts describe attempts to replicate the bottom-up ethos of Web 2.0 in the classroom with mixed results. At secondary school level, Lund & Smørðal (2006) report on difficulties encountered by an English teacher in knowing how much to involve herself in a wiki. At the university level, Judd et al. (2010) had mixed success using a wiki with undergraduate psychology students, finding student participation levels very varied and contributions often superficial. Cole (2009: 145) cites the case of a failed wiki with third year undergraduate information systems students, noting that a poorly-designed

wiki with little instructional scaffolding will motivate no-one: 'technology needs to support a pre-existing educational behaviour rather than trying to import behaviour from other domains'. Lundin (2008), who used a wiki in an undergraduate composition class, had to add a forum to stimulate contributions. Dohn (2010: 147) found that 'the students tended to expect the teachers to participate more and to provide much more 'corrective' feedback on their entries than the teachers themselves felt was in line with the 'bottom-up' pedagogy of web 2.0'.

Although several writers cite the success of shared knowledge creation in Wikipedia as inspiration for educators, some of the studies of wikis in higher education (Mindel and Verma, 2006; Wheeler et al., 2008) express disappointment that the competitive individualised culture, which students have grown up in, hinders the development of 'true wikiness' (Lamb, 2004: 1), the kind of open, collaborative, anonymous and decentred authorship that Wikipedia promotes and thrives on. Mindel and Verma (2006: 15) discovered a strong tendency of university students to 'aggregate content on wiki pages rather than truly collaborate' unless they were forced to, while Glassman and Kang (2011) and Alyousef and Picard (2011) found students tending to co-operate rather than collaborate.

This accords with the few empirical studies in secondary school which found that an educational culture which emphasises individualised testing hampered both pupils' and teachers' enthusiasm for wikis (Forte and Bruckman, 2010; Grant, 2006). Research in three classes of British 13-14 year olds for the educational technology research body, Futurelab, found that 'the social and cultural practices of collaborative working...were not in the students' repertoire of shared practices' (Grant, 2006: 11). Their education experience thus far had emphasised the importance of individual assessment, making them very negative about writing on each others' pages or accepting others editing theirs.

Other secondary school studies cite the difficulty of matching wiki interventions with the demands on teachers for individual assessment. Forte and Bruckman (2007) initiated a collaborative project in a secondary school science class for

research purposes with an enthusiastic teacher. However, he became demoralised by the end of the project because of the difficulty of assessing the contribution of individuals on collaborative pages. For Lund and Hauge (2011: 268), who studied the use of a wiki in a history and ESL class, 'the sheer amount of contributions and the webbed nature of the collectively emerging products made it extremely difficult for the teacher to keep track of who did what'. For them, these experiences reflected the tensions between the 'innovation trajectory' of the wiki and the 'institutional trajectory' of school.

2.4 Wikis and pedagogy - wiki successes

These problems notwithstanding, many studies report positive effects on learners through wiki interventions and the ability of students (given the correct scaffolding by teachers) to collaborate effectively and improve their writing skills in the process. The pedagogy is crucial – in cases where the wiki was linked to the development of communities of practice (Zammit, 2010), communities of enquiry or knowledge communities through scaffolded enquiry (Peters and Slotta, 2010), the outcome was seen as much more positive. Redecker in a thorough study of Web 2.0 in education and training across Europe notes that an evaluation of a successful project in Austrian middle schools showed how important pedagogy was:

the success of the student wiki used as a key tool in the project depended to a large extent on the attitude and encouragement of the teachers. Thus, teaching presence and guidance seems to be critical to the success of Learning 2.0 projects. However, teaching presence may express itself in different ways than in traditional classroom settings. In the beginning phase of a collaborative project active pedagogical guidance is needed and welcome, which can transform during the course into a more facilitative approach of the teacher. (Redecker, 2009: 81-2)

Wikis have been used effectively in second language learning courses in university and school (Bradley et al., 2010; Li and Zhu, 2013; Woo et al., 2011; Mak and Coniam, 2008). Mak and Coniam noticed the benefits to students of

peer assessment, audience and a real outcome. Writing in a second language is different from writing in one's own language and collaboration in such a task conflicts less perhaps with the identity a person has already cultivated as they grow up and produce texts. Perhaps this is one reason why collaborative efforts in a second language appear to be less fraught than those in a first language.

In other case studies from university (Roussinos and Jimoyiannis, 2013) to primary level, (Pifarré and Li, 2012) researchers have sought to demonstrate that wikis can lead to higher-order thinking as well as the development of writing skills *provided there is sufficient input from the teacher*. In university wikis, Roussinos and Jimoyiannis (2013: 320) noted that those students who collaborated effectively 'operated at higher cognitive levels and they improved authoring abilities'. Moskaliuk et al. (2009: 20) used the versioning capability of wikis to show how they promoted higher-order thinking skills or '*accommodative knowledge building* – understood as rebuilding or restructuring existing content to make new information compatible, or connecting different pieces of information'. Xiao and Lucking (2008) used control and experimental groups of university students to make the case that online peer assessment via wikis improved the participants' writing skills.

In secondary schools, some of the biggest benefits have been cited (Allison, 2005; Peters and Slotta, 2010; Forte and Bruckman, 2010) from peer scaffolding.

Although students did not collaborate like Wikipedians, they found ways to use the affordances of the wiki as an open, transparent publishing medium to build shared understandings of genre as they struggled with an unfamiliar rhetorical situation. Wiki supports groups of authors not only by allowing for the collaborative production of text but also by allowing individual authors to "see into" the processes of their peers and develop shared practices. (Forte and Bruckman, 2010: 24)

This accords with previous work I have done with wikis in the classroom in which I found that even if children do not directly collaborate in the writing of a

wiki page, they are sharing knowledge and often either scaffolding or being scaffolded by their peers by virtue of the fact that they can easily see each other's work and that this can raise attainment.

2.5 Wikis in primary education

The very small number of primary school studies cited in the literature attest to the importance of pedagogy. Sanden and Darragh (2011: 15), in a short evaluation of 3 wikis used effectively in US elementary schools, note the use of teacher scaffolding and intervention: 'students were able to participate more deeply in the creation of collaborative understandings surrounding the class text because they were not left to flounder ... Their teacher recognized the importance of guided opportunities to ...synthesize old and new literacies'. However, these evaluations of wiki use are more like vignettes or illustrations than full case studies.

The full case studies which have been carried out are largely positive about the benefits of wikis on improving children's writing. Li et al. (2012: 173-4) looked at a teacher's use of a collaborative writing on the wiki as a way of encouraging Grade 4 writers at a school in Southern China. The case study found that students perceived the two-month intervention to be beneficial 'in boosting writing motivation, improving writing ability, computer skills, and collaborative ability'. They enjoyed both having an audience to motivate writing and being an audience which meant 'they learned from one another's compositions'. However, all students who were surveyed cited problems with collaboration. 'They usually had different opinions of the writing content. Some members did not write, or wrote very few words'. During the two-month intervention, both teacher and students noticed the teacher acting more 'as a facilitator than an instructor' (ibid: 173).

Woo et al. (2011) and Pifarré and Fisher (2011), from case studies in primary schools in Hong Kong and Spain, believe the affordances of wikis enable even relatively young children to learn effective editing and revision strategies. They particularly note the importance of peer comments in this process.

The affordance of wikis that students can interplay... two roles simultaneously – as readers and writers – may also help them to develop evaluation and revision skills.... The findings from these 12 students indicate ...that even students in primary school have access to the full range of revision processes identified in the literature when an appropriate learning environment is created. (Pifarre and Fisher, 2011: 462)

Woo et al. (2011) studied the use of a six-week wiki intervention for Year 5 students in Hong Kong to see if it assisted with their writing in a second language (English). The outcome for both learners and teacher was positive with the teacher finding the email notification of edits useful in providing feedback. With the teacher scaffolding the writing by providing a genre framework, the children were able to collaborate effectively in groups to produce non-fiction texts. Students saw the project as positive and in particular noted the power of online peer comments to scaffold improvements. The researchers studied the edit log on each page and noted that revisions concerning content were more numerous than those concerning form which they took as a positive sign of the promise of the technology in 'encouraging writing skills' since 'content and idea revision tend to involve sophisticated higher-order thinking skills that lead to better conceptual planning' (ibid: 51).

In both cases, the teacher scaffolding was seen as a crucial component in the project design and success. Analysis of the pedagogy needed to enhance collaboration on a wiki is discussed in the Spanish case in a further article (Pifarré and Staarman, 2011). The collaborative process itself was scaffolded, with teachers using British educationalist Robin Alexander's dialogic teaching (2017), defined on his website as harnessing 'the power of talk to stimulate and extend students' thinking and advance their learning and understanding'. They noted that children were using a co-constructive approach to build rich texts rather than a cumulative approach (simply aggregating content). The use of each wiki page's discussion tab as a negotiation space proved crucial in ensuring effective collaboration.

The fact that every pair provided their own ideas in an initial text proposition seems to have been helpful in giving a 'voice' to all members of the group from the beginning of the collaborative work. It enabled all the pairs to be orientated to each others' ideas from the start and enhanced their active participation in writing the collaborative text. (Pifarre and Staarman, 2011: 202)

2.6 Conclusion

The debate which reverberates around the use of technology in education shows an impatience with teachers and quite often a will to put them out of the picture altogether. Yet these few studies on the use of wikis in education point to the crucial role of pedagogy in any positive outcomes. Recent work published by NESTA, a UK innovation charity, also stresses the importance of pedagogy:

Frustrated funders, entrepreneurs and learners do and will bypass pedagogues when they find them wanting. But this is dangerous because wise learners will always benefit from a mentor or active guide. We get a snippet of this from John Hattie's meta-analysis of over 1,000 studies in which he assessed the impact of learning practices on student achievement.

Teacher as facilitator (effect size .17)

Smaller class sizes, simulations and gaming, enquiry-based learning, personalised instruction, problem-based learning, web-based learning

Teacher as activator (effect size .60)

Reciprocal teaching, regular, tailored feedback, teacher-student verbal interaction; metacognition; challenging goals. (Fullan and Donnelly, 2013: 10-11)

While early advocacy of the use of Web 2.0 technology in the classroom focussed on the affordances of the technology to empower the learner, most conclude now that there cannot be a wholly learner-driven learning environment.

In order for self-regulated learning to come to fruition, students need not only to be able to choose and personalise what tools and content are available, but also to have access to the necessary scaffolding to support their learning. Emerging practices with social computing technologies ... signal the need for pedagogies that are more personal, social and participatory. (McLoughlin and Lee, 2010: 28)

These findings from the use of Web 2.0 technology in the classroom chime with other broader studies of online learning. Livingstone (2012) points to ambiguous and inconclusive findings such as the meta-analysis of over a thousand studies of online learning carried out in the US by Means et al. (2009) which found little positive impact on outcomes for school-age children. Any advantage for older students was found to be the result not of the technology but of different pedagogy and 'additional time and materials as well as additional opportunities for collaboration' (Livingstone, 2012: 12).

In fact, little seems to have changed since the early 1990s when Alice Ryan in a meta-analysis of research carried out on the use of microcomputers in elementary schools (1991) found that the only significant variable in improving outcomes was teacher training and experience. Charles Crook, in his book *Computers and the Collaborative Experience of Learning*, found that pupils can learn better *around* computers rather than *from* them. Crook (1994: 91) stressed the importance of *intersubjectivity*, the 'mutual recognition of mental states' and *prolepsis*, 'communication in which interpretation of the message requires some grasp of the speaker's presuppositions – understandings which are left unstated' (ibid: 85). Both of these require the intervention of an experienced teacher. So, despite the ongoing hubbub from the ed tech community, a Papertian 'Children's Machine' is, as Buckingham (2007) explains, little more than a pipe dream. But this is where sociomateriality comes in because it is clear that with the right social and material conditions, the promise of progress can be fulfilled.

The studies in primary schools using wikis cited so far have been of short duration. This study explored the progress of a wiki over a full year. Crucially

many studies of wikis quoted in this chapter, when citing success, have looked at what happened with those students who engaged with the projects without analyzing why they, rather than others, had the social and material resources to take part. This thesis will engage with the call for new theoretical underpinnings of the study of technology in the classroom. As Abrams and Merchant (2013: 328) note, it is important to determine how much ‘the technology itself is responsible for increasing student motivation and/or interaction. How much of the student engagement is due to the teaching or learning style, the change in classroom practice, or the requirement to collaborate with others?’ Chapter 4, will develop the idea of sociomateriality as a framework for analysis to address this deficit. The next chapter will look at recent debates in the field of literacy studies and calls for new theoretical models which can accommodate and explain the use of technology in communication.

Chapter 3 - Theories of Literacy: Something Old, Something New

“What h u d abt the bk cases etc. Are they with us? ...let me know & wht to pay & who 2”
(Eleanor Marx note, 1895) cited in Eleanor Marx: a Life (Holmes, 2014)



3.1 Introduction

The term ‘literacy’ is a slippery, fluid, elastic (Hamilton, 2010) one and defining it is a much more difficult task than it may at first seem. It is a concept which is constantly evolving, with the advent of digital technology having spurred a reappraisal of what it means to be literate. Commentators in the early days of the Internet such as Harnad (1991), Spender (1995) and others, heralded its arrival with claims that it was as radical a development in the history of literacy as the invention of the printing press. Warschauer (1998: 8) believes that ‘the web can ... be expected to have a deep impact not only on how we gather and share information but also on how we conceptualize reading and writing’. The advent of Web 2.0 (the Read/Write web), and its potential for ‘many to many’ rather than ‘one to many’ communication, what one commentator calls a move ‘from the Information Age to the Age of Peer Production’ (Moxley, 2008: 184), not only calls into question traditional hierarchies but also introduces the possibility of collaborative writing and the use of different modes, visual and aural as well as written, for communication (Jewitt and Kress, 2003).

The characterization of new practices involving the digital as *new literacies* which involved new mindsets (Knobel and Lankshear, 2007) predominated for

a while as a theme in literacy research. Such practices involved ‘videogaming, fan fiction writing, weblogging, using websites to participate in affinity practices, and social practices involving mobile computing’ (Knobel and Lankshear, 2007:1). Yet, as far back as 1895, Eleanor Marx (pictured on the previous page), the daughter of Karl, left a note for someone that bears a striking resemblance to a modern text message and perhaps calls into question some of our thinking about the novelty of modern literacy texts. How new is new literacy? What are the prior conditions and actions that determine the way each and every text is generated and how can we theorize them?

Recently, several commentators have pointed out (Burnett and Merchant, 2014; Burnett et al. 2014a) that novelty is becoming old hat when talking about literacy and that ‘new’ is no longer a very useful moniker. As Merchant (2013: 162) notes, ‘new literacies can become anachronisms’. Not only do some of the distinctions between old and new on closer reflection reveal more continuity than change but the idea of newness can mean that ‘established or traditional practices can unwittingly be cast as redundant, dull or boring in the haste to valorise what is exciting, of the moment, and with all the allure of the ‘shiny’, stylish and fashionable’ (Burnett et al., 2014a: 10). It is clear now from various analyses (Davies, 2014; Leander and McKim, 2003) that, despite the initial hype about the internet and tendency to see it as a separate space, ‘offline and online activity and social spaces interpenetrate’ (Leander and McKim, 2003: 218) and online literacy practices are still (like offline practices) embodied experiences rather than something new. They are just differently mediated.

Meanwhile educators are legitimately asking and being asked whether outcomes can be improved offline (where they are assessed) by activities online that support teaching and learning. Yet as Freebody (2014: xvii) notes: ‘Much of the literature on relationships among globalisation, technology and literacy education points to the lack of articulation between educational policies to do with literacy and those to do with the uses of technology in classrooms’. In the UK in particular, where this study is located, the literacy curriculum has been increasingly narrowed to a tick list of skills that make no mention of the

digital. Yet in practice we know as teachers that the successful outcomes in writing which we are being asked to produce in pupils demand a fluency and flair with language that does not come from following this checklist alone. But can harnessing literacy practices that take place on digital devices outside of school be of any help in the classroom? That is a key question which this thesis sets out to examine.

This thesis takes as a premise that literacy actually involves all sorts of crossings/ boundaries or borders which are much more permeable than they may at first seem (Merchant, 2013; Bulfin and Koutsogiannis, 2012; Potter, 2012) – between home and school, online and offline, local and global. It also assumes (like Kress, 1997; Jenkins et al., 2006a; Merchant, 2013) the centrality of textual, alphabetic literacy. It is the work of a practising teacher and as such is an attempt to look for and define a middle ground, a praxis model of literacy that takes account of the dictates of policy and the academic discussion around literacy practices (Street, 1984; Barton and Hamilton, 1998). It is an attempt to analyse and ‘seek ways of working with – rather than railing against – the prevailing political, economic, social, cultural and historical conditions that school technology is located within’ (Selwyn, 2011: 154-5).

Table 0.1 A conceptual framework for the field of Literacy Studies

	<i>Equality of access</i>	<i>Non-equality of access</i>
Tight framing of literacy (schooled literacy)	Scholars who focus on supporting students to access a schooled literacy curriculum. Disciplines include psychology, cognitive science, education.	Scholars who focus on standardized testing and hierarchical structures of knowledge. Disciplines include psychology, cognitive science, education.
Open framing of literacy (diverse literacies, multimodal, multilingual, everyday, community)	Scholars who consider practice, movement, open and unbounded forms of knowledge creation. Disciplines include anthropology, sociolinguistics, cultural studies, literary theory, sociology, education. Practitioners, educators as researchers.	Scholars who work in academic contexts that are relatively closed to educators and practitioners. Disciplines or approaches might include postmodernism, poststructuralism, philosophy, hermeneutics, literary and critical theory.

Figure 3: Conceptual quadrant of literacy (Rowse & Pahl, 2015)

Rowse and Pahl's (2015) conceptual quadrant of literacy (Figure 3 above) divides work in the field of Literacy Studies into that of those scholars who foreground equality of access and that of those who don't. This work is positioned in the left-hand column under the equality of access banner, combining a necessary focus on supporting students to access a schooled literacy curriculum (top row) while experimenting with other ways of practising literacy in and around school (bottom row). As Rowse and Pahl show, this necessitates a multi-disciplinary approach incorporating many different fields, including sociology.

It is increasingly recognized that theories of literacy in the digital age must allow for discussion of the role of embodiment and the material environment and its objects in meaning-making. The spatial dimension, not just the trajectories of texts across 'event-spaces' (Kell, 2015: 89) but the interpenetration of literacy practices in online and offline spaces, is also something new which must be accounted for. Many commentators (Burnett and Merchant, 2014: 47) are also keen to incorporate a temporal dimension

which acknowledges the importance of 'prior and anticipated experiences' to the production of texts. Finally, analysis of literacy in school goes hand-in-hand with pedagogy - the role of affect in the development of children's agency and voice must also be theorized. To find a framework which can accommodate all of these elements is a tall order, necessarily interdisciplinary, as will be discussed later in the chapter.

3.2 Great Divides – defining literacy

The word literacy has shapeshifted so much in recent years in its use with a series of modifiers (media literacy, digital literacy, information literacy, even wine literacy and so on), that it has come to be used as a metaphor for competence in any knowledge or skill domains for which it is used as a qualifier. This thesis concurs with those academics such as Kress (2010) who argue that this proliferation of modifiers debases and makes the term literacy too vague. It follows the model of digitally mediated social practices with alphabetic literacy at the core used by scholars at Sheffield and Sheffield Hallam Universities (Fig. 4).

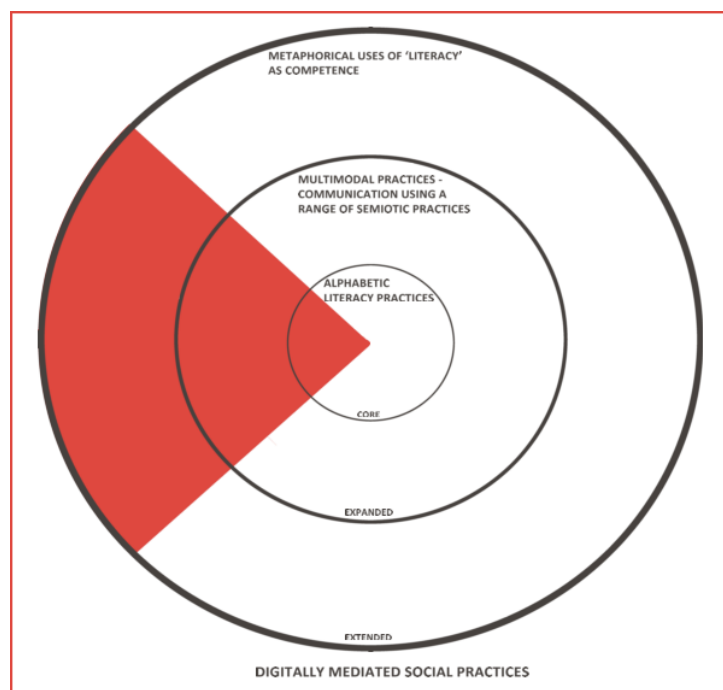


Figure 4: Digitally mediated social practices (From Digital Futures in Teacher Education Website, <http://digitalfutures.realsmart.co.uk>)

The study of literacy over the past three decades has been afflicted by a problem which led to somewhat of an impasse. Discourse around it has been characterised by a sharp binary – a polarisation between two very divergent positions – the view of literacy as something *all in the mind*, something located in individuals that can be internalised by them, and the view of literacy as something done by the group, *a socially situated practice*. While government policy and popular discussion of literacy assume it is a *cognitive skill* which is abstract and transferable across contexts, some academic discourse within New Literacy Studies has insisted it can be no more than *local practice*, analysed and observed in context. This has put the academic community at loggerheads with the educational establishment, perhaps most famously exemplified in the argument between Gee and Snow (1999) in which Gee castigated the US National Research Council for failing to take account of links between socioeconomic indicators and the development of language and literacy.

To complicate matters, the contexts in which it is studied have changed radically with the arrival of digital technology, bringing with it the possibility of multiple modes of communication (Jewitt and Kress, 2003). Literacy has shifted in some academic debate in the digital era out of its singular form into a plural one, with the advocacy by some of ‘a pedagogy of multiliteracies ..[which] focuses on modes of representation much broader than language alone’ (Cope and Kalantzis, 2000: 5). These developments have led to two kinds of crisis discourse, both of which put schools in the firing line. The first, in popular media and government pronouncements, bemoans the demise of reading and writing in the digital age and blames the education system for failing to teach literacy adequately to primary school children. In these accounts the emphasis is on the failure of schools to pay attention to *skills*. Literacy has become a political punchbag as society seeks someone or something on hand to take the rap ‘in times of pressures arising from external economic competition’ (Freebody, 2014: xii). In academic writing, the crisis discourse tends to be around a perceived failure of the education system, particularly in the U.K., to keep up with and incorporate new technological advances and bridge a mismatch between the traditional classroom and a

vibrant multimodal outside world. Here the emphasis is on the failure of schools to take into account *social practices*.

The problem with this polarization is that, as Hilary Janks (2010: xiii) points out, the 'either-or thinking .. generates further binaries: phonics or whole language, bottom-up or top down, back to basics or meaning making, popular culture or the literary canon, genre approaches to writing or progressive approaches and so on ad infinitum'. She joins Brandt and Clinton's (2002) call for a theoretical position that can accommodate both camps, in particular allowing that literacy may involve something abstract without reifying it. Thankfully the deadlock has seen some signs of breaking. James Gee (2015) welcomes the possible compromise in the field provided by recent developments in psychology which see cognition as embodied and situated and recognize that the mind may be a great deal more 'social' than once thought.

Meanwhile, the NLS (New Literacy Studies) or ideological model of literacy (Street, 1984; Scribner and Cole, 1981; Heath, 1983; Barton and Hamilton, 1998) has succumbed to various critiques. (See Table 1 for the main differences between the autonomous and ideological models of literacy, with literacy in the former seen as a discrete set of skills and in the latter as culturally-embedded social practice, only susceptible to analysis and observation in local contexts.)

The problems of the New Literacy Studies model have been laid out by several commentators such as Brandt and Clinton (2002) and Simon (2005) and acknowledged by Brian Street (2005) himself, namely that it is relativistic often to the point of paternalism (Bhola, 1984), that it is not relevant to policy and practice and that it doesn't take account of the transcontextual, global nature of current literacy practices and their trajectories (Kell, 2015) across time and space. Another critique of the model is that it is setting up a false dichotomy. Stromquist (2006: 143) argues that the autonomous and ideological positions may not be mutually exclusive after all and that 'literacy does enable people to

process information that is more detailed, deliberate and coherent than oral communication’.

Table 1: Differences between autonomous and ideological views of literacy

INSTRUMENTALIST/AUTONOMOUS MODELS	CRITICAL OR SOCIOCITICAL LITERACY/ SOCIOCULTURAL/IDEOLOGICAL MODEL/NEW LITERACY STUDIES
Focus on skills	Focus on practices
Distant, abstract	Local, contextualised
Defined by those in power	Defined by the particular circumstances it is practised in
Concentrates on individual cognitive processes and associated with ‘progress, civilization, individual liberty and social mobility’ (Street, 1984: 29)	Situated, relational - stresses individual’s subjectivity and links to local community
Empty vessel pedagogy, banking concept, reproductive pedagogy	Constructivist, performative, transformative pedagogy
Connects literacy to hegemonic elite, dominant status quo. Privileges middle class children, who have received ‘cultivation’ style of parenting (Lareau, 2003)	Connects literacy to social justice. Values ‘informal’ literacies (Moss, 2005) of those children who have had ‘natural growth’ style of parenting (Lareau, 2003)
Mainly takes place in school: ‘academic literacy’, ‘dominant literacies’ (Barton and Hamilton, 1998)	Often takes place out of school: ‘vernacular literacies’ (Barton and Hamilton, 1998; Hall and Coles, 2001: 20)

A large number of NLS studies have been carried out as anthropological studies. For Collins and Blot (2003), a significant problem is that considerations of power are largely absent in these ethnographies of literacy. By way of example they cite Heath’s (1983) failure to tie in her micro-level analysis of literacy to federal policy edicts. Street himself (2005: 10) points out, in the introduction to a book of case studies, *Literacy across Educational Contexts*, that most people working in the field note an important caveat to NLS: namely that ‘it is not enough to simply advocate ‘local’ languages and literacies without regard to the practical and power needs of students in these contexts’. This is what Janks refers to as the ‘access paradox’, namely:

How does one provide access to dominant forms, while at the same time valuing and promoting the diverse languages and literacies of our students and in the broader society? If we provide students with access

to dominant forms, this contributes to maintaining the dominance of these forms. If on the other hand, we deny students access, we perpetuate their marginalisation in a society that continues to recognise the value and importance of these forms. (Janks, 2010: 24)

Many teachers are motivated by a drive to provide children from all social groups with access to the language of power and, in practice, that involves acknowledging the value of some potentially dominant, 'official' literacy over 'informal' literacies (Moss, 2005). As Rob Simon (2005: 126) points out, 'at worst socially situated theories of literacy may have exaggerated the significance of local context, creating...a widening gap between deeply contextualized ethnographies of literacy and generalizable programmatic and practical concerns'. This is certainly a problem for those studying literacy within schooled contexts and the reason why this thesis is engaged in the search for new theories which account for structure and power relations and the transcontextual (Brandt and Clinton 2002).

The NLS theoretical model has been found lacking in its ability to connect to broader social theories and account for 'the threads and traces of other times and places that play out in any literacy event' (Burnett et al., 2014b: 92). More recently, discussion has focused on how the bounded literacy event is no longer significantly explanatory, given that 'online texts may intensify opportunities for overlaying different experiences as the looser boundaries (spatial and temporal) associated with digital texts seem to enhance possibilities for movement within and across .. spaces' (Burnett et al., 2014b: 95). The next section will discuss newly emerging theoretical positions which are being articulated in response to these critiques and position this work within and among them.

3.3 Current theoretical rejoinders

Several themes emerge in recent academic writing about literacy which seeks both to reappraise previous models and to account for a changed 'world of intensified mobility and ceaseless flows of people, objects, ideas and

information across spaces and boundaries' (Kell, 2015: 74). Notions of literacy in motion (Rampton and Blommaert, 2011), dynamism (Potter and McDougall, 2017) and the constantly changing patterns evoked by the metaphor of the kaleidoscope (Davies, 2014) are at the forefront, with this thesis being located in the subset of Potter and McDougall's dynamic literacies that deal with relationality, namely the complex interplay between people and objects - the sociomateriality of literacy. Work in this field of relational literacies includes recent discussions by Burnett et al. (2014b) and Burnett (2015) on materiality and immateriality on whose 'theoretical shoulders' (Archer: 1998: 357) this work hopes to clamber, although as the reflexive aside later in the chapter (3.4) will show, the route which led to sociomateriality was a very different one from Burnett et al.'s.

One common current theme is a concern that previous accounts of literacy were unbalanced, having either paid too little attention to the social, undertheorized the material or failed to account for the importance of time and space. As Potter and McDougall (2017) note, analyses which focus on digital literacies or media literacy often do not take enough account of the social and idealise or tend to glamourise the role of technology as discussed in the previous chapter. Meanwhile analyses in the field of New Literacy Studies which focus on the ideological (Street, 1984) including communities of practice theories (Lave and Wenger, 1991) do not take sufficient account of the material. The focus on multimodality in texts (Kress and Jewitt, 2003) has been a welcome rejoinder although as Pahl et al. (2006: 1) point out there are 'ideological lacunae' between it and New Literacy Studies. This thesis acknowledges the important way in which multi-modal analysis, with its attention to modes such as gesture and gaze, has refocused attention on embodiment in literacy learning. Flewitt et al. (2009: 231) explain how 'detailed multimodal analysis has offered a framework for unravelling how the physical layout of resources and embodied action in socially organized spaces contribute to the realization of meaning in educational settings'. This point is taken up by Merchant (2014) as he analyses the haptic nature of reading practices with digital technology.

In recent years, a move away from representationalist accounts is accompanied by an acknowledgement that analyses which are text-centric do not tell the whole story (Leander and Boldt, 2013; Burnett et al., 2014b). Studied in isolation, texts become 'cultural freeze frames' (Leander and Boldt, 2013: 36) with no spatial or temporal dynamic. This is a problem when looking at the relationship between digital technology and literacy since one of the key new features of the digital is that it alters our experiences of space and time, allowing asynchronous communication in and across different spaces.

This work follows Leander and Boldt (2013) in the critique of the pedagogy of multiliteracies and its assumptions that change comes from intertextuality rather than interaction with the material environment. The New London Group (1996: 88) described transformed practice as 'transfer in meaning-making practices which puts the transformed meaning to work in other contexts or cultural sites'. In accounts which focus on intertextuality as the change agent, identity development is analysed in relation to the way texts are recombined, remixed or remediated. This discursive-centric notion of subjectivity ignores the affective dimension, the way affect emerges as a result of our interaction with the environment and each other. By contrast immaterial (Burnett et al., 2014b) and sociomaterial analyses can account for *affect* and its role in the emergence of literacy, something which Vass (2007), Maybin (2013) and Burnett and Bailey (2014) believe has been missing in social accounts of literacy.

The turn towards the material and relational goes back at least as far as Brandt and Clinton's (2002: 335) seminal critique of the limits of Brian Street's ideological model in which they advocated paying 'more attention to the material dimensions of literacy, its durability, its capacity to connect, mediate, represent, and hold together multiple interests'. One of their most influential concepts was that of

identifying sponsors at scenes of reading and writing [which] links humans and things in at least two important ways. First, we can always ask questions about the literacy materials in a setting. How did they get there? Who paid for them or provided them, delivered them, or imposed

them? Who is responsible for them? How are they controlled or shared? What is the cost or obligation to the user for using them? Answers to such questions will provide additional clues to how one context for literacy is linked to other contexts. Tracing sponsorship illuminates how things in a setting serve as surrogates for the interests of absent others. This kind of analysis allows more specific tracing of power differentials flowing through literacy practices. (Brandt and Clinton 2002: 351)

In addition to putting forward the concepts of literacy sponsors to point up power relations in literacy practices, and attempting to account for 'the transcontextualized and transcontextualising potentials of literacy' (ibid: 337), they also introduce the idea of 'folding in' (ibid: 354). This concept of Latour's (1996) invokes the metaphor of the shepherd penning in his sheep in order to enhance and improve his ability to effectively carry out his role. The addition of the fence (or fold) extends the hours during which he is able to protect his sheep from harm. So our relationship with material objects in literacy practices can extend and enhance our capacity to communicate. As Latour (1996: 239) observes, 'any time an interaction has temporal and spatial extension, it is because one has shared it with non-humans'. Deleuze's (2001) metaphor of folding which Burnett and Merchant (2014) draw on is different, linking as it does to the idea of overlapping or layering.

For Pahl and Escott (2015: 490), 'to see literacies as material is to see them as tied to space and place, and to a sensory experience'. Literacy emerges from the material environment which frames the objects and spaces where literacy practices take place. Material objects within that environment are often a source of inspiration for meaning-making as Pahl and Rowsell discuss in their work on artifactual literacies (2010). Literacy is then materialized again in physical texts.

Thus new developments in the theoretical field seek to incorporate the material, temporal and spatial components of literacy while also accounting for social elements and the role of intention and affect. Several commentators have been involved in adducing ontological theories to underpin the study of

literacy, looking to sociological models such as Actor Network Theory (Mary Hamilton, 2012: 10) to provide a framework, 'a social reality that is complex and dynamic'. As will be discussed further in the following chapter, Actor Network Theory treats technological and social actors equally and has been criticised for being more descriptive than theoretical and failing to account adequately for power. Orlikowski and Scott (2008: 24) note: 'ANT does not account very well for the role and influence of institutions, in particular, for how institutional conditions shape recurrent action, even as they are constituted by them'. Kell (2015: 78) extends the New Literacy Studies theoretical framework by drawing on the way Activity Theory foregrounds human agency in a way that Actor Network Theory does not. She stresses the importance of how 'people "make things happen" ... through projecting meaning making across space and time'. Human agency is an important empirical referent in this thesis and for this reason Actor Network Theory has not been chosen as an ontological underpinning.

Burnett and Merchant (2014), Kuby and Vaughn (2015) and Leander and Boldt (2013) all look to the work of French philosopher, Gilles Deleuze, who sees the world as an ever-changing assemblage of objects, people and institutions which form relations and connections in *unexpected* ways. As Muller and Schurr (2016) explain, ANT and assemblage theory have much in common but there are several crucial theoretical and methodological differences. ANT is better at describing *spatiality* and has several mechanisms such as 'translation' and the 'immutable mobile' which theorise a relationship between the distant and the close-to-home and allow transcontextualisation. Assemblage theory, on the other hand, has a better metaphysical account of the *temporal* dimension and can account for change, although this change is often aleatory and unexpected. It allows for the role of potentialities or tendencies which can influence outcomes rather than focusing on the here-and-now as ANT does. This is because assemblage theory better accounts for exteriority (calling it the virtual i.e. what is not visible or 'actual' as it is called in ANT parlance). In addition, assemblage theory allows for the affective dimension to have a role in the development of relations between the social and the material.

Burnett proposes the concept of *immateriality* to explain what is not visible.

‘Materialities’ ... relate to the stuff which is physically present as we make meanings, such as bodies, screens, artefacts and texts.

‘Immaterialities’ are those things that are materially absent or intangible but central to meaning-making: associations, memories, feelings and imaginings as well as all the events and processes that have led up to the production of the things that are physically present. (Burnett, 2015: 520)

This thesis proposes the concept of *sociomateriality* rather than *immateriality* but has many of the same foci: on the *relational*, on *process* over product, on *materiality* and *embodiment* and on *emergence*. Where it may differ is in its analysis of the temporal and spatial dimensions of literacy – the first because its analysis of change/transformation is different. For Leander and Boldt (2013) building on Deleuze and Guattari (1987), the concept of emergence is important and is linked to *potentials*, in particular a body’s ‘immediate, unfolding relation to its own nonpresent potential to vary’ (Leander and Boldt, 2013: 40) and in turn to *affect* – the joy of the unexpected. For Burnett and Bailey (2014: 65), ‘a focus on emergence is liberating. It shifts us away from products to processes allowing us to consider the ephemeral and apparently inconsequential’. Emergence is also important to sociomateriality as I characterize it but from a different theoretical starting point – critical realism (see below 3.5), one which foregrounds the possibility of transformation rather than the impromptu. The choice of this ontological starting point reflects the point of view of a teacher-researcher, under pressure to see if an intervention is worthwhile, a position that is necessarily different from that of academic researchers who can analyse complexity as it emerges or unfolds.

From this viewpoint, emergence is contingent on the properties which social and material entities already bring with them to the relationship. These potentials or affordances may lie dormant or they may be brought to life depending on other actors. As James Gee (2015: 102) notes: ‘print has had certain tendencies or affordances that certain sponsors or catalysts could

unleash. And the same must be said for digital media'. (A fuller account of the problematized notion of affordances will be given in the next chapter.)

Despite the enormous headway made by theories of immateriality in providing an account of online and offline literacy practices, Burnett issues a challenge:

There is more work to be done to explore how materialities and immaterialities intersect and diverge and how this plays out for meaning making by individuals and groups. For example, do notions of gender, class, ethnicity and (dis)ability map onto (im)material relations, the kinds of meanings that are made, and the kinds of meanings that are recognised? If so, how? And what are the means through which literacy comes to appear singular and fixed in educational practice, curricula and policy? (Burnett, 2015: 529)

This thesis will attempt to examine some of these questions by using a theoretical framework that can account for structure and agency. It follows Potter (2012) and Kell (2015) in the view that agency and voice are important factors in the development of literacy. Chapter 5 will look further at theories of agency, examining in particular how agency is connected with the spaces and places in which literacy practices take place. It will theorise the Third Space (Gutiérrez, 2008) using critical realism.

3.4 Reflexive aside – the route to sociomateriality

Before becoming a teacher, I was very little aware of what a rich and contested term literacy was. I had an understanding of the terms literate and illiterate – a simple binary of *can* or *cannot* but had little idea of where the cut-off point was. For an initial teacher, *literacy* (as English has been called in English primary schools) can mean a lesson that many children (especially boys) and some teachers often dread. It's often harder to master both as pupil and a teacher than maths, with the criteria for success in teaching and learning more opaque.

I found the ideological model hard to grasp and bafflingly remote from the context I was working in. Only after all the empirical work has been done and

analysed has it come to make sense. My first instinct in researching literacy was to follow paths which allowed for accommodation between the autonomous and ideological models of literacy, a way of seeing it 'as both contextualized and transcontextual' (Simon, 2005: 126). My initial move was to look, as Street (2005) and Simon (2005) have both done, at Anthony Giddens's notion of disembedding mechanisms to help with this. Giddens (1990: 22) distinguishes between two types of disembedding mechanisms or abstract systems- '*symbolic tokens*' and '*expert systems*'. For him, expert systems are

systems of technical accomplishment or professional expertise that organise large areas of the material and social environments in which we live today...[E.G.] lawyers, architects, ...A layperson has faith in the authenticity of the expert knowledge which they apply...an expert system provides 'guarantees' of expectations across distanced time-space. (Giddens, 1990: 27-28)

Defining literacy as an *expert system* seemed to have several advantages and allow some of the criticisms of both ideological and autonomous models to be addressed. Giddens describes how an expert system can be trans-contextual, something which the ideological model can't account for. However, Giddens's expert systems can be also be re-contextualised and so resist criticism of being distant and abstract. In addition, abstract systems can both de-skill and re-skill lay people.

The reappropriation of knowledge and control on the part of lay actors is a basic aspect of what I have sometimes termed the 'dialectic of control'. ...Everyday skill and knowledgeability ...stands in dialectical connection to the expropriating effects of abstract systems, continually influencing and reshaping the very impact of such systems on day-to-day existence. What is involved is not just re-appropriation but, in some circumstances and contexts, *empowerment*. (Giddens, 1991: 138-9)

Such an acknowledgement of power relations seemed an important step towards resolving the deficiencies of both autonomous and ideological models. However, despite these advantages of seeing literacy as a disembedding

mechanism, Giddens's expert systems are at root primarily about technical knowledge or expertise, about rules. This led me to look at his macro-level theory, structuration as a way of accounting for social contexts and practices.

For Giddens (1984), structure and interaction are a mutually constitutive duality. This 'duality' of structure and agency (Giddens, 1979a: 69) describes both how agents are influenced by and can influence structures, both how they can exert power and have power exerted on them. In order for agents to exert power, they need to interact with resources, *allocative resources* which are 'material resources involved in the generation of power including the natural environment and physical artifacts' and *authoritative resources*, which are 'non-material resources involved in the generation of power, deriving from the capability of harnessing the activities of human beings' (Giddens, 1984: 373). Just like Actor Network Theory, structuration operates in the here-and-now without a theory of antecedent conditions and sees structure as only possible in its enactment or instantiation.

Structuration at first seemed to allow for a 'third way', the possibility of a model of literacy incorporating rules and practices that treads a middle path between the autonomous model at one end of the spectrum and the ideological model at the other (see Fig. 5).



Figure 5: Literacy: a 'Third Way'?

However, structuration theory has come under considerable criticism as both theory and methodology. Critiques of the theory include that a definition of practice-based social systems is incomplete (Cohen, 1989), that Giddens's concept of structure is 'loose and abstract' (Held and Thompson, 1989), and, perhaps most influentially, that structure and agency are analytically distinct and cannot be conflated (Margaret Archer, 1995). It has also been criticized (something acknowledged by Giddens himself) for failing to provide methodological and empirical tools for researchers. As Archer (1998: 356) notes, 'Social theory has to be useful and usable...a purely theoretical taming of the vexing beast may give a warm inner glow of ontological rectitude but is cold comfort to practical social analysts'.

This detour via Giddens's structuration theory led to the work of two people whose work in very different disciplines has been considerably influenced by it - Wanda Orlikowski's (2007) elaboration of sociomateriality in the discipline of Information Systems and Management (as discussed in the next chapter) and Margaret Archer's development of critical realist ontology in the field of sociology (1995, 1998, 2000).

3.5 Literacy and critical realism

Archer developed the work of Giddens into what has become known as critical realism. Her work, also influenced by Roy Bhaskar's, differs from structuration in that it posits a temporal dimension to an interaction. This is because of the existence of 'prior emergent properties ...[which] condition subsequent interaction' (Archer, 1998: 360). Archer uses the example of knowledge and culture to flesh out the point:

If we think of culture, knowledge was certainly activity dependent for its genesis and elaboration. Nevertheless, once recorded (chiselled into runes or gathering dust in the British Museum), it constitutes knowledge without a current knowing subject. It is knowledge because it retains the dispositional character to be understood ... the old recipe, if

workable, will still work if tried a hundred years later when someone rediscovers it and has the motive to try it. In this case they activate it which is very different from saying that they instantiate it, for the item in question does not *become* real, true or useful simply because someone tries it out. (Archer, 1998: 364)

For critical realists then, structures pre-exist or predate the actions which transform them whereas for structuration (and other conflationist ontologies such as ANT), they only exist through their instantiation.

Instead of everything happening in the here-and-now, there is a clear *before*, *during* (process of transformation) and an *after* (transformed state). For Bhaskar (1995: 90), 'social practice is always, so to speak *restructuration*' (1983: 85). A key concept developed by Margaret Archer to characterize the idea of transformation is the process of *morphogenesis* which leads to emergent entities.

Morphogenesis is the principle that certain forces are necessarily required for an entity to form. It is not enough to have the constitutive elements of an entity simply "together", it is also necessary to have a particular set of forces present that form the elements into a particular relationship (Hardy, 2010: 82).

Emergent entities always have properties that make them more than a sum of their constituent parts. The example often used is water which has properties (such as wetness and the power to extinguish fire) that are different from the properties of oxygen and hydrogen of which is composed. Transformative pedagogy calls for morphogenesis. Teachers need to look out for opportunities for this, for the emergent properties (or causal powers) that will bring this about. What are the mechanisms that might or do bring about change?

For Brandt and Clinton (2002: 344), literacy's thingness posits it as a 'technology – and even as an agent'. For critical realism, literacy is entangled with bodies and objects as it is in other relational theories such as Actor Network Theory and assemblage theory but it gains 'thingness' (Brandt and

Clinton, 2002: 353) without being abstract or static. If literacy is seen as an emergent entity, it can be dynamic and ever-changing but it will be both the outcome of change and subject to further evolutionary forces all the time, every time it comes into contact with an emergent entity, either human or material. Literacy thus gains thingness while being very far removed from the abstraction of the autonomous model of literacy. James Gee (2015: 21) asks whether literacy is ‘one thing with predictable effects (or at least affordances) or is it many different things in different contexts and cultures?’ Using critical realism and the idea of emergent entities allows us to potentially have it both ways. Literacy can emerge as something different in different contexts while having some potentials or affordances that cross contexts – we may be able to have our conceptual cake and eat it after all.

3.6 Conclusion

To conclude, literacy researchers are looking to philosophy to help better theorise this slippery concept. Figure 6 shows the different emphases of these relational theories.

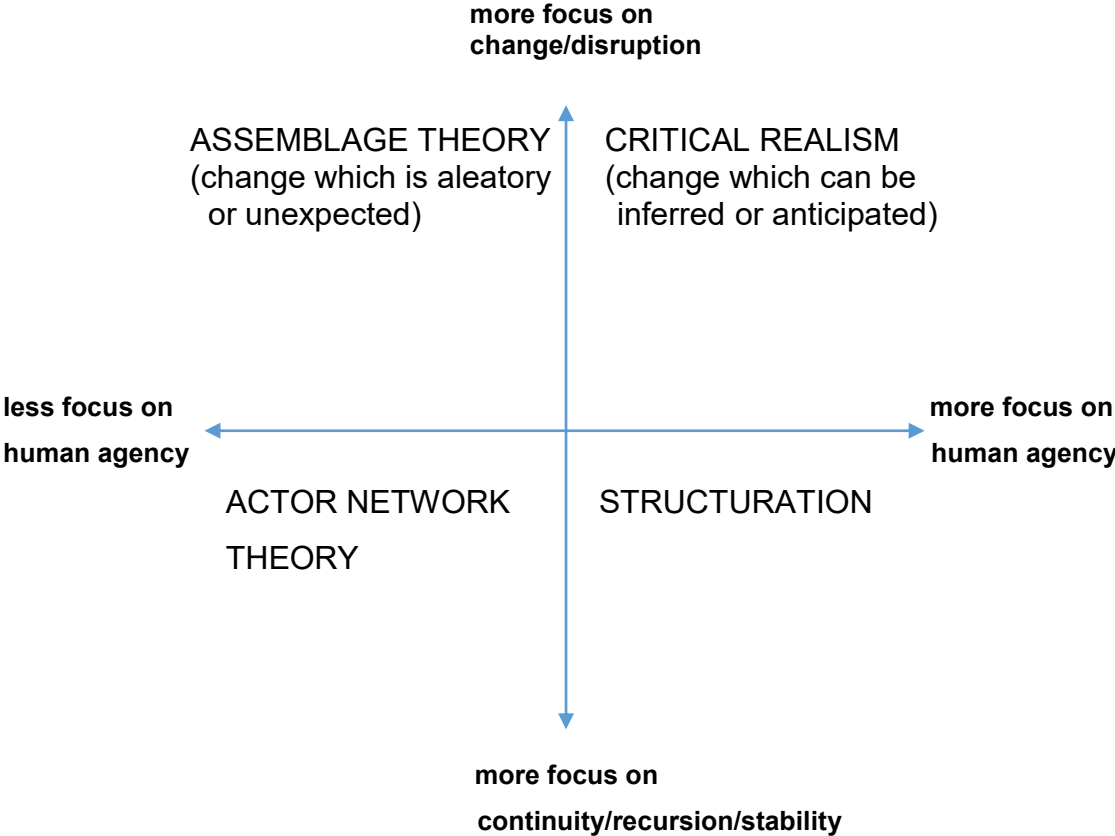


Figure 6: Relational theories quadrant

But we are all involved in the same endeavor, reflecting on the post-modern project, moving forward together after decades of navel-gazing and turning our attention to the non-subjective and material. In fact, we are to all intents and purposes members of the same family, engaged in fraternal or sororal dialectic. I am indebted to Timothy Rutzou for an idea about how Postmodernism in its various forms (particularly the Deleuzian) and critical realism can work in tandem which he proposes in his PhD thesis *'In pursuit of the Real: Postmodernism and Critical Realism'* (2015). He talks of critical realism as Apollo to Postmodernism's Dionysus. Of Zeus's two sons, Apollo is the sensible, prosaic one concerned with the natural order and Dionysus the more spirited and imaginative - complementary characters, neither more valuable than the other, no need to choose between them.

Those who know the Nietzschean characterisation of these two Gods of Parnassus will be well aware of the false choice on offer; Apollo and Dionysus constitute two aspects of a divine fraternity. Apollo cannot live without Dionysus and Dionysus cannot live without Apollo. Whenever the Dionysian forces become too disruptive, we are safe to assume Apollo is not far off, calling us to attend to forms and rescuing us from the indeterminate mystical unity of Dionysus. Wherever the frozen forms of Apollo linger, the Dionysian flood swells, ready to surge and sweep away Apollonian fixity. But more than this, both forces require one another; both forces operate best in conjunction, developing alongside one another, often in fierce but familial opposition, forcing the other into more energetic production. (Rutzou, 2015: 12)

Perhaps the development of theory around materiality could be seen in the same vein - as a family with two strands, one Apollonian (the CR strand) and one Dionysian (the Deleuzian strand) - neither true rivals nor opposites but two sides of the same coin, the Deleuzian strand celebrating carnival and paradox and the Apollonian practicality. The two can be reconciled if they are seen as part of a joint endeavor. 'Like two moments of a dialectic the Apollonian task of creating form and limit is coupled with the perpetual Dionysian task of overcoming form and limit' (Rutzou, 2015:12).

When discussing theories of relationality, the trope of contingency is often bandied about. The word **contingent** has two different definitions i) unexpected or subject to chance and ii) dependent on something else in order to happen. Perhaps the differing uses of this word can help pinpoint the difference between the theories – for Deleuzian emergence, contingent means *accidental* or *unpredictable*; for CR, emergence is about *dependence* or *conditionality* – entities depend on each other’s properties and powers for emergence to occur. This different appropriation of the same term mirrors the difference in preferences and approaches to life of the Dionysian versus the Apollonian - sensibility and sense.

Relational theorists often invoke metaphors of weaving. Latour himself (1996: 235) in *On Interobjectivity* suggests that objects can be ‘comrades, colleagues, partners, accomplices or associates in the weaving of social life’. For Burnett and Merchant (2014: 46) the focus of analysis for literacy researchers should be not an event but an ‘interconnecting mesh of emotions, materialities, activities and intentionalities’ in which ‘the text acts as a node around which different sites, different activities and different meanings are momentarily articulated’. Deleuze and Guattari (1987: 86) use the loom as a metaphor to describe the assemblage in a state of constant flux. ‘The warp of the instantaneous transformations is always inserted into the woof [or weft] of the continuous modifications’ they say, characterizing language in motion.

By contrast, Margaret Archer (1998: 362) posits a metaphor for society which could equally be applied to literacy and shows how differently change is theorized by critical realism. The image is of a hand-me-down garment, mended and patched ‘the refurbishing performed at different times, until the current garment now contains precious little of the original material. It has been completely refashioned ...until perhaps the original only figures as ‘something old’ in a new wedding outfit’. The advantage of this image is that it ‘points up disjunctions, the ability to inspect different parts, the purpose and times at which they were introduced, by whom and how these were treated by the next recipient’.

In the next chapter, we will see how sociomateriality is being taken by critical realists to refer to the imbrication or intertwining of the social and material rather than their mutual constitution. Archer (1998: 360) reiterates the importance of this at a practical and methodological level: 'conditions and actions have to be examinable separately in order to talk about conditioned action'. The focus of analysis is then the imbrication - both in itself and how it comes about.

So how can critical realism help us theorize the development of literacy in the classroom? For critical realists,

human action is conceived as both enabled and constrained by social structures but this action in turn reproduces or transforms those structures. Critical realism thus offers a meta-theoretical paradigm for explaining the 'generative mechanisms' that shape agency and the social relations that this agency in turn reproduces and transforms. (Rees and Gatenby, 2014: 137)

Crucially, by acknowledging the existence of antecedent conditions which affect current action, it gives us a way of taking into account the sociomaterial conditions that children bring into the classroom which affect their agency, their capacity to make decisions and act independently and their ability to develop as writers. It allows us to focus on the importance of the 'agency of children and young people as a factor in their successful learning' (Potter, 2012: 179). It also gives us a way of accounting for power structures, local, national and global, which provide the context for the exerting of agency.

For Judith Solsken, writing more than a quarter of a century ago,

questions about the learning and teaching of literacy and about disparities in the achievement of literacy cannot be addressed without taking into account that each and every literacy transaction is a moment of self-definition in which people take action within and upon their relations with other people. (Solsken, 1993: 8)

Today we would add that their relations with the material environment are also important when we are asking questions about the learning and teaching of literacy. Chapter 5 will look at how critical realism accounts for the notions of identity and agency. The following chapter will explore in more detail the concept of sociomateriality and its theoretical underpinnings.

Chapter 4 - Sociomateriality

4.1 Sociomateriality - why now?

The term *sociomateriality* first appeared in the academic lexicon just over a decade ago. Jones (2014: 895) notes that the adjective *socio-material* (with or without hyphen) has cropped up occasionally in journal articles ‘in disciplines such as human geography, sociology and economics’ since the late 1950s. However, a theory of sociomateriality has been evolving only since 2007 when Wanda Orlikowski of MIT started to develop it. Orlikowski expresses her debt to recent theorizing in sociology and Science and Technology studies, including work on *actor networks* (Callon, 1986; Latour, 1992 and 2005), *mangle of practice* (Pickering 1995) and *relational materiality* (Law 2004) as well as acknowledging the work of Anne-Marie Mol (2002), Karen Barad (2003) and Lucy Suchman (2007). Her focus is to theorize ‘the constitutive entanglement of the social and the material in everyday organizational life’ (Orlikowski, 2007: 1438).

The sociomaterial turn is widely attributed by commentators to developments both in social theory and in technology. Fenwick and Edwards (2013) and Burrell (2012) see it as a reaction to previous canons, ‘a critique and alternative to analytical approaches that position language and discourse as principally constituting the social world’ (Burrell, 2012: 316). It is also seen as an attempt to find unifying principles to override age-old binaries between idealism and realism, constructivism and determinism, agency and structure, addressing the ‘inherent tension .. associated with whether the focus is on the interactive order (the situated character of human encounters) versus the structural order (the stable conditions that shape and reproduce social practices)’ (Kallinikos et al., 2012:10).

The sharpening of focus on the material is also a reaction to a tradition which ‘largely disregards, downplays, or takes for granted the materiality of organizations’ (Orlikowski, 2007: 1436) and an intellectual response to the commonsense view that recent developments in technology represent something new, both at a material and at a social level. Digital technology is

widely thought to introduce new layers to our world, resulting in the complex interplay between the social and the material elucidated by Kitchin:

Cyberspaces do not replace geographic spaces, nor do they destroy space and time. Rather, cyberspaces coexist with geographic spaces providing a new layer of virtual sites superimposed over geographic spaces...At the points of this interplay [between virtual worlds and geographic spaces], spatial transformations are affecting social relations while simultaneously social transformations are affecting spatial relations. (Kitchin, 1998: 403)

The spatial turn will be examined and theorized more fully in Chapter 5.

Comprehensive reviews of the extant literature on sociomateriality have already been undertaken by others such Fenwick et al. (2011) who look at its emergence in a variety of frameworks from activity theory to Actor Network Theory. Jones (2014) and Parmiggiani and Mikalsen (2013) have analysed the various journal articles on sociomateriality to identify common themes across the body of work. Emerging themes identified include *relationality*, *materiality*, *performance* or *enactment*, *practices* and *agency* (both human and non-human).

Jones (2014: 918) makes a distinction between 'strong' and 'weak' sociomateriality. In the former, the 'strong' version, in work inspired by Actor Network Theory and agential realism, the social and material are inseparable or mutually constitutive. However, there is an emerging body of work which critiques this approach, seeing the two as intertwined but distinct and using critical realism to frame its argument.

I prefer not to use the terms 'strong' and 'weak' because of the implication that one is a better theory or methodology. I believe that both are valid approaches. Whichever tradition a researcher chooses to position their work in will reflect their world view. This thesis celebrates the idea of sociomateriality as a broad church and suggests approaching it in the spirit of plurality.

Although this thesis owes a huge debt to the work in Actor Network Theory (recognizing that it is a broad theoretical tradition which has spawned many varieties as well as a 'post' or 'after-ANT' movement), it has chosen critical realism to underpin its methodology. What is common to both approaches is a conviction that the social and material are inter-related. What separates the approaches is the characterization of these inter-relations. For Orlikowski (2007: 1437) and the 'strong' sociomateriality strand, 'the social and the material are considered to be inextricably related – there is no social that is not also material, and no material that is not also social.' Although this approach yields powerful insights into what is happening, I have found that it could not answer the burning question which plagued my empirical work: why do the social and material appear to come together in a way that benefits some children but not others? This is the question that encouraged me to seek out an ontology and a method that see the social and material as related but separate. Critical realism allows us to separate out the social and material and analyse not just what happens when they are intertwined but also how and why they come to be intertwined in the first place. Critical realism has garnered disciples across several faculties in recent years (from economics to international relations) and been refined and developed to add focus and rigour both in theory (Archer, 2003) and methodology (Edwards et al., 2014). It is also increasingly being linked to the work of Pierre Bourdieu (Decoteau, 2015; Elder Vass, 2010), who, as Ignatow and Robinson (2017: 962) explain, was ahead of his times in paying attention 'to conceptual developments occurring in other disciplines', looking for an ontological framework that could combine realism with social constructionism and devising concepts that 'were intended to support empirical research practice'.

Sociomateriality has the potential to be an important theoretical and methodological tool for educational researchers. The rest of this chapter will look first at its development in the critical realist tradition and then at empirical studies which relate to education. It will argue that using critical realism has the following clear advantages: i) characterizing the relationship between the social and the material as imbricated, woven or overlapping rather than co-

constitutive clears up some theoretical blockages and can be applied empirically; ii) defining the social and material as separate though always inter-related makes a clear definition of materiality possible, one which clarifies the difference between physical and virtual objects in terms of their *form* and *function*; iii) it is a theory which can account for the role of human agency as something different from non-human agency, deriving as it does from intentions and choices; iv) it allows a move beyond practice theory to more explanatory theory; v) it provides theoretical justification for reviving the embattled notion of affordances seeing them as processual or relational rather than through an essentialist or constructivist lens.

John Law (2004) in *After Method: Mess in social science research* and Burnett and Merchant (2014), following in the tradition of Gilles Deleuze, rightly point to the mess and complexity which show up when you observe sociomaterial networks or assemblages in detail. As Fenwick et al. (2011: 166) note, sociomateriality can give us the tools to go beyond 'asserting that practices are complex or messy, [by providing] us with ways of engaging that complexity in detail to understand better its implication for learning, education and change'. What is of particular interest for educators and policy makers about sociomaterial approaches is that they 'show the interdependence of entities, which not only decentres the knowing subject but also unseats the idealizations of enterprising, autonomous knowers.' (Fenwick and Edwards, 2013: 60-1). This has profound implications for our pedagogy and the way we manage our schools and classrooms. As teachers, we know it is possible to create an environment which fosters enterprise and autonomy. But how much richer our professional judgement if we have a tool to unpick what exactly are the circumstances which generate these qualities in learners as well as to understand why the same conditions will by no means work for all children.

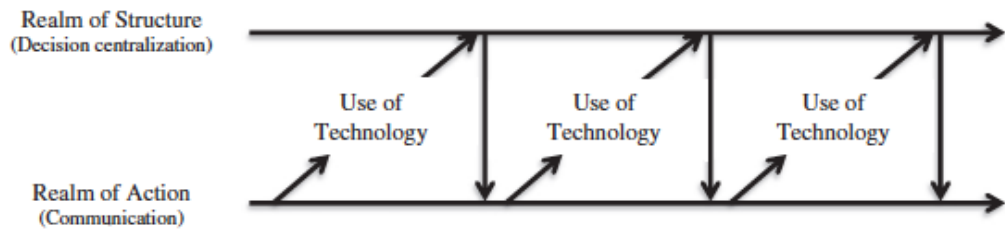
With sociomateriality (underpinned by critical realism) as a theoretical and methodological guide, I will examine the possibility that new forms of learning and literacy emerge when digital technology is added to the mix. Andrew Barry (2001: 148-9), drawing on the work of Foucault in *Discipline and Punish* (1975) makes the distinction between 'disciplinary technology' which

‘manipulates and manages the body in detail’ and ‘interactive technology’ which ‘is intended to channel and excite the curiosity of the body and its senses’. Time and time again children in my classroom have waxed lyrical about how much more fun it is to use the laptops than write by hand. Can a sociomaterial approach shed light on whether this sense of enjoyment can translate into learning?

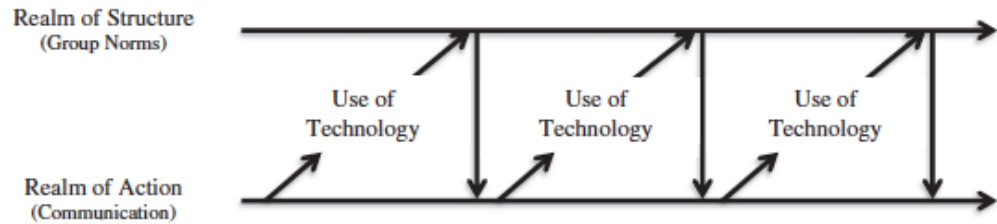
4.2 Evolution of the debate on sociomateriality

At this point it is worth elaborating a bit on the robust debate in the field of Information Systems and Management on how to theorize the use of technology in organisations. During the 1970s, the field was dominated by deterministic arguments – technology was seen to determine structural change. Throughout the 1980s and 1990s, researchers started to employ Giddens’s structuration theory (1984) as an underpinning theory. Since Giddens’s theory was acknowledged by Giddens himself to be difficult to apply empirically, these works followed a variety of formulations. Structuration theory posits a recursive relationship between the realms of abstract structure and day-to-day action. In the early applications of structuration theory to technology in organizations, the technology use mediates between structure and action (communication) (Barley, 1986; Poole and De Sanctis, 1990) – that is to say technology-use alters communication which gradually changes structures. Leonardi’s (2013) diagram (Figure 7) shows clearly the evolution of the debate from the 1980s to the year 2000 and the different interpretations and implementations of structuration theory.

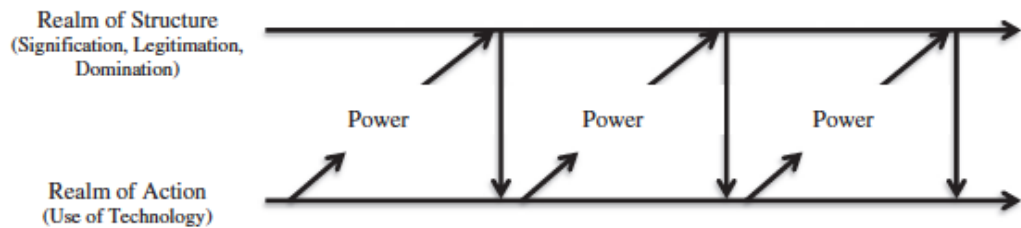
A. Technology-Triggered Structural Change Model (Barley, 1986)



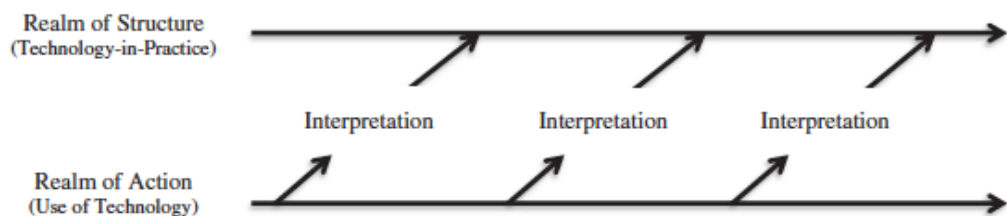
B. Adaptive Structuration Theory (Poole and DeSanctis, 1990)



C. Duality of Technology Model (Orlikowski, 1992)



D. Practice Lens (Orlikowski, 2000)



Note: Horizontal arrows signify flows through time. Diagonal arrows signify actions' slow but cumulative constitution of structure. Vertical arrows signify structures' more direct and immediate effect on quotidian interaction

Fig. 1. Influential structurational approaches of technology use in organizations.

Figure 7: Evolution of the use of structuration in IS (Leonardi, 2013)

Orlikowski, in her 1992 *duality of technology* model, uses structuration theory to radically change the premise. In this early work, the realm of agency is no longer characterized by interpersonal communication as it had been in Barley and Poole and De Sanctis's models. Instead technology use is not the pivot between structure and agency but is agency or action itself. Technology use

becomes the day-to-day action which aggregates into structure. In 2000, Orlikowski develops this idea with her influential *practice lens* work. In this formulation, structure is nothing more than situated practice as she explains:

I propose an extension to the structural perspective on technology that develops a practice lens to examine how people, as they interact with a technology in their ongoing practices, enact structures which shape their emergent and situated use of that technology. Viewing the use of technology as a process of enactment enables a deeper understanding of the constitutive role of social practices in the ongoing use and change of technologies in the workplace. (Orlikowski, 2000: 404)

This development bears a striking resemblance to the evolution of the debate on how to conceptualise literacy which was discussed in the previous chapter as Table 2 shows. The technologies-in-practice theory has been very influential (in a similar way to work in New Literacy Studies which looks at literacy as a situated practice).

However, during the 2000s, various critiques emerged (including from Orlikowski herself) which acknowledge that this account was too biased toward the social. The terms ‘technology use’ and ‘technology in practice’ foreground the social while paying scant attention to the features of the technology. The concept of sociomateriality evolved from these critiques as Leonardi explains:

The use of the term “sociomaterial” also builds on the structural approaches to technology, which showed that all technological artifacts were created through social interaction among people and that any effects that those technological artifacts could have on the organization of work were buffered and shaped by social interaction. Thus by moving from “technology use” and “technological artifact” to “social,” “material” and ultimately “sociomaterial” one could make the philosophical statement that all action that constitutes organization is no more or less social than it is material. (Leonardi, 2013: 65)

Table 2: Theoretical parallels in the evolution of the debate in the Information Systems and Literacy fields

<u>THEORETICAL PARALLELS</u>			
Years	IS field	Literacy	Responses/Critiques
1970s/early 80s	Technology seen as structural determinant	Goody (1977) and Ong's (1982) autonomous model of literacy	Criticised for deterministic claims (Scribner and Cole, 1981; Heath, 1983; Street, 1984)
Mid-Late 80s	Use of Giddens's structuration theory (Barley, 1986) to explain the use of technology in organisations	Development of Brian Street's (1984) ideological model of literacy	Widely built on and developed
1990s and early 2000s	Orlikowski's practice lens (2000)	Focus on literacy as situated practice (New Literacy Studies) developed by many notably James Gee (1991)	Came to be criticized for over-reliance on practice and context (Brandt and Clinton, 2002) and failure to account for the material.
Late 2000s	Agential realism used to explain the relationship between the social and the material (Orlikowski, 2007)	Actor Network Theory used to develop theory (Hamilton, 2012; Potter and McDougall, 2017)	Still influential and widely used but subject to critique from the critical realist camp (Leonardi, 2013; Faulkner and Runde, 2010 and 2012; Mutch, 2013)

Orlikowski (2007), seeking a philosophical theory to underpin her work, was drawn to the agential realism of Karen Barad (1999) which denies any ontological separation between the social and the material. This view has dominated the field and has parallels with the use of Actor Network Theory in other disciplines including the theorizing of literacy (Hamilton, 2012). The uptake of sociomateriality in education (Fenwick and Edwards, 2013; Thompson, 2014; Dezuanni, 2015; Gourlay and Oliver, 2013) generally uses the premises of Actor Network Theory to underpin it. However as Leonardi (2013), Faulkner and Runde (2010, 2012) and Mutch (2013) have pointed out,

several problems emerge when the social and material are seen as inseparable. The emerging themes around sociomateriality, as noted at the beginning of the chapter are, *relationality*, *materiality*, *performance* or *enactment*, *practices* and *agency* (both human and non-human). In each of these areas however, seeing the social and material as constitutively entangled seems to cause theoretical and practical difficulties. For example, if agential realists and those using Actor Network Theory see the social and material as co-constitutive, is it theoretically possible for them to have separate definitions for *material* or *materiality*? Let us look first at the vexed issue of *relationality* before coming to a more detailed definition of *material* and *materiality* (including where the virtual or digital fit in).

4.3 Advantages of critical realism – relationality

Leonardi (2013), Faulkner and Runde (2010, 2012) and Mutch (2013), working in the field of Information Systems and Management, take critical realism as their ontological lodestar. There are several ways in which I believe this can help move the concept of sociomateriality forward. The key issue for them is a philosophical problem with the *relationality* between the social and material implicit in agential realism. For Orlikowski and Scott (2008: 455), ‘people and things only exist in relation to each other’. Critical realists acknowledge it can be true that X is only X because of Y and Y is only Y because of X - what they call ‘internal relations’ (Faulkner and Runde, 2010: 20; Lawson 2003: 227-228). However, they do not believe that all entities are related in this way and point to examples of entities that exist separately to their relationship with each other (external relations). They contend that the Forties oil field existed before its discovery by humans as did what they call ‘brute objects e.g. the moon, Mount Everest and Tyrannosaurus Rex’ (Faulkner and Runde, 2012: 61) which do not rely on human observation or intentionality. They also argue that postmen and dogs, while enjoying a famously antipathetic relationship, cannot be seen as existing only in relation to each other.

Leonardi applies Faulkner and Runde’s argument about postmen and dogs to ‘the realm of technology and organizing’ arguing that:

a weather scientist may normally use a computational modeling tool to estimate wind velocity, but the use of a computational tool does not make a weather scientistnor does a weather scientist make a computational tool (the tool could be used to compute many other things, such as energy dissipation in structures). The problem with treating all relationships as mutually constitutive is that the analyst overlooks how and why phenomena get put into relationship with each other, and, consequently, how their relationship might change phenomena other than themselves. (Leonardi, 2013: 67)

The same logic could be applied to the classroom – the use of an interactive whiteboard doesn't make a teacher any more than a teacher makes an interactive whiteboard; pencils, erasers, exercise books (and laptops or iPads) while often put in a relationship with pupils do not only exist in relation to them. Acknowledging the possibility of external relations not only gives us analytical traction when trying to explain phenomena but also gives us the philosophical justification for seeing the social and material as distinct:

While there do seem to be many things that are both social and material, not least all material technological objects, it seems to us that there are many material things whose nature and existence does not seem to presuppose human involvement (e.g. mineral deposits that are exploited in the construction of human artefacts and which there is very good reason to believe had already been in existence long before the emergence of homo sapiens). More to the point in the present context, we would also claim that there exist things that are social but not material, e.g. human ideas, social rules (including assignments of function), relations and positions. (Faulkner and Runde, 2012: 22)

Even those espousing ANT or agential realism acknowledge the existence of common sense thoughts about reality – ‘that there is an external reality – *independent of our actions and especially of our perceptions....that this external reality comes before us, that it precedes us that ...[it] is composed of a set of definite forms or relations*’ (Law: 2004, 24). Orlikowski (2010) and Barad (2003), working in the agential realism tradition, acknowledge that we

may be forced for practical or analytical reasons to draw distinctions between humans and objects which they call ‘agential cuts (in contrast to the Cartesian cut – an inherent distinction – between subject and object)’ (Barad: 2003: 815). Their interest, however, is in how reality is constructed through representation: how we, as observers, construct what we see as we try to represent it.

It is worth making clear here that critical realism may be ontologically realist but it is an epistemologically relativist position. As Maxwell (2012: 9) notes, although ‘critical realism rejects the idea of ‘multiple realities,’ in the sense of independent and incommensurable worlds that are socially constructed by different individuals or societies, it is quite compatible with the idea that there are different valid perspectives on reality’. This is one of the most important contributions of critical realism. It also impacts on methodology which will be explored more fully in Chapter 7.

4.4 Advantages of critical realism – materiality, performance, practice and agency

A second problem, when the social and the material are seen as inseparable, is that scholars are nevertheless forced at the outset to define *material* or *materiality*. This of course begs the question of whether the material is something separate after all. Even those working within the Actor Network tradition (Sørensen, 2009; John Law, 2004) acknowledge some of the contradictions they encounter. As Sørensen points out:

Scholars use the notions of heterogeneities, hybrids, and cyborgs.. to refer to the ambiguous ontology of any human or thing, because they are inescapably constructed out of social as well as material components. Although these insights are original and important, they present us with an aching double bind: They insist that nothing is either material or social, yet they talk about the socio-material and about mixes of the social and material. Even the terms “heterogeneity,” “hybrid,” and “cyborg” imply that somewhere inside these amalgams are entities that are ontologically social or material. (Sørensen, 2009: 60)

Terms like heterogenous and hybrid imply a *combination*, a *composite* or a *compound* of different elements. As Sørensen rightly points out, it is difficult for something to be considered a cross-breed or mixture of different parts if you don't acknowledge that those parts exist separately. Of course, for critical realists, with their focus on intertwining of the social and the material rather than their mutual constitution, this problem does not arise.

Critical realism offers an alternative conception of the relationship between the social and the material to Orlikowski's which sees them as constitutively entangled. Leonardi (2013) puts forward the metaphor of imbrication to illustrate how the social and the material could be separate but intertwined. The word imbrication implies *overlapping* rather than *interpenetration* and comes from the Roman word for a semi-cylindrical tile, the imbrex (b) which was combined on roofs with a flat-shaped tile called the tegula (a) as seen in Figure 8.

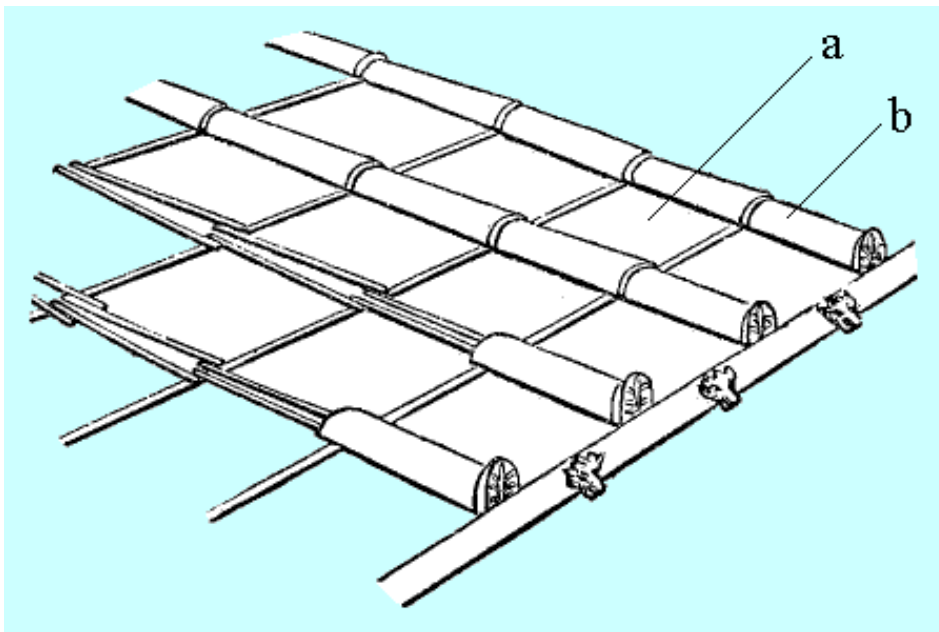


Figure 8: Diagram showing tegula (a) and imbrex (b) on a Roman roof

The imbrices were overlaid on the joints between the tegulae. It is important to note that the two components of these roofs retain their distinctive shape, function and characteristics while being part of the same structure. So, in the critical realist account of sociomateriality, the social and the material are seen as distinct but connected.

Several advantages of using critical realism have been outlined here including a way out of contradictions that arise when looking at *relationality* and *materiality*. Using critical realism to move beyond a focus on *practice* is also important. As Margaret Archer (1995) points out in her critique of structuration, a conflation of the realm of structure and action can make empirical studies descriptive rather than explanatory. The focus on *practice* allows a detailed description of what is happening, of what the sociomaterial performative accomplishment is. However, it does not offer the chance to examine the relative influence of the social and material separately or to explain how or why the social and material come to be intertwined. For those espousing Actor Network Theory or agential realism, the focus is on what is *performed* or *enacted* in sociomaterial assemblages or situated practices in the here and now. These theoretical traditions struggle to take into account a theory of temporality – an account of how past circumstances or actions may influence the current situation and an analysis of how practices are sustained across time. For me, working as a teacher researcher within existing power and curriculum structures, critical realism provides a clearer route for analysing practices across time and for taking into account past sociomaterial imbrications.

As Leonardi (2013) and Fenwick and Edwards (2013) note, sociomaterial approaches that focus on practice can make the notion of *agency* problematic. ‘Some refuse to use it altogether with its associations of human individuals’ intention, initiative and exercises of power. Others like Bennett (2010) and Callon (2005) write of agency as relational, possible only through assemblages’ (Fenwick and Edwards, 2013: 59). The critical realist tradition on the other hand deals extensively with agency and how it interacts with structure. One of the critiques of Actor Network Theory is that it sees human and the non-human actors as equally important - as symmetrical. Critical realism does not – it acknowledges that while both human and non-human actors have agency, intention can only be ascribed to humans.

What is actually imbricated over time is social agency (which manifests itself in a groups' goals and intentions) and material agency (the things

a technology can do that are not entirely under the control of users). Social and material agencies, though both capabilities for action, differ, phenomenologically with respect to intention. This view of agencies imbricating over time is wholly compatible with a critical realist perspective, which works to elucidate the nature of agency, because it is through the exercise of agency that action and structure are put into conversation (Archer, 2000). The recognition that one type of agency (material) is the property of something that exists in the realm of structure while another type of agency (social) exists in the realm of action is quite different than the agential realist view that 'agencies are not attributes [of either humans or technologies] but ongoing reconfigurations of the world' (Barad, 2003: 818) (Leonardi, 2013:70).

For this study, the question of children's agency is key. Critical realism allows for an exploration of the relationship between structure and opportunities for action. Therefore, working in a school, within existing power structures, with the aim of empowering children to learn effectively, it seems to offer a good theoretical framework.

4.5 What is materiality?

Having laid the groundwork for a philosophical structure that allows the material to be something distinct from the social - that allows for them to be externally related rather than internally - what definition of *material* and *materiality* are we going to adopt? Jones (2014: 890) notes that, 'even within Orlikowski's account, materiality is variously identified with the material, artefacts, the tangible, machine, nonhuman, and technology'.

The primary definitions of the adjective *material* in most dictionaries talk of the relationship to matter and the importance of the physical or corporeal. Secondary (or political, cultural or socio-cultural) definitions where *material* is synonymous with 'significant' or 'consumerist' are not relevant to the current line of argument. Several commentators (Leonardi, 2013; Dezuanni, 2015)

using the term sociomateriality are keen to include virtual/digital artefacts in their definition of what is material. If we are to include intangible 'stuff' such as data and algorithms, we need to look further at the relationship between the material and the digital. Commentators like Dezuanni point to the materiality which underlies both the consumption and production of digital media:

Digital video footage is not material in the same way that celluloid film is material—it cannot be physically held, cut and spliced together—but this does not mean digital video lacks materiality. As Hayles argues (2003, p. 276), the materiality of print and electronic books may differ but electronic books require material interaction to be read, just as print books do. In a similar way, digital video footage and other digital materials require material interaction with hardware and software to be produced, circulated and used. (Dezuanni, 2015: 423)

Faulkner and Runde (2010: 4) make the distinction between material and non-material objects. For them, non-material (technological) objects include digital artefacts as well as literacy artefacts such as recipes and other 'syntactic entities'. Non-material objects will be non-material in their being but will have material 'bearers' i.e. the objects on which they are inscribed. To develop this useful idea, I will look at the difference between *matter*, *form* and *function*.

Both material and non-material objects are composed of *matter* and take a certain *form*. However our awareness and understanding of them is framed by their *function*. A hammer, a car and a computer are rarely seen by us as an agglomeration of molecules but rather as tools which serve a particular purpose. Several commentators point up the way in which digital technology foregrounds *function* even further over *matter* and *form*, changing the boundaries of social action.

Function is so deeply immersed in our ordinary awareness of objects that it is only with an effort, as Searle (1995) notes, that we can transcend the perception of technological objects as functional entities and see, say, a motor vehicle, a bath tub, a screwdriver as a material bundle, a collection, as it were, of molecules. These feelings of wonderment are reinforced by reflection on the nature of software,

surely one of the most interesting technological developments in the history of technology. For, ultimately, software is no other thing than a series of logical instructions, possible to execute by a machine.

(Kallinikos, Leonardi and Nardi, 2012: 8)

There is certainly something awe-inspiring, if mind-boggling, about code which produces action on the material world via the digital or apparently immaterial world.

So is there an ontological difference between material objects and digital artefacts and if so, what is it? What appears to distinguish the latter from the former is their *form*. Their *form* or the arrangement of their components (what Faulkner and Runde call 'structure' which I will avoid because of its other uses in structuration theory) is non-material. Whereas the *form* of a hammer is physical, the *form* of a digital artefact or literary artefact is not. It may be inscribed on a material 'bearer' but the form itself is non-material – it is syntactic.

Their *function* (what Faulkner and Runde call their identity – again I will avoid this so as not to get caught up in theories of the self) is what is socio-material. *Function* is our perception of what that object can be used for. *Form* and *function* both appear to have social aspects (for both the production and use of digital and material objects). A hammer cannot be formed into a hammer without the input of experienced metal worker any more than a piece of software can be devised without an experienced coder. Yet a hammer has a physical form whereas a digital artefact does not.

For Leonardi, the distinction between the ontological status of material and non-material objects is less important than the fact that for both types of object, the *matter* and the *form* persist across space and time:

Matter (or whatever constituent materials out of which a technology is fashioned) and form together constitute those properties of a technological artifact that do not change, by themselves, across differences in time and context. It is this combination of material and form that I call "materiality". To be clear "materiality" does not refer

solely to the materials out of which a technology is created and it is not a synonym with “physicality”. Instead when we say that we are focusing on a technology’s materiality, we are referring to the ways that its physical and/or digital materials are arranged into particular forms that endure across differences in place and time.... “materiality” ...identifies those constituent features of a technology that are (in theory) available to all users in the same way. (Leonardi, 2012: 29)

Quoting Barad (2003), Jones (2014) sees materiality as meaning something very different for the agential realists than it does for the critical realists. Because the former do not accept the existence of enduring properties across time and space, materiality for them cannot be equated with what is physical but only with what *materializes* in the ‘constitutive entanglement of the social and material’ (Orlikowski 2007: 1435). For the critical realists however, materiality involves enduring properties of *matter* and *form*. But critical to their theoretical framework is the idea of *function* or material agency – not what the object ‘is’ but what it can ‘do’. The matter and form of an object may persist across contexts but people’s perceptions of whether or not it can help a person achieve their goals differs across contexts.

4.6 Revisiting affordances

The idea of possibilities or potentials brings us neatly to the contested term of affordances. As Mansour et al. (2013: 2) explain, ‘the notion of affordance describes the linkage between the capabilities afforded by the materiality of technological artifacts and actor’s intentions and goals’. Martin Oliver made the convincing argument in 2005 that the term affordances had too many competing definitions to be analytically useful and suggested abandoning it. He clearly pointed out the pitfalls of the essentialist position espoused by Gibson (1979) who originally coined the term and the constructivist theory of affordances advanced in response by Norman (1988):

The critiques advanced here suggest that its value is limited unless we are willing to abandon constructivist values in order to explore ‘inherent properties’ in a positivistic sense. The concept either allows us to talk

about technology as part of the environment (Gibson's sense), but not about minds; or is rendered analytically ineffectual by recognition of the cultural, constructive nature of learning (Norman). (Oliver, 2005: 412)

In Gibson's original definition, he lays the ground for a relational theory of affordances:

The affordances of the environment ... are in a sense objective, real and physical. ... An affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet, neither. An affordance points both ways, to the environment and to the observer. (Gibson, 1979: 129)

However, as Oliver (2005: 403) points out, Gibson's elaboration of his position doesn't sustain this relational view but invites us to interpret affordances 'either as works of imagination or as positivistic properties of objects'. Recent developments in the critical realist field have led to new insights on how we can theorize a relational view of affordances and in the process possibly resurrect the concept. The methodology chapter (Chapter 7) will give more details about the specific terminology of critical realism and how it can be applied and interpreted in the empirical field. One of the key terms is 'generative mechanism', which can be seen, as Pawson (2008) explains, as a *process* which depends on human choices and responses to objects or structures.

Volkoff and Strong use a critical realist ontology to argue that affordances are a type of generative mechanism. 'An affordance arises from the relation between a structure or object and a goal-directed actor or actors. It needs to be triggered or actualized by that actor. ... Thus, affordances are a type or subset of generative mechanisms' (Volkoff and Strong, 2013: 823).

The critical realist account gives a plausible account of affordances as

processes rather than perceptions or properties, thus sidestepping Oliver's critique.

Given the nature of an information system as a complex social structure, its generative mechanisms may be seen as social processes that are capable of bringing about or preventing some change in all or part of the system. Such processes comprise structures, activities and events that interact to produce or inhibit the change. (McGrath, 2013:6)

One of Oliver's critiques of Gibson's idea of affordances is his inconsistent account of how we come to perceive them. In one of his chapters in *Critical Realism: Essential Readings*, Roy Bhaskar explains how we come to know generative mechanisms:

The world consists of mechanisms not events. Such mechanisms combine to generate the flux of phenomena that constitute the actual states and happenings of the world... They are not unknowable, although knowledge of them depends upon a rare blending of intellectual, practico-technical and perceptual skills. They are not artificial constructs. But neither are they Platonic forms. For they can become manifest to men in experience. (Bhaskar, 1998: 34-5)

The work of unpicking these mechanisms then is painstaking, intuitive and necessarily fallible but as Chapter 7 (Methodology) will explain, there are methods that make it feasible.

To put this in the context of sociomateriality, Leonardi (2013) and Mansour et al. (2013) provide a useful way forward – for them, as critical realists, the imbrication of social and material agencies results in the enactment of affordances. The concept of affordances is one that researchers of technology have been reluctant to abandon. Many of the studies of wikis cited in the literature review in the previous chapter talked of the affordances of the wikis. As Kress (2004: 25) suggests, 'modes have materiality ... The affordances of modes are always the product of the material and its inherent logics, and of the work of cultures'. It seems that sociomateriality underpinned by critical realism can give the concept a new lease of life underpinned by a theoretical coherence.

4.7 Empirical studies using sociomateriality

Studies using the concept of sociomateriality in education are few and far between and tend to involve Actor Network Theory or agential realism as their underpinning theory. They range from studies which focus on sociomaterial practice to pinpoint weaknesses in practice (Fenwick, 2014; Gourlay and Oliver, 2013) or to understand how knowledge is constructed (Fenwick, 2014; Dezuanni, 2015; Sørensen, 2009) to those which focus on the role of objects and artefacts as actors in the network to find the hidden effects of the digital (Adams and Thompson, 2016; Thompson, 2014; Introna and Hayes, 2011).

Tara Fenwick is one of the pioneers of a sociomaterial approach to educational research, using it to look at the practices of different professionals or para-professionals involved in emergency mental health care. She acknowledges the contribution of community of practice and cultural historical activity theories in her field while arguing that sociomaterial theories expand the focus.

'Materiality is particularly highlighted, revealing ways that bodies, substances, settings and objects combine to actually embed and mobilise knowledge, materialise learning, and exert political capacity. Capacity as well as expertise is understood to be distributed' (Fenwick, 2014: 265). For the study, she interviews paramedics, police and Accident and Emergency staff in a case study in the North of England. Following the work of Anne-Marie Mol (2002), Fenwick argues that multiple worlds are produced rather than multiple world-views. One of her key findings is the difficulty of meshing together these different sociomaterial assemblages which 'enact diverse knowledges' (Fenwick, 2014: 278). Fenwick's sociomaterial analysis allows her to pinpoint weaknesses in current inter-professional practice and suggest improvements. She argues that:

important knowledge becomes materialised and mobilised through bodies, substances, settings and devices. Different practice groups can be understood in terms of the very different sociomaterial worlds that they enact... The necessary passages across these worlds may depend upon material as well as dialogic interventions. Sharing knowledge

might require more than practitioners learning to verbally articulate the categories they use... While such talk is important, the material assemblages are also important to make visible, juxtapose, juggle, and even bridge. (Fenwick, 2014: 278)

Gourlay and Oliver also use Actor Network Theory and a 'sociomaterial lens' to make suggestions on how to improve practice. In their study of the 'digital literacy' practices of research and PGCE students at the Institute of Education, they are struck by

the potential of a sociomaterial approach...to shed light on practices at a fine-grained and situated level... A sociomaterial analysis, paying attention to the detail of 'lived practice', can identify areas of struggle or breakdown, such as the problems caused by library computers taking 10–20 minutes to log into. Addressing such issues will result in networks of material and digital objects that students can co-opt more easily to meet their needs, by revealing areas of unhelpful challenge and delay, and also by providing a more detailed understanding of actual student practices and sites of struggle. (Gourlay and Oliver, 2013: 94)

In the field of adult learning, Catherine Adams and Terri Lynn Thompson (2016: 3-4) also use a sociomaterial approach underpinned by ANT to advocate 'interviewing objects' as well as people 'to gain insight into the otherwise hidden effects of the digital'. They link sociomateriality to posthumanism which is about moving beyond anthropocentrism and 'about questioning and transgressing some of our most prized dichotomies of thought: subject and object, public and private, active and passive, human and machine'. Thompson (2014: 94) is building on her work analysing the practices of self-employed workers involved in informal online learning communities, 'organic gatherings of people online formed because of an interest in exploring a topic with others'. During this research she 'interviews' the delete button, using the old French etymology of 'interview' to foreground the notion of viewing or looking at something rather than talking to it. For her, the delete button is 'an actor-network which knits an array of human and non-

human entities together' (ibid: 97). She finds the workers in her study navigating the fine line between 'control and chaos' online. Thompson looks at the importance of delete button assemblages both in 'stemming the tide of information pushing itself onto screens' (ibid: 95) and in managing digital footprints. This analysis leads her to find complexity associated with what we might perceive as a mundane object and a call for better pedagogy 'to enable worker-learners to engage in workable networks' (ibid: 108). These studies using ANT are important in that they re-focus attention on the material. However, they differ from critical realist studies in two ways: firstly, they describe what is happening rather than seeking to discuss why things are so. Secondly, as discussed above (section 4.4), ANT ascribes symmetry to the social and the material whereas critical realism puts greater weight on the social, taking into account the intentionality of human actors.

There is one sociomaterial study in higher education which uses Leonardi's metaphor of imbrication. The study by Introna and Hayes (2011) uses an ANT sociomaterial perspective although, as discussed earlier in this chapter, Leonardi is keen to put some distance between his version of sociomateriality and the ANT/agential realism version. Their work also uncovers hidden effects and unintended outcomes of technology. The research looks at the interaction between plagiarism detection software (Turnitin) and Greek Higher Education students in the UK. Introna and Hayes find evidence of a cultural bias in the software, with Greek students more likely to be accused of plagiarism than UK students. They conclude that

in sociomaterial imbrications, intentionalities (agencies) emerge that cannot be reduced to any actor as such. They are the performative outcome of the sociomaterial nexus. This is a very important conclusion with many significant implications for those who design and implement information systems. These IS design and implementation projects often desire to implement a particular political programme – whether it is efficiency, communication, coordination or any other strategic intention. What our research suggests is that such a programme is not 'in the hands' of any single actor. Furthermore, that any such programmes may have many unintentional outcomes that may

be contradictory or even subvert the very intention the programme supposes. (Introna and Hayes, 2011: 120)

Introna and Hayes, despite the use of the imbrication metaphor, are committed to an idea of the social and material as co-constitutive. The findings, had critical realism been used, would have been framed differently - in terms of the mechanisms that generated the outcomes they saw.

Finally, two studies in primary education are of relevance to this work. From an ANT perspective, the sociomaterial turn makes us ask 'what practice is constituted through this socio-material arrangement, what knowledge comes about, what kinds of pupils and teachers are created, and what learning is achieved' (Sørensen, 2009: 2). Sørensen's (2009) study in a Danish primary school *The Materiality of Learning: Technology, Knowledge in Educational Practice* makes a critical theoretical leap that takes us beyond situatedness and has been a crucial inspiration to this work. She explains clearly how knowledge and learning are not just reducible to situated practice.

Lave and Wenger emphasize that 'abstract' and 'concrete' knowledge do not reside in the world as distinct forms of knowledge. They insist that only one form of knowledge and one form of learning exist: situated knowledge and situated learning. I agree that knowledge is a practical achievement, but as we shall see this does not necessarily contradict the idea that different forms of knowledge – for example, concrete and abstract – emerge in practice. (Sørensen, 2009: 90)

Dezuanni in his four-year investigation in a Queensland primary school uses ANT to focus on the importance of material practices in the construction of media literacy knowledge. For Dezuanni (2015: 417), 'digital media literacy... consists of sociomaterial practices and knowledge assemblages that emerge from the broader media literacy field'. He argues 'that students need to learn both material practices and conceptual understandings as they undertake media production and analysis to develop digital media literacies' (ibid: 434) and sets out a model of curriculum development that incorporates this insight.

This thesis focuses on developing writing using internet technology rather than developing digital media literacy skills such as video production. It uses critical realism rather than Actor Network Theory to understand the relationship between the social and the material. Nevertheless, a focus on the object and artefacts used as well as the social relations that take place both in and out of cyberspace will be of importance in understanding what contributes to the emergence of literacy.

4.8 Conclusion

To conclude, sociomaterial research is still in its infancy and has had very few applications in the field of education, particularly primary education. It has the potential to provide a clear theoretical framework to what as discussed in Chapter 2, is starting to be seen by some as a deficient account of technology in education. Most educational studies using sociomateriality are underpinned by Actor Network Theory. However, for reasons outlined in this chapter, this work will take a different tack and use critical realism, just as some in the field of Information Systems and Management are starting to do. Again, it is worth stressing that the choice of philosophical ‘underlabourer’ depends very much on the researcher’s world view and focus of analysis. This work owes a huge debt to the work done in the tradition of ANT and agential realism in developing theories both of literacy and technology use in organizations. However, as Fenwick et al. note:

ANT studies historically have not taken up issues of social justice or of inequities produced through constructions of gender, race, ableism etc. This is partly because ANT would view such constructions as effects of particular orderings and flows of material rather than as anterior structures. (Fenwick et al., 2011: 116)

Issues of social justice and inequity are key to many educators and for this reason, in the realist tradition of distinguished commentators such as Pierre Bourdieu and Basil Bernstein, this work will use a theoretical framework that allows examination of these structures. The next chapter will look at the way

critical realists theorise the structure/agency debate as well as the development of identity.

Chapter 5 - Space, Agency, Identity and Transformative Pedagogy

'No matter where Calvin was literally in time and space, he could infuse his material and social constraints into opportunities for agency.' (Haas Dyson and Dewayani, 2013: 262).

'The ongoing production of space-time is a rich process that draws upon multiple material and discursive resources, is imbued with relations of power, and is malleable through individual agency and imagination.' (Leander and McKim, 2003: 212)

5.1 Introduction

This chapter is an attempt to align the notion of sociomateriality to discussions of Third Space and the development of children's agency which have characterized recent writing about literacy such as Potter and McDougall's (2017) exploration of literacies as *dynamic*. Proponents of NLS and those who follow their path, adopting Street's ideological model of literacy, have been concerned, as proponents of critical realism are, with social justice. Brandt and Clinton (2002), quoting Barton and Hamilton (1998), make clear how a focus on agency became so important in this tradition.

It tended to highlight ideological struggle as central to any act of literacy, as non-elite groups in context were seen to alter and resist forms of literacy associated with dominant institutions and social groups.

"Agency" became an important rallying cry in social practice perspectives, as local readers and writers were observed making meaning of literacy on their own turf and on their own terms (Barton & Hamilton, 1998; Hamilton, Barton & Ivanic, 1994; Mace, 1988). (Brandt and Clinton, 2002: 342)

But what does the exercise of agency really entail and how is it linked to Third Space? Many accounts make assumptions about agency without a theory of how it is developed. Those using Actor Network Theory run into trouble here because under ANT, as Margaret Archer (2014: 2) points out, the agent is no more than a 'sentient actant'. So whether in first, second or third space, there is little theoretical possibility of him or her actually being able to exercise agency in terms of *making a difference*. In this chapter, we will theorise agency, its relationship both with structure and with identity, using the ontology

of social realism. Margaret Archer's theory of agency and identity is unequivocal in bringing 'real people' back from the brink of extinction they have been driven to under post-modernism and characterizing them 'as robust and stratified beings' (Archer, 2000: 306). She foregrounds affect, the development of emotions, as the key to the way our identities emerge and we will follow her in doing this. But how is this relevant to the Third Space? How is this helpful in the classroom? In the final section of the chapter, we will look at the link between pedagogy, identity and space.

5.2 Third Space and literacy

Third Space theory has been developed in different ways in a variety of disciplines ranging from geography to post-colonial studies. It holds particular appeal for literacy researchers for two reasons:

i) the possibility of examining literacy in bounded local contexts, as Shirley Brice Heath (1983) did in her seminal work on literacy *events*, is no longer an option, now that the 'virtual, multi-lingual and multi-modal' require us 'to see literacy as multi-sited' (Pahl and Burnett, 2013: 3). Those studying digital technology in the classroom (Marsh, 2005; Potter and McDougall, 2017; Rowe and Miller, 2017) are required to account for both online and offline literacy practices in a variety of sites and have had to look at introducing spatial metaphors to their analysis. This has focused attention on ideas about Third Space developed by cultural geographers such as Edward Soja (1996);

ii) at the same time, those interested in ideas of social justice (such as Gutiérrez, 2008; Moje, 2013; Potter and McDougall, 2017) have been drawn to the Third Space theory of Bhabha (1984) which foregrounds culture and identity and in particular the notion of hybridity, the possibility of bringing oppositional categories together and challenging dominant cultural narratives.

The idea of *third space* situates hybrid identities and practices in physical, social, and cultural spaces. The notion of third space is not intended to convey an actual or singular space in which hybridity emerges, but the space of the in-between, the place where different practices collide, where identities are recognized and people are

positioned, and where possibilities of new ideas reside. (Moje, 2013: 361)

While Bhabha's concept of hybridity is purely metaphorical, for Gutiérrez (2013, xxxii), 'hybrid practices ...are material realities'. So what is the ontological status of Third Space? I will argue that by going back, like Moje (2013) does, to the concept of Thirdness developed by one of critical realism's forefathers, C S Peirce, in the 1890s, we can get on some firm theoretical footing with the following five propositions: a) Third Space is relational; b) Third Space is socio-material; c) Third Space allows for the emergence of practices, identities and knowledge building that are potentially transformative; d) Third Space, like all space, is constantly being constructed through the action that derives from human agency; e) Third Space, like all space, has an affective component which links to identity development. These last two propositions involve an individual's reflexivity as they react with their material environment.

Recent theorizing in geography (especially by Doreen Massey, 2005, developed by Leander et al., 2010) is similar to work on sociomateriality in that it sees space as something relational, heterogeneous and in a state of perpetual construction. The spatial or topological turn traces its tracks back to work by Henri Lefebvre (1991) and Edward Soja (1996) both of whom, it could be argued, were looking for ways to develop theories which take us beyond discourse (where Bhabha's theory is located), ways of aligning the material or real world with the imaginary. For Lefebvre,

the study of space offers an answer according to which the social relations of production have a social existence to the extent that they have a spatial existence; they project themselves into a space, becoming inscribed there, and in the process producing that space itself. Failing this, these relations would remain in the realm of 'pure' abstraction - that is to say, in the realm of representations and hence..of ideology: the realm of verbalism verbiage and...empty words (Lefebvre, 1991: 129).

In his eponymous book, Soja (1996: 6) describes *Third Space* 'as a creative recombination and extension, one that builds on a Firstspace perspective that is focused on the "real" material world and a Secondspace perspective that interprets this reality through "imagined" representations of spatiality'. Moje et al. (2004) develop this idea so that the first space is people's embodied experience (often of marginalisation), the second space is traditional academic (privileged) discourse and the third space is somewhere where the power balance can potentially be re-shaped. For Potter and McDougall (2017), first space is home, second space is school and third space is a place in between with rich potential for pedagogy. They draw on the important work done by Gutiérrez (2008) and others in researching the literacy practices of marginalized communities. In this body of work, the Third Space is presented as a place where there is potential to improve the outcomes of such groups.

Potter and McDougall (2017) and Leander et al. (2010) suggest Actor Network Theory as an underpinning ontology. However, as suggested in the previous chapter, ANT, while good at accounting for the spatial dimension, struggles to account for the temporal. Moje (2013: 369) proposes a new metaphor of navigation to steer beyond hybridity and away from the network qua network (ANT), focussing on what 'members of the network do with and learn from their navigating practices'. Metaphors of navigation necessarily imply an ontology which takes account of trajectories over both space and time – something that critical realism is better placed to account for than Actor Network Theory. If literacy is to be seen as truly dynamic, with movement between spaces involving the potential for something new to develop over time, we may need to use, as Moje (2013) does, the concept of Thirdness developed by the American pragmatist, C.S. Peirce.

Peirce was a 19th century American logician and philosopher, whose contribution has only recently come into view largely because many of his original works were lost or missing. Peirce is known as the father of pragmatism, a school many in the critical realist camp trace their roots to. Margaret Archer acknowledges her debt to Peirce in her development of a

theory of identity and agency in *Being Human, the Problem of Agency* (2000: see especially 228-229).

In his 1890 work, *The architecture of theories* Peirce insists on an independent reality:

Three conceptions are perpetually turning up at every point in every theory of logic, and in the most rounded systems they occur in connection with one another. They are conceptions so very broad and consequently indefinite that they are hard to seize and may be easily overlooked. I call them the conceptions of First, Second, Third. First is the conception of being or existing independent of anything else. Second is the conception of being relative to, the conception of reaction with, something else. Third is the conception of mediation, whereby a first and second are brought into relation. (quoted in Eller et al., 2010: 109).

For Peirce, as Moje explains, the idea of thirdness allows something different which builds on the first and second, something emergent (to use a key concept from critical realism), something new. This is possible because of Peirce's 'concept of *abduction*... as an idea that transcends the two ends of the inductive-deductive dichotomy, a space in which new ideas were generated' (Moje, 2013: 362). The idea of abduction is important to critical realist methodology and will be explored more fully in Chapter 7.

Moje (2013) notes that Lefebvre and Soja also saw thirdness as drawing from and not simply combining different dimensions. Thirdness, on this reading, has to imply something more than a network or assemblage of the social and material:

From Soja's perspective, third space demands looking beyond binary categories of first and second spaces of the physical and social. In third space what seem to be oppositional categories can actually work together to generate new knowledge, new Discourses and new forms of literacy. (Moje, 2013: 362)

Peirce, Soja and Lefebvre all imply that the third must mean something generative, something new. Such an interpretation not only posits a relationality between the material and social but has considerable parallels to the idea of emergence as developed by critical realists. For CR, one of the most important principles is the idea of emergent entities which have properties that are more than a combination of and irreducible to the sum of their parts. We will use Soja's conception of the first and second as the physical and social and the third as a place of new possibilities through the ongoing imbrication of the first and second.

Applying a geographical lens underpinned by a realist ontology helps us move beyond sociocultural analysis and can put sociomateriality clearly in the classroom as a framework to study literacy practices. At the same time, having human geographers guide us as we research literacy practices, shines the spotlight on power and the exercise of agency as part of the mix.

As Margaret Sheehy, a literacy researcher who has developed an interest in the relationship between geography and literacy research notes:

A geographic explanation of context- the social, relational processes, imaginings, and artifacts that distinguish one classroom and one school from another – complicates context and therefore practice. When a human geographic analysis is applied to the literacy practices of classrooms, taken for granted constructs such as agency, place, space, time and resistance become entangled in relational processes and can no longer be considered separately from them. When we recognize the complexity of people's actions as part of entangled relations played out in time, we have no choice but to wrestle, not only with what students and teachers *can* do but also with what they *can't* do. Whereas, traditionally, explanations of classroom literacy concern what people actually do, Henri Lefebvre (1996) argued that the site for political action is made visible precisely at the line between the 'possible/impossible', a line made by what people can and can't do. (Sheehy, 2013: 400)

If power is about liminality, about boundaries, borders – ‘thick’ or ‘thin’ (Sheehy, 2004) crossings and barriers, then as Sheehy makes clear, what is important is finding out through close analysis of a particular place ‘what mechanisms are boundary-making and what mechanisms open up and even collapse boundaries’ (Sheehy: 2013: 405). That is precisely what this study sets out to do, using critical realism’s notion of the generative mechanism as a causal force.

5.3 Space, structure and agency

So what is the link between the spatial turn and agency and how does this align with a critical realist perspective? For Chris Butler, Lefebvre’s account has much in common with Roy Bhaskar’s:

Lefebvre argues that the social world is in a perpetual process of creation, which depends on more than the operation of abstract economic laws and social structures, requiring the active potential of human agency. This provides a model for the constant material intervention of human praxis in the dialectical transformation of social life. Note: this account is similar to the ‘transformational model of social activity’ propounded by the critical realist philosopher Roy Bhaskar. (Butler, 2012: 18)

Of course, as Jenkins and Buckingham (2017) assert in a recent volume of *the Journal of Media Literacy* dedicated solely to Agency, no discussion of it is possible in academic circles without also talking about structure, its sine qua non. Is our place fixed and determined by Bourdieusian habitus or is it malleable? For contributors to this journal, agency is about making a difference, having an effect, effecting change – within existing power structures. Buckingham suggests Giddens’s structuration theory (1979, 1984) as a way to look at the relationship between structure and agency. This study will use Margaret Archer’s (1982, 2000, 2010) development and critique of Giddens’s theories to theorise agency, in particular because of the methodological advantages.

As Archer (1995) has pointed out, any account which talks about agency without mentioning structure privileges agents – seeing them as the only determinants of collective action. This is known as *methodological individualism*. The opposite, *methodological holism* or *collectivism*, she sees as just as inadequate an account. In privileging structure, it reduces the sphere of influence of individual agents to society's dictates. While Giddens went some way to overcoming these problems with his structuration theory which sees a *duality* of structure and agency and a recursive relationship between them, Archer has criticized the 'conflation' in his theory. For her, it is impossible to study the effect of structure on agency and vice versa without seeing them as analytically distinct – her *analytical dualism*. To illustrate her view of society, Archer uses the term *morphogenetic* and explains it as follows:

The 'morpho' element is an acknowledgement that society has no pre-set form or preferred state: the 'genetic' part is a recognition that it takes its shape from, and is formed by, agents, originating from the intended and unintended consequences of their activities. (Archer, 1995:5)

With this idea of the relationship between structure and agents to guide us, it now makes sense to talk of the 'shapeshifting' of space (Potter and McDougall, 2017: 57 and 63) and the morphogenesis of literacy (Chapter 3.3). It also gives us the methodological tools to unpick the mechanisms that make the exercise of agency possible (or not) when using technology in the classroom.

Many studies, particularly in the NLS tradition, talk about agency and identity in the same breath. Identity is a key theoretical element in the fields of 'new literacies' and New Literacy Studies as well as in the debate about the uptake of technology in education (Buckingham, 2008; Lankshear and Knobel, 2003; Gee, 2015 and others). For Goldman et al.,

Identity development is an emergent process that comes with sustained participation in existing community structures and discourses....

Evidence of this process of identity emergence abounds when youth engaged in unfamiliar or newer forms of discourse collide with adult expectations, intervention or regulation. It is in these moments that we

see youth assert their agency, while making use of the community's social and cultural technologies, as they put their everyday electronic media into action. (Goldman et al., 2008: 202)

But what is the link between identity and agency? Does agency determine selfhood or is it the other way round? Once again the emergentist theories of Margaret Archer are helpful in pulling together a coherent theoretical position.

5.4 The relationship between identity and agency: the importance of reflexivity

Identity is a topic of analysis for a wide-ranging number of disciplines – from social anthropology (Barth, 1969; Cohen, 1993) through sociology (Bauman, 2004; Goffman, 1971; Giddens, 1991) and philosophy (Ryle, 1949; Harre, 1979) often tracing back to the ideas of George Herbert Mead (1934) in the fields of symbolic interactionism and pragmatism. There are accounts of identity as discourse in Cultural Studies (Hall, 1996), Discourse as identity in New Literacy Studies (Gee, 2000), identity as assemblage in Actor Network Theory (Law, 2004) through to identity as an emergent entity (Archer, 2000). It is this latter which we will develop and explore as the key to understanding what links identity and agency.

For Law (2004: 42) and other relationalist sociologists, identity is an assemblage 'a process of bundling, of assembling...in which the elements put together are not fixed in shape, do not belong to a larger pre-given list but are constructed at least in part as they are entangled together'. However, such relational theories, as Archer points out, have a 'flat ontology' which she seeks to replace with a depth ontology, something which can account for the emergent properties and powers both of social structures and of individuals and the mechanisms which underpin relations and cause new entities to emerge. Important elements of this depth ontology are the temporal dimension and the analytical distinction between agent and context. For Archer, there is a temporal sequence:

T1 – T2 – T3

T1 structural / cultural conditioning →
T2-T3 social interaction →
T4 structural / cultural elaboration or stasis

Here we see the importance of an ontology that separates out structural factors and makes them logically and temporally prior. For in this sequence, the structural/contextual or material comes first; the social interacts with it. The result which emerges may or may not be transformation (morphogenesis) depending on what the affordances and constraints (emergent properties and powers) of the material world are and how the emergent properties and powers of people interact with them. Thus, under this account, our ability to act is affected by circumstances but not fully determined by them.

Discussion of identity is generally placed in a broader discussion about society. Much of the debate in recent years about identity suggests a discourse of crisis and flux; in particular, recent discussions are replete with the tropes of liquidity and acceleration. For Bauman (2004: 76), identity is a 'warcry of individuals..or communities', driven to battle because of the erosion or 'liquefaction' of stable nation-states and corporations. Identity (whether individual or collective) can no longer be defined as it once was by a person's role in the workplace or by their nationality and under such circumstances of transience and insecurity,

identity building has taken the form of unstoppable experimentation. Experiments never end. You try one identity at a time, but so many others, as yet untried, wait round the corner for you to pick them up. ...You'll never know for sure whether the identity you are currently parading is the best you can get and the one most likely to give you the most satisfaction. (Bauman, 2004: 85)

Both Bauman with his 'liquid modernity' and Giddens (1991) with his 'high modernity', while insisting we are in an evolving state of modernity rather than a period after its demise, characterise the new state of affairs as risky. For Giddens, the key problem is epistemological. There is no longer any certainty about the veracity of knowledge. Instead there are 'systems of accumulated expertise...[which] represent multiple sources of authority, frequently internally

contested and divergent in their implications.’ It is under these conditions that the self ‘has to be reflexively made. Yet this task has to be accomplished amid a puzzling diversity of options and possibilities’ (Giddens, 1991:3). This crisis of identity was also developed in Kenneth Gergen’s (2002) populist book, *The Saturated Self*, in which he introduces the idea of multiphrenia, the condition resulting from being pulled in too many directions and having too many choices of self-expression.

Critics of Giddens, such as Richard Jenkins (2008), are quick to point out that reflexivity is not a new thing and is entrenched in religion and religious texts. Neither are periods of rapid change in the social order and resultant crises of identity anything new in the overview of history. Another critique of Giddens’ work is that the analysis is confined to the behaviour and mindset of a westernised intellectual elite.

Just as she took issue with Giddens’s structuration theory, Archer disputes the metaphors of liquidity (Bauman) and runaway juggernauts (Giddens) as effective ways to characterize modernity. What she is particularly concerned with is the weak position in which these accounts leave agency and identity. ‘As structure and culture were pulverised under the tidal bore of liquidity, so was agency condemned to serial self-reinvention’ (Archer, 2014: 1-2).

At its worst, she argues, post-modern theory has brought about ‘The Death of Humanity’ (Archer, 2000: 1). For Stuart Hall (1996, 5-6), ‘identities are points of temporary attachment to the subject positions which discursive practices construct for us.... They are the result of a successful articulation or “chaining” of the subject into the flow of discourse’. For Archer, this type of post-modern theorising where subjects are folded wholly into discourse, discernible only ever as reference rather than as referent, puts Humanity itself at risk:

At least, it is at risk in the Academy, where strident voices would dissolve the human being into discursive structures and humankind into a disembodied textualism. Outside of Academia, ordinary people act in undemolished fashion However, they are hanging on to the bare bones of agency, which are the necessary pre-conditions for human

activity rather than passivity. It is those that need reinforcing. This is not because I think that the emergence of postmodernist beings is a real possibility: far from it, they are such a contradiction in terms that they could never get out of bed. (Archer, 2000:1)

For Archer, the problem is both theoretical and ontological – theoretical because of its inadequate account of the reflexive self and ontological because of the failure to separate out entities which are ontologically distinct.

In reviving a notion of the substantial self which is nevertheless not wholly autonomous, Archer requires us to reflect on our relations with the world and with others. One of the key elements of Archer's theory of identity is the notion of reflexivity – something denied by those accounts which rob individuals of agency. She follows in and critiques the influential tradition of pragmatists and symbolic interactionists such as Mead (1934) and Goffman (1959) who examine the inner and outer in selfhood - its amalgamation of 'I' and 'me' (Mead), its construct as an interface between self-image and public image - character versus the performer (Goffman), For Mead (1934: 174-5), 'The 'I' is the response of the organism to others: the 'me' is the organized set of attitudes of others which one himself assumes'. Archer (2000: 229) takes issue with the Meadian 'Me' as 'too overburdened with social normativity because of its association with the 'generalized other''.

Goffman's (1959: 245) metaphor of dramaturgical performance, with a backstage or 'back region with its tools for shaping the body, and a front region with its fixed props' to describe our presentation of the self has been perhaps one of the most influential accounts of identity in social theory and has been the bedrock of theories of performativity and embodiment such as those of Judith Butler (1997, 1999). Goffman quotes Robert Ezra Park, who in his best-known work, *Race and Culture* noted that:

It is probably no mere historical accident that the word person, in its first meaning, is a mask. It is rather a recognition of the fact that everyone is always and everywhere, more or less consciously, playing a role....It is in these roles that we know each other; it is in these roles that we know ourselves. (Park, 1950: 249)

Goffman (1959: 16) makes the distinction between two kinds of communication: - expressions 'given' (usually) verbal, which he refers to as a narrow form of communication, and expressions 'given off ... the more theatrical and contextual kind, the non-verbal'. The idea of identity as performance has continued to hold sway with the advent of technology which Goffman could not have anticipated. Commentators such as Sherry Turkle (1996) and danah boyd (2007) have described the fluid nature of identity development in the internet age, with modern electronic communication giving people the chance to control and manage the expressions *given off*. On the other hand, the publishing by all which the Web affords gives us more of a chance to showcase our expressions 'given', the verbal, and add these to the performance.

Once again though, despite admiring Goffman's celebration of the knowledgeable and reflexive actor, Archer takes issue with the lack of ontological depth in Goffman's account:

Goffman intrigued us for two decades with the outer doings of his feisty subject, who insouciantly disported himself in the interstices of society. But the presentation of the self was all about *presentational acts* in everyday life and the account was confined to these public outworkings for the shutters came down on the self whose inner deliberations generated these performances. (Archer, 2000: 317)

Archer is concerned that for this version of the self, 'his origins, properties and powers remained immured behind the brick wall. Goffman owed us an account of the self, but left the bill unpaid, for the sources of the self remained completely shrouded' (ibid).

In response, Archer develops a sequential and nested theory of identity which emerges from our relationships with the natural order and material tools as well as with each other. Identity in this account is reducible neither to consciousness nor language but is firmly rooted in practice. She (2000: 8) draws 'upon Merleau-Ponty's account of how our embodied encounters ..give us the sense of our own continuity'. Our sense of self emerges from our first

embodied encounters with the world; our personal identity emerges from our reflexivity (in a Peircean inner conversation with ourselves) about our ongoing encounters with the natural world, material culture and other people:

social realism introduces a *stratified* view of 'the subject' whose different properties and powers (PEPs) emerge at each level. To anticipate, the four strata involved are the *self*, the *person*, the *agent* and the *actor*. The latter two are undoubtedly our 'social selves' which emerge respectively through our involuntary embroilment in society's distribution of resources and our voluntary involvement in society's role-array. However, they are themselves dependent upon the prior emergence of a *continuous sense of self* and are co-dependent with the emergence of *personal identity*, which reflectively balances its social concerns with those embedded in the natural and practical orders of reality. The emergence of our 'social selves' is something which occurs at the interface of 'structure and agency'. It is therefore necessarily relational, and for it to be properly so, then independent properties and powers have to be granted to both 'structures' and to 'agents'. (Archer, 2000: 254-5)

So personal identity must come first – we must have a sense of self and personhood before we can become agents or actors. As Archer (2000: 288) says, 'both personal and social identities are emergent and distinct, although they contributed to one another's emergence and distinctiveness'. But it is through the interaction of our properties and powers as agents and the properties and powers of the structural conditions which we find ourselves in, that we develop our social selves and the ability to make a difference – to exert agency in the way it is defined in NLS, to become what Archer calls 'actors'. The biggest benefit of the theory of emergence is that it allows for the possibility of transformation, the possibility that we can redefine our roles, as Nick Hardy, a critical realist who has examined the link between Foucault's theories and realism, explains:

This is where the "emergentist" explanation comes fully into operation: the subject is constituted by the particular power relations in the particular political and social fields in which they are present. But,

crucially, subjects do not find themselves determined by these relations (restricted, most certainly, but not determined). From an emergentist perspective this is because subjects are not wholly bound by the “form” of their constitutive power relations precisely because they have capacities that are irreducible to their constitutive relations—i.e. subjects are socially emergent entities. (Hardy, 2011: 84)

Such an ontological underpinning of the subject gives us elbow room and clout while acknowledging that we can't and don't go it alone. It makes sense of accounts of identity in the modern era by those such as Jenkins (2008) and Buckingham (2008) who see technology both transformed *by* as well as transformative *of* society. We, and the children we teach, participate within existing spheres of practices, influence and sociomaterial conditions to develop both our sense of both self and agency. This is particularly important in the teaching and learning of literacy.

Young children..build literate identities and early repertoires of practice in relation to valued artifacts and within the material culture of their everyday lives. At the same time, children's early literacy practices and identities are crosscut by the power and reach of global and local media forms. These media impact on children's developing literate selves as they shape the contexts in which young people build repertoires of practice and a sense of themselves as particular kinds of literates. (Carrington and Dowdall, 2013: 96)

But these structural powers and existing repertoires of practice as well as the artefacts all around us are far more than the backdrop. They have emergent properties with which we, with our own emergent properties, interact to develop and shape our selves, our agency and then our selves again. Structure and agency are not recursive but are related in a temporal trajectory with a spatial component. The emergentist account gives us a spatial and a temporal logic to explain how we can have exercise power and become actors. Our identities are not static but dynamic - they evolve in tandem with our ability to exercise agency.

5.5 Identity and pedagogy - the role of affect

So how can we make sense of this in the classroom? In this final section, I will argue like Gutiérrez (2013: xxix) that imagining 'learning as the development of new trajectories is fundamental to designing new possibilities, to remediate extant, and often reductive, understandings of students' linguistic repertoires of practice, their construction, both locally and historically and their possibilities in processes of learning'. Something is still missing though – something vital for the emergence of identity, vital for understanding Third Space and a key to understanding pedagogy. In bringing the self back to life, we can't ignore the importance of *affect* – the emergence of our emotions and the role these play in determining our reflexivity, our inner conversation with ourselves and hence the development of our identity. To be very clear, admitting that we have emotions does not commit us to being cognitivists or consign us to solipsism. Archer's (2000) theory of identity is very clearly set in the real world and outlines in detail the emergence of our emotions as we react with the *natural world*, then with the *practical order* where we develop feelings of performative accomplishment and finally with the *discursive order*, from our interactions with which we develop our sense of self-worth. For Archer (2000: 204), 'in seeking to answer the question. 'where does affect come from?', the solution is one which is only forthcoming in relational terms. It is from the interaction between environmental circumstances and embodied concerns'. As Hickey-Moody (2009: 274) (working in the ANT tradition) has it, the 'enmeshment of individual, "human", subjective traits.. with a non-human medium' is affect. Affect is a 'material exchange' and interestingly 'a kind of pedagogy' – a 'relational practice through which some kind of knowledge is produced' (Hickey-Moody, 2009: 273). So what is the relationship between affect, identity and pedagogy?

Our identity relies on affect and emotions in that we shape ourselves in response to feelings we have as we interact with our environment (both material and social). Thus identity has both an affective and relational component at the same time. I would like to argue that a teacher's pedagogy is also affective, reliant on empathy, also relational and also borne out of

reflexivity (awareness of one's environment and the effect of one's actions in the *practical* and *discursive* order). Pedagogy is about embodied performance and also about the teacher's identity and reflexivity. Pedagogy is emergent just as identity is and results from the teacher's most important PEP – their reflexivity.

In his discussion of agency, Kuskis (2017) talks of 'cool' pedagogies (invoking Marshall McLuhan's use of the term to describe media), to describe those which involve more participation. Those discussing agency in new Literacy Studies including Jenkins (Andersen, 2017), and Halverson and Sheridan (2014) in their analysis of makerspaces all argue for the importance of student participation in developing agency. This is linked to Archer's account – we have to be taking part in the world to develop knowledge. For Archer the development of our identity is closely linked with the way we develop knowledge and understanding of the world:

All knowledge entails an *interplay* between properties and powers of the subject and properties and powers of the object – be this what we can learn to do in nature (embodied knowledge), the skills we can acquire in practice (practical knowledge) or the propositional elaborations we can make in the Cultural System (discursive knowledge). Any form of knowledge thus results from the confluence between our human powers (PEPs) and the powers of reality – natural, practical and social. Thus what have been discussed sequentially are the physical powers of the natural order, the material affordances and constraints of material culture, and, lastly, the logical constraining powers of the Cultural System. (Archer, 2000: 177)

But when we develop knowledge in the discursive order, we are not going it alone. We are working alongside others. As young children, we are guided by teachers. Teachers too are operating at the interface of structure and agency. Robin Alexander (2009: 2) suggests drawing on Margaret Archer's characterization of the relationship between structure, agency and culture to fully understand pedagogy and the way it 'reflects the values of the wider society... Pedagogy does not begin and end in the classroom. It is

comprehended only once one locates practice within the concentric circles of local and national, and of classroom, school, system and state'. For Buckingham and Sefton Green (2003: 28), pedagogy is a pivot between structure and agency since 'a theory of pedagogy is ultimately a theory of activity.... It requires an attention to the dynamic relationships between 'teaching' and 'learning' –that does not simply invest power in one at the expense of the other'.

I would agree with this characterization and argue that pedagogy is the link between structure and agency because of the identity (and reflexivity) of both the learner and the teacher. Mark Smith, in his online blog, Infed, reminds us that in Ancient Greece, a pedagogue was a guide for life rather than a tutor of narrow skills. Education is about creating and sustaining 'informed, hopeful and respectful environments where learning can flourish. It is concerned not just with knowing about things, but also with changing ourselves and the world we live in.' As Smith goes on to say, 'This is a way of working that is deeply wrapped up with the person of the pedagogue and their ability to reflect, make judgements and respond' (Smith and Smith, 2008: 15).

For it is our reflexivity, which arises from our concerns when we interact with the material and the social world, that creates the 'inner conversation' and helps us develop our personal identity and our social identity. What kind of teacher or pedagogue we are depends on both our personal identity and on that subset of our personal identity which is our social identity, the way we choose and carry out our roles. This is how we move from being passive agents to actors. Students can develop agency in the way the term is deployed in NLS and discussion of Third Space literacies. They can act and make a difference to their world and so can teachers. When students and teachers with their own distinctive personal emergent properties come together, there is further opportunity for emergence and transformation. Conceptualised this way, with our pedagogy as one of our emergent properties, knowledge-building can be seen as fully relational, dynamic and transformative.

The word pedagogy derives from the Greek [ἀγω](#) (ágo) which means *I lead* or *guide* (the Latin etymology of education, derived from Latin *ducare*, also suggests leading). So with this idea of pedagogy in mind, with this idea of teacher as leader and guide, and with a theory that accounts for the reflexivity of both students and teachers, can we make the link between the Greek [ἀγω](#) (ágo) (I lead) and the Latin *ago* (I do or act)? Where we as teachers can be effective guides, there is a chance that we can make children more than Bourdeusian agents constrained by their habitus; we can help them become actors, not performing in Goffman's sense by donning and doffing different masks but actors in Archer's (2000: 314) sense who through their interaction with the world can make a difference, '*role-making* rather than *role-taking*'.

5.6 Conclusion

We have come a long way – through agency, identity, pedagogy. So how does this all link with space and Third Space? Lefebvre (1991: 42) was clear that lived space has 'an affective kernel or centre: ... it may be directional, situational or relational, because it is essentially qualitative, fluid and dynamic'. Critical realism contends that in the social and sociomaterial world, space does not need to be physically bounded for causation to occur. Social structures can exist in a state of '*spatial disarticulation*' because 'unlike non-social entities, they depend on the beliefs and dispositions of the human agents who are their parts to produce these mechanisms' (Elder Vass, 2010: 200).

In discussions of the Third Space, the need for more creative, playful (Marsh, 2005) pedagogies is often invoked. Thompson et al. (2012) talk of 'signature' pedagogies - the kind of pedagogies that might be used by visitors to the classroom such as artists, who may be more likely to experiment and let things go. And because social space does not have to be bounded, such teachers can bring their emergent properties to face off with traditional structures and achieve different outcomes. And the pupils can bring the affective engagement they have from outside the classroom, such as through their play, to the classroom. When these two sets of emergent properties are brought

into relation, there is the possibility of transformation. But the emotions are connected to an embodied encounter: when children play, they generally develop positive emotional responses to the objects they are interacting with. Jay Lemke, using the term 'traversal' and, describing the fun of playing computer games, asks whether and how this can be applied to learning:

I use the term *traversal* (Lemke, 2002) specifically to describe a trajectory through space and time, real or virtual or both, that crosses boundaries of place, setting, activity, genre and the like. Given that we mean, feel and act differently in different settings and situations, in different places, with different people and possibilities, it is a genuine question of concern just how we construe continuities for ourselves and everything else across events and moments. I want to suggest that feelings are the glue that makes this possible. Persistence of material artefacts and landscapes plays an important role in enabling us to carry over continuities of action from one event and time to another. (Lemke, 2013: 65)

This study looked at children's practices in the Third Space, unpicking emergent properties in both the social and material domains to see which of these was contributing to affect and the development of both identity and knowledge. Were there any constants or were the mechanisms and emergent properties different for each and every child? These are the questions that we sought to find the answers to. The next chapter outlines the pilot study which preceded the main study and is followed by a description of the methodology which was employed in the main study, informed by the pilot.

PART TWO

Chapter 6 – Pilot

6.1 Introduction – background and context

A pilot study was conducted in the 2013-14 academic year to lay the ground for the later empirical work. At this point in the research, the key questions framing it were around gender and technology, in particular looking at the possibility that technology interventions may be useful in tackling boys' continuing underachievement in school literacy. These questions were developed as a follow-on to Masters research using a wiki. The idea that, by encouraging children to build multi-modal texts as a way to link to their play, it was possible to increase motivation was a key assumption underpinning the research.

My interest in the relationship between computers and literacy was borne out of my observations of my son at 'play' on the computer but appearing to make huge leaps in reading and writing through his use and production of various websites. As Mark Twain (1927: 14) said, 'work and play are words used to describe the same thing under differing conditions'. My aim was to heed the advice of Morgan et al. (2002: 51, original emphasis) for teachers to have 'an *opportunist disposition*...being prepared to set up spaces for play and possibility, to take risks by experimenting, to respond to unanticipated changes, and to see the potential usefulness in unforeseen, second-order effects'. The wiki had provided the tools for this during a Masters dissertation (Hawley, 2011). My main conclusion, having used wikispaces with a Year 4 class, was that some children's achievement in schooled literacy practices (writing) could be enhanced by the integration of a wiki into the teacher's repertoire.

That study had looked at children's online and offline texts, as well as conventional assessment data, in an ethnographic study with a component of multimodal analysis. It found that certain children benefitted from using the

wiki because of the motivational effect of having an audience and the development of a community of practice. However, there was a sharp divide between the genders in terms of motivation towards and use of the wiki as a literacy tool. The children who most benefitted from the intervention were those hegemonic males who formed the community of practice (Lave and Wenger, 1991). This was in keeping with work by Rowan et al. (2002) in Australia where boys in Year 9 were encouraged to build websites around subjects they were interested in – computer games and motorbikes. The researchers found ‘improved operational literacies...a shift in behaviour patterns, with the boys demonstrating an ability to display a ‘literacy self’ that was connected to, but not overpowered by, their ‘schoolyard self’ (Rowan et al., 2002: 118). The boys were able to reconcile being ‘cool’ with accomplishment in literacy. The authors concluded that ‘boys + literacy + technology *can* equal new learning about *gender, masculinity and technology*, provided they are informed by a new literacies mindset that is predisposed towards transformative rhizomatic pedagogy’ (ibid: 61, original emphasis).

My study had also encouraged the production of non-fiction texts to counterbalance the heavy focus of the primary literacy curriculum on fiction and personalized expression seen by several authors such Hall and Coles (2001) as the source of many boys’ antipathy to literacy. It had also allowed children to build up multimodal texts and used the term ‘**mimetic mode**’ to describe and interpret the way children appropriate, imitate and re-mediate other modes, including modes familiar from their play, in their literacy practices on the wiki.

I therefore began the pilot study with the assumption that the findings would be broadly in line with those from the Masters work and that boys would be the main beneficiaries of this intervention. The school was keen for boys’ writing to continue to be the focus. However, they wanted me to see if I could replicate this result using the officially-sanctioned software being promoted in schools at that time by the London Grid for Learning (LGfL). LGfL (like other regional grids in the United Kingdom) is a charitable trust which provides filtered broadband connection as well as online educational content to state

schools across London local authorities. In 2007, in an attempt to beat targets set by the UK government to have a Virtual Learning Environment in every school by 2010, it was looking for companies who could supply a Managed Learning Environment to schools with the express purpose of enhancing teaching and learning experiences. A Managed Learning Environment was seen as an all-purpose package, a 'virtual school' with 'virtual classrooms' linked to other school systems such as SIMS (school systems information management) as opposed to a Virtual Learning Environment which was a stand-alone system.

The MLE contract was put out to tender and the winning company was a Nordic company, Fronter, which had the seal of approval from BECTA (the British Educational Communications and Technology Agency), a non-departmental government body which was charged with the task of promoting and integrating ICT in schools. Fronter was originally designed for Norwegian universities. However, it was rolled out in London primary and secondary schools. In 2009, Fronter was acquired by leading educational company, Pearson, further cementing its dominant status in the market.

Primary school teachers received training in how to use Fronter. The key features being demonstrated and promoted were i) *discussion forums* where students could take part in and generate debate and ii) *polls* where students could vote on issues decided by the teacher. Fronter was also promoted as a platform where students could upload homework produce on software such as Microsoft Word or Powerpoint. However, the construction of webpages and the posting of content with multi-modal elements was strictly the domain of the teacher who was encouraged to post online lessons which students could access from home. Thus the design and ethos were very different from the wikispaces model which encouraged children to collaborate on the building of webpages. However, having used in my Masters dissertation a more rhizomatic pedagogy in an attempt to bridge what David Buckingham (2007: 178) calls the 'widening gap' between school and a very multi-modal home, I took up the challenge of trying to use Fronter as a space where children could build pages in the same way that teachers did.

6.2 Pilot research design and methodology

The pilot took place during the academic year 2013-14 while I was working full-time with a year 5 class for a term while their teacher went on maternity leave. The class comprised 27 children, 8 boys and 19 girls in an inner city primary school. It is the same school that the Masters work had been carried out in and the school which would also be the location for the full PhD study. The research design was a case study. My choice of sample or case, was convenience sampling since it involved using the class which I was the teacher in.

The school is a one-form entry Church of England school with a high number of pupils speaking English as an additional language (EAL) and receiving pupil premium funding (a measure of social deprivation). In the class in question, around 70 percent were EAL, including a significant proportion of families from Eastern Europe and some refugee families. According to the school's 2013 OFSTED report:

- “The majority of the pupils are from minority ethnic groups and the proportion who speak English as an additional language is well above average.
- The proportion of pupils known to be eligible for the pupil premium, which is additional government funding provided for looked-after children, those known to be eligible for free school meals and pupils from service families, is well above average.”

In consideration of ethical issues concerning the effect of the research on others, I drew up letters to gain voluntary informed consent, in order ‘to ensure that all participants in the research understand the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported’ in line with British Educational

Research Association guidelines (2004: 6). I monitored the contributions of the children to ensure there was nothing in the process (for example cyber-bullying) that could 'cause emotional or other harm' (ibid: 8). I also obtained approval from the Institute of Education (see Appendix 1) and the school's head-teacher as well as from the local authority to ensure the research complied with guidelines for safe internet use. Because it involved children, the consent of the parents was also sought, with the parents of all children signing an opt-in letter to allow their children to take part in focus group interviews. Parents were also asked for their permission to have observations of their child's use of Fronter and analysis of their texts included in the research (see Appendix 4).

A discussion about appropriate use and internet safety was held at the outset of the project. The children had limited experience of Fronter up to this point, although some of them had learned how to contribute to discussion forums, asking a question posed by the teacher or headteacher. The typical Fronter 'classroom' in the school included games to improve typing skills and maths games. For the Year 5 class, there were also topic pages around the Ancient Greeks which included a number of links to relevant multimodal texts and games on the BBC and other websites. The children were encouraged to create pages about their favourite authors. Their work would be visible to each other in a Fronter folder called 'Our Work'. However, it would not be public or seen by other classes in the school. The building of webpages on Fronter was clearly modelled but, in keeping with the desire to set up a Third Space and because of competing demands during the school day, it was expected that the majority of the children's work would be undertaken as homework. It was thus not assessed or marked in the same way as work in the literacy books.

The ethnographic research involved my own diary notes and observations of the children, including comments from them and their parents as the project progressed together with focus group interviews (see interview schedule in Appendix 6) with two groups of girls and one group of boys who had made significant contributions to the Fronter classroom (see Table 3: data table on

page 165). The data were collected during the academic year, as the children started write their own pages and then some of them, unprompted, began to make and design pages and discussion fora around subjects that interested them. Because of my role as a teacher in the school, I was also able to observe how the children continued using Fronter during the summer holidays and into the first term of Year 6.

The results of the pilot study were coded using NVivo and analyzed using grounded theory, using theoretical sampling 'to develop ...emerging categories and make them more definitive or useful' (Charmaz, 2000: 519). As noted in the previous chapter, grounded theory, in line with critical realist analysis entails developing increasingly abstract ideas about research participants' meanings, actions, and worlds and seeking specific data to fill out, refine, and check the emerging conceptual categories. Our work results in an analytic interpretation of participants' worlds and of the processes constituting how these worlds are constructed. (Charmaz: 2005: 508)

The process of retroduction was trialled in an incipient way, looking out for generative mechanisms to explain findings.

6.3 Results and analysis

Just under half the class began to make contributions, some much more extensive than the others. Some of the higher achieving girls took to it immediately and began designing elaborate pages about the children's author, Michael Morpurgo. The software allowed them to build several boxes on the same page, each one of which could be customized in the choice of font (both size and colour) and border and fill colours. Several children were initially more interested in these design elements than the content. However, after it was made clear to them that the focus should be on the content, the children focused more on the writing.

One of the most surprising findings initially was how much more enthusiastic the girls were than the boys, putting paid to assumptions I had brought into the project. Diane Reay in her 2001 analysis of girls' culture and femininities in the classroom identifies different groups - *nice girls*, *tomboys*, *spice girls* and *girlie girls*. In the class she examined, the nice girls group incorporated a few middle-class girls and a couple of working class ones: 'The 'nice girls', seen by everyone, including themselves, as hard-working and well behaved, exemplify the constraints of a gendered and classed discourse which afforded them the benefits of culture, taste and cleverness but little freedom' (Reay, 2001: 158). We had a similar group of girls in our class – I have called them the 'sensible girls'. We also had a group who I called the 'cool girls'. Like Reay's *spice girls* they had traits in common with the *girlie girls* but were often "doing it for themselves' in ways which ran counter to traditional forms of femininity [and] resulted in them being labelled at various times by teachers in the staffroom as .. 'a bad influence' and 'little cows'" (ibid: 161).

Children then started to build their own unsolicited pages continuing work done in class, for example, work on the Alfred Noyes poem, *The Highwayman*, and describing DT work making Greek instruments. This was not just the 'sensible' girls but extended to those who exhibited less positive learning behaviours in class – the 'cool' girls. The following term, children continued to contribute content without direction. This was always inspired by something that had happened in class but then developed by the children in their own way. In the early summer of 2014, we held a class debate about celebrities and their relationship to the press, linked to an observation of teaching by UNICEF who were visiting the school to award Rights Respecting Schools status. Children took sides in discussing whether the right to privacy was more important than the right to reliable information. This sparked a considerable amount of content creation by the 'cool' girls about the popstar Rihanna (see Figure 9).

I rihanna believe that the press should control themselves because everyone needs a right to privacy article 16.

I Rihanna suggest that there should be a new law to control the press.

I Need privacy.

Please control the press.

The press is wrong to mind our privacy.

I mean like come on i dont want press coming in my house relaxing on my sofa taking pictures, whiles im watching my latest TV soaps.



I mean I love seeing those pretty pics of me on the magazine with makeup on but when im at home and its just a normal day at home its like I'm not even famous but iam  and im just quietly adoring my superb acting on battleships and those stupid papparazzis just take PICTURES  TO BE CONTINUED!!!!!!!!!!!!!!!!!!!!!!.....

Figure 9: Post by child (Elizabeth) in role as the singer, Rihanna

At the end of the year, three focus group interviews were conducted, asking children whether they had enjoyed using Fronter and why. These were coded using Nvivo. Initial open codes included *enthusiasm and enjoyment*, *extra learning that they had put in*, *pleasure in sharing work* and *benefits in learning* from being able to ‘magpie’ or borrow ideas from others. One particular theme was the link with games:

One child said: *“It doesn’t feel like work – it feels like I’m just talking to my friends online.”*

Another agreed: *“I feel like Fronter is sometimes like an online game – it’s not boring. I always go on it 24/7. Even though it’s like a learning website, I don’t feel like it’s work. I enjoy doing it. ...I think it links to an online game because it’s fun, you’ve got your own account and you can always go on it and express your opinions.”*

Even one of the ‘sensible’ girls compared it to Movie Star Planet, an online game which most children in the class at that time were using, but said it was a way of contributing *“more important views”*.

Initial findings were very much in keeping with the work of Barrs and Horrocks (2014) examining the impact of blogging in three South London Primary schools. The children extolled the benefits of having an audience, even though that (unlike in Barrs and Horrocks's work) was limited to their immediate peers.

Craig:

"On Fronter, I have a chance to share my opinions with everyone and the whole class and they can see what I've been doing and what I've been learning about."

Liam:

"I've also enjoyed Fronter because if you do a piece of work, you could do it at home on a word document but then you would have to bring it in to show the class if you wanted. On Fronter all people in the class and the pupils have access to it so if you create a piece of work on Fronter, the other children can see your work."

They also, like the children in Barrs and Horrocks's study felt it was helpful to their development as writers to be able to see each others' work, both to encourage stamina and to have access to a broader range of models than are available in the conventional classroom:

Charlotte:

"When you see really big chunky paragraphs, then it can help you write really big chunky paragraphs too."

Liam:

"In the class, you're really just focussing on your own piece of work. You might listen to one or two people's work but at the end you can't really listen to everyone's. But on Fronter, you can see other work that the children have been doing so you can get inspiration for work you can do."

Most British primary school teachers receive training in how to teach writing based on the works of Pie Corbett, an influential British educational trainer. One of Corbett's best known ideas which is frequently showcased in primary school displays is the idea of writer as 'magpie'. As Corbett said in his blog (2014):

Writers act like thieves. They are constantly raiding their lives for ideas. Stories arise from our experiences. A writer manipulates their experience – both real and imagined – in order to create.... Young writers need to be avid magpies, picking up bright gems from the reading, from their lives, from their inner world – and gradually lining their nests with possibilities. Good writers are cheeky, constantly on the lookout for a gem.

For these children, the work on Fronter was a new treasure trove which they could quite legitimately plunder.

Craig:

“On Fronter it’s better because you have a chance to see other people’s work and get inspired which will help you to do more creative writing, it will give you lots of ideas.”

Seth:

“You can get inspiration to make your work a lot more better [sic]. Not to copy it but just magpie a couple of words.”

Once axial coding on the focus group interviews began, it became clear that many of the children’s answers linked to the social and the material and the ways these were affecting their identity as writers. It was this that underpinned my search for theoretical ways to explain this. More than 20 years ago, Christina Haas, in Writing Technology: Studies on the Materiality of Literacy, noted that:

Although the question of the relationship between the material and the mental is one that, within philosophy, continues to be wrestled with by pragmatists such as Putnam (1981) and Rorty (1982), phenomenologists like Merleau-Ponty (1965) and poststructuralists like Foucault (1977), writing theory and research has not for the most part addressed this question directly. The result has been an implicit acceptance of the notion of technological transparency – an assumption that the technologies of writing have no impact on the mental processes

or cultural functions of writing and that writing is writing is writing, regardless of the writing medium. (Haas, 1996: 114)

Haas carried out studies of adult writers which showed that while “writing-with-computer’ and ‘writing-with-pen’ have very much in common...different writing tools do seem to have real, if subtle, effects on the mental processes of text production’ (ibid: 138) and lamented the ‘almost complete lack of theoretical grounding that could predict or explain such results’ (ibid: 114). What became clear in this pilot study, in many of the answers the children gave, was that their literacy practices when using Fronter in this way had social and material components that were different from when they were writing in the conventional classroom. The peer scaffolding and motivation of an audience were sociomaterial elements that were absent in the traditional writing lesson. However, children also noted that the materiality of the keyboard as a tool rather than a pen or pencil was causing subtle changes to their control over both the composition and the editing processes.

In terms of improving attitudes to composition, the use of a keyboard and the production of a typed text appeared to give children a greater sense of control, of performative accomplishment, because of the neatness. This was particularly true for the boys:

Seth:

“I think that if you do it [by] hand, you have to write it out so many times just to make it make sense.

If you type it up on the computer, you can easily backspace it. If you always do work by hand, your hand is going to feel tired and then you need to rest it.”

Duncan:

“When you’re typing, you type 4/5 lines and it looks like a text - a piece of text. It looks good. It looks like you presented it well.”

They were also empowered by being able to check for grammar and spelling mistakes without an adult’s intervention.

Craig:

“I find typing on computers much more simple and easy because it will help you if you’ve got a grammar mistake.”

Liam:

“If you’re typing on a computer, you can get spellcheck so you know that your piece of work, there’s no errors - all of the spellings are correct.”

Additional comments relating to materiality referred to the benefits of having options on font and colour and being able to insert multi-modal elements, allowing for extra individual flourish and the chance to ‘be themselves’.

Craig:

“You can express your work with colours and you do pictures and different backgrounds so you’ll have fun doing it.”

As discussed in the section on materiality in Chapter 4:5, what is important about digital objects as well as physical objects is that their *matter* and *form* persist across time and context. The fact that children were able to access their texts at a place and time of their choosing was a significant factor in improving their attitude to editing and allowing them to build up stamina as writers.

Craig:

“I think typing on a computer is much more easier than at school because it’s easier to concentrate and there’s no distractions. It helps you to learn because when you make a mistake, you can delete it without making a mess on your work....When you do it on the computer, you can change your ideas whenever you want – you can go back and edit it.

If you really get tired and you want to go to sleep you can just save it and you can carry on another day – it will build up eventually and you will have a big piece of writing.”

Some of the girls spoke of how the technology's persistence across time and space allowed them extra time to build up a picture of who they were – to polish their identity performance.

Charlotte:

“I also like the way I can be myself on Fronter and how just by the writing and contributions it actually shows what kind of person you are like - if you're really interested in what happens round the world and the local news... It shows your identity”.

Elizabeth:

“I agree ... that you can be yourself because in class, sometimes when other people have their points, and other people want to share the teacher says ‘That’s enough – put your hands down.’ So on Fronter, you can carry on speaking about it. You can share your own points and be yourself. You can carry on doing it for hours and hours – because that’s everything you wanted to say but you didn’t have the chance to. On Fronter you get chances”

While the children attributed their increased ability to express themselves to the technology, this was of course emergent not just from the technology but from the way it was woven together with a social entity – my pedagogy which allowed free writing and the children's response to that:

Elizabeth:

“Sometimes you want to set yourself homework instead of getting normal homework from teachers because you don’t get to say what you think or get to show everything you have but on Fronter it lets you express yourself.”

The imbrication of the social and material led to a community of writers where they were showcasing (and reacting) to each other. Some of the ‘sensible girls’ felt the need to assert their own identity in reaction to the trend among the ‘cool girls’ to discuss celebrities. One of these girls, Rita, a child with real difficulties with spelling, made great progress with her offline writing after using Fronter. She developed a page (Figure 10) about her aspiration to be a nurse:

When I grow up I would like to be a nurse.

My mum is training to become a nurse. I watched TV programmes about nursing. I know a lot about nursing and one specific thing I've learned is what an anaphylactic shock is.

Well, what is an anaphylactic shock? 🤔...

An anaphylactic shock is when someone has an allergic reaction to something. For instance, if someone was eating a cake and that cake contained a type of food that the person was allergic to, it could result in an anaphylactic shock.

Here is how you can help the person to start breathing. First, you will need to get an Epi-pen. When you have the Epi-pen you will need to inject it into the person's muscle tissue. As soon as you do that, hopefully the person will be able to breathe again. But that person will need to go to the hospital.

Thanks for reading this!

I hope you learned a lot from me!

Figure 10: Rita's page about her aspiration to be a nurse

She describes the combination of social and material factors that motivated her:

"When I've seen people's forums, they're all about Rihanna and saying who's the prettiest and stuff like that. I thought that's a bit silly - it's all about celebrities and I thought I can do something that people can learn and what made me write is I watched something called 'My life' and I've learned about brittle bone disease and face blindness."

Finally, one of the clear factors in developing identity, discussed in Chapter 5.5 was affect. Children approached Fronter with a positive experience of online games, based on their sociomaterial experiences using these games. They already saw online games as fun and involving trial and error. Some of them were able to transfer these affective experiences to Fronter, becoming more confident and independent as they used it:

Charlotte:

"That's how it's like with online games, because when I first start, I don't really know but then just playing it you get the hang of it."

Karen:

"Fiddling."

Charlotte:

“You enjoy it and fiddle with it.”

None of the children arrive in the class as *tabulae rasae*. They arrive as emergent entities, already constituted by the imbrication of the social and material outside school, with experience not only of their own computer use but also of how adults use computers. They expressed how these experiences contributed to their sense that they were doing something grown-up and worthwhile and hence increased their sense of agency.

Charlotte:

“You feel like you are doing proper work because that’s how everyone in the public would do work – they wouldn’t do it on a piece of paper. They would do it on a computer. When you’re doing it on Fronter, you feel like you’re doing it properly. When you’re doing a piece of work, you feel like it’s going to be taken seriously.”

When asked what the benefit might be of publishing their work beyond the school, they again drew on experiences from outside school:

Liam:

“I also think that if someone rich sees your piece of writing and if you’re young, year 6 or 5, it might get you into a secondary school or if you’re older, and you’ve already gone past secondary school it might get you into university or college or might even get you a job because they think you might be really clever so they might do that for you because you done a really good piece of writing.”

Craig:

“I agree because if the public could see your work, someone who had a good job, who owned the company they might want you to work for them because they know you’re smart so in the future they might get you to work for them.”

The following year, when the children moved to Year 6, I was no longer their teacher but their work continued unsolicited for a few weeks in Autumn Term with a different teacher. They created content and put it in the Our Work

folder. One of the 'cool girls' had been online and written a page all about her country and started a forum – “What career do you want to have?” Another, Elizabeth, wrote her own narrative version of the story of *Goodnight Mr Tom* and a page which was a biography of Mary Bethune, a black American educator (Figure 11).

Skills and achievement

Mary was a revolutionary educator who not only provided her students with an academic education, but also with an education in life. She made sure all children were educated and did not rest until she made sure all children in such a young age would not suffer like her and her family did, she did not want children to be former slaves or work she wanted them to be bright, smart and educated children. Mary gave them the skills and confidence necessary to be successful, and she set standards for historic black colleges. An educator not just for her students, but for the entire world, she was the only woman of color at the founding meeting of the United Nations. She was strong and brave and earned her rightful place as an educator/teacher and made the world proud.

Early life achievement

As a child Mary was able to pick 250 pounds of cotton per day. Patsy McLeod Mary's older sibling often took her youngest sibling along as she walked to pick up and deliver laundry to white people's homes. Mary was lucky enough to be exempted of her skin colour and sometimes played with children different colours and race to her, Mary felt exempted. But at the age of nine in one such experience, she picked up a book, but a white child quickly took it away from her, saying that black children could not read. Indeed, teaching a black person to read had been illegal in Southern states prior to the Civil War, and South Carolina's rules did not bother to the law, enforced by Union soldiers, ended in 1876. But she did not listen to the others, but Mary let comments put her down and make her feel weak they made her determined to learn. Mary then begged to go to school to learn and read. Some white Northern women, however, continued to run independent schools after the occupation and its Freedman's Bureau ended. When a school for black children opened, the McLeod family only had enough money to send one child. Mary was chosen and began attending school. She walked five miles to and from school each day, and every day after school Mary taught her parents and siblings what she had learned. She then learnt how to read and she was smart and capable of learning so Mary thought, teaching her family made her think of being a teacher in the future.

Quotes of Mary

"For I am my mother's daughter, and the drums of Africa still beat in my heart."

I leave you love. I leave you hope. I leave you the challenge of developing confidence in one another. I leave you a thirst for education. I leave you a respect for the use of power. I leave you faith. I leave you racial dignity. I leave you a desire to live harmoniously with your fellow men. I leave you finally, a responsibility to our young people."

"The true worth of a race must be measured by the character of its womanhood."

"The whole world opened to me when I learned to read."

"Without faith nothing is possible, with it nothing is impossible."



Figure 11: Unsolicited page by Elizabeth about Mary Bethune, the black educator

The same girl who had written pages about her idol, Rihanna, was now buying into school culture with a page of advice about how to be a good learner (Figure 12).

People take learning and school as a joke, they think its all about being popular and pretty; but its really not learning is about having a mind of your own and positive attitude towards your learning. (If you agree with this statement read on!!)

Learning is about achieving what you can in life its not about being smart or having the best levels ever its about what your expected too get and trying your hardest. If you believe to achieve in life and have success in your dream learning is a part of that step of success. If you feel that your not to cofident in a certain subject or anything particularly tell the teacher you need extra help dont just not bother because its playtime DO SOMETHING ABOUT IT! its for your own good just remmeber right now its easy for you when you get older its going to be tough and if your worried and stressed about sats then you dont no the half of it \l may not be talking in that much experience but trust me I know this stuff. In order to succeed in your learning use more sites, books e.g to help you because your even lucky to have an education and if you dont believe me ask your parents what it was like, Or search it upp!!!

Be smart stay in school!!!!

If you believe that learning is good for you go to my forumn called what learning means to you and write how you feel about learning and what you need work on.

Figure 12: Elizabeth's page of advice about how to be a good learner

For cool girls, just as for cool boys in a conventional classroom, 'Group solidarity...serves to outlaw a too conspicuous or enthusiastic adoption of school values' (Gilbert and Gilbert, 1998: 142). Yet the interaction with the technology in this pilot study seemed to give them new roles that counteracted this, allowing them to buy into school. The pupil who started off writing "I am Rihanna" saw in the technology the opportunity to take on the role of the teacher like the pupil Rakeem in Barrs and Horrocks's (2014) work. By the time she developed the Mary Bethune pages and set up forums on how to learn, she had clearly moved, as a result of sociomaterial imbrication with the technology from developing personal identity, to developing agency to becoming an actor. As Margaret Archer (2000: 284) points out: 'We become Agents *before* we become Actors. In other words, Agency is a springboard to positions in the total role array and the interests which we posses *qua* agents serve to make the choice of role positions reasonable'. Composing content in the freedom of her own home, she was able to move beyond the limiting role of the 'cool' pupil, acting out to impress her peers in front of the teacher. With hindsight, the same had been the case with the boys who I had worked with using a wiki for Masters research. The conclusions now are not about the

performance of gender as a causal factor but about the emergent properties of the technology which allowed new roles to develop. Their new teacher was totally unaware of this work and did not mention or acknowledge it in class. By half-term it had completely tailed off.

6.4 Conclusion

Guy Merchant (2006: 102) noted that new technology 'results in changing contexts in which boundaries between work and leisure begin to blur, distinctions between the public and the private are less clear, the serious and the frivolous intermingle'. In this pilot study, the findings bore this out. Emergent properties of the technology and the people created relationality that led to the emergence of children's personal identities and a sense of themselves as actors with control. This was particularly beneficial for those normally struggling in role as diligent pupil – opening up new roles for them to succeed in. These findings are very much in keeping with those of Kendall and McDougall (2013: 89) which illustrated 'through an analysis of young men's participation in online technologies, how central the performance of identity is to the dynamic of a literacy event and ...that pedagogy needs to take account of literacies as 'ways of being with others'. I would argue that these findings also show that pedagogy needs to take account of 'ways of being with materiality'.

The pilot was very useful in answering some questions. However further questions arose from it which led to a refining of the theoretical position and helped frame the empirical research which followed. Although the participation of some children was enthusiastic and ultimately transformative, fewer than half of them engaged with Fronter. Why didn't all children take part? What are the social and material constraints that kept some children out of the loop? Was it because the software was too difficult to use for some of them or were there other factors?

Chapter 7 - Methodology: QDA on the offensive

7.1 Introduction

The design of the main study and my decision to use critical realism was informed by the pilot study carried out the previous year and detailed in the previous chapter. I had watched and interviewed the students taking part enthusiastically on the Fronter space. I had discussed with them and documented signs of increasing agency. However, I did not feel I had a robust enough theoretical framework within which to analyse the development of agency and the children's changing roles and identities. It was this that drew me to the work of Margaret Archer, in particular her (2000) work *Being Human: the Problem of Agency* and to associated methodologies.

Additionally, although delighted by the outcomes of the pilot for some children in terms of student agency, I began to wonder why not all children had benefitted in the same way. Thus, in response to what I observed online and in class, I started to construct a theoretically informed research design that would afford insights into the complex relationships between agency and structure and between the social and the material, and that would shed light on the ways in which the social and material are layered across time and across online and offline spaces. I found critical realism to be appropriate both conceptually and analytically, providing a set of concepts and tools which could tackle the question of why the imbrication of the social and the material did not result in the same outcomes for all children.

This chapter is an explanation of and robust defense of critical realist methods, in particular the case study. For Ackroyd and Karlsson (2014: 24), the retroductive methods of critical realism 'broaden the scope of case study research'. They point to the first British Nobel Laureate, Ronald Ross's discovery of the transmission method for malaria in the stomachs of just two mosquitoes to back up their defence of the case study, reminding us that

nobody suggested that the research was invalid or that the real cause of malaria had not been found on the grounds that the two mosquito cases were unrepresentative.....it is difficult to imagine how this disease might have been understood without the notion of a complex mechanism being central and efforts made to piece together an understanding of the overall process. (Ackroyd and Karlsson, 2014: 25)

For years the qualitative data analyst has been on the defensive, hobbled by the received wisdom that causality can only really be 'proven' through deductive methods and (most likely) quantitative data collection and analysis. This has been particularly true in educational research where, as Michael Bassey (1999) noted, the numerous case studies carried out have had precious little influence on policy. Bassey (1999: 55) suggested that, in order to carry more weight in policy-making circles, every educational case study should produce a 'fuzzy generalization' to inject its findings 'into professional discourse'. While a proposal to give educational research more punch is a welcome step in the right direction, the word 'fuzzy' seems nevertheless tinged with apology for advocating something tentative.

Critical realists on the other hand have a method for making more robust claims and standing their ground against the naysayers. For them, the frailty of context and the shallowness of observation which *quantitative* methods necessitate make them far less suitable than *qualitative* methods for examining causation:

The conventional view is that qualitative studies are only good for exploratory forays, for developing hypotheses – and that strong explanations, including causal attributions, can be derived only through quantitative studies, particularly the classical experimental-control design. ...we consider this view mistaken... We consider qualitative analysis to be a very powerful method for assessing causality. ..Qualitative analysis with its close-up look, can identify *mechanism*, going beyond sheer association. It is unrelentingly *local* and deals well with the *complex* network of events and processes in a situation. It can sort out the *temporal* dimension, showing clearly what preceded what,

either through direct observation or *retrospection*. (Miles and Huberman, 1994: 147)

This chapter will detail the critical realist approach to research and data collection before going on to give further details of how this case study was carried out.

7.2 Approach to research

This thesis falls in the ontological and epistemological camp of critical realism which 'asserts that the study of the social world should be concerned with the identification of the structures that generate that world. Critical realism is critical because its practitioners aim to identify structures in order to change them' (Bryman, 2008: 692-3). This work is in the tradition of Roy Bhaskar's philosophical approach which aims to find a third way of explanation, populating a space between binaries such as 'positivism and hermeneutics; between collectivism and individualism; structure and agency; reason and cause; mind and body; fact and value' (Norris, 1998: 2). Critical realism is a clear reaction to post-modernism which built on Saussure's position that the point of view creates the object. Critical realism challenges the ontology of constructionism and social constructionism and its resulting epistemology (interpretivism or idealism) which allows only discourse, language, signs, symbols, ideas, beliefs, explanations, concepts, models or theories to be construed as real.

For critical realists the *material* (to include the subset, *artefactual*) and the *social* (organisations, class or gender structures, norms, rules and conventions) have a reality outside of discourse. However, this kind of realism is in a very different family than empirical realism or positivism. What is crucial to both the ontological and epistemological position of critical realists is that they look for causality and explanation of phenomena. However, they see this causality not as a Humean regularity of events but emanating from powers and tendencies of people and objects. This is important for researchers as such

powers and tendencies are not always visible but must be inferred and teased out in their context.

As Bryman (2008: 590) notes 'this approach accepts neither a constructionist nor an objectivist ontology. Social phenomena are produced by mechanisms that are real, but that are not directly accessible to observation and are discernible only through their effects'. Of course this has a profound effect on the relationship between theory and research. Bhaskar's (2008: 36) identification of an *epistemic fallacy*, 'the view that statements about being can be reduced to or analysed in terms of statements about knowledge', breaks the nexus between ontological orientation and epistemological orientation. The critical realist perspective hence allows for the possibility of hypothesis-testing qualitative research.

Traditional models for research have tied ontological positions (objectivism versus constructionism) with epistemological positions (constructionism versus interpretivism) and prescribed corresponding research methods. According to the canon, objectivism and positivism require deductive methods and quantitative research to test theory while constructionism and interpretivism require inductive methods and qualitative research to build theory.

The aim of a CR study is different. It is an explanation of the mechanisms that generate a certain event, more so than the ability to make predictions about future events or to understand the social/ cultural meanings behind the events... A CR researcher's goal is to identify the mechanisms that emerge from the components of a physical and social structure to produce the events of interest. (Wynn and Williams, 2012: 793-4)

Critical realism is still in its infancy but there are now some guidelines for researchers emerging (Elder Vass, 2010; Wynn and Williams, 2012; Edwards et al., 2014) which bring the discipline down from the lofts of theory. The first key practical point is the identification of a phenomenon of interest (in this case

the development of writing in primary school children). However beyond this, there is a raft of vocabulary which may be new to researchers and requires some understanding and explication.

7.3 Critical realism's four key tenets

Critical realism has four key notions which have implications for methods: *open systems*, *entities*, *emergence*, and *stratification* or layering. We will look at each of these in turn. The first key notion is that society is different from the natural world and analysis and explanation of it must take this into account. Social systems are held to be *open* rather than closed systems. Controlled experiments, where different variables are isolated and external factors can be shut out with a hermetic seal, may suit the natural scientist. The social scientist, on the other hand, is dealing with an entirely different beast and one that is much harder to tame. 'Unlike 'closed' laboratories, open systems, such as societies or organisations, contain complex and unpredictable feedback loops that prevent history being conceived as determined or predictable' (O'Mahoney and Vincent, 2014: 6).

Critical realism is the study of *entities* – higher-level *stuff* (O'Mahoney and Vincent (2014) use the examples of water or a team) which emerges out of lower level parts. These higher level things could be the result of the imbrication of the material with the material (e.g. water) or the social with the social (e.g. a team) or the social with the material (capitalist society). However, what is crucial is that they are more than an agglomeration or assemblage of parts. Entities are held to have *emergent properties*. For O'Mahoney and Vincent (2014:7), 'water, teams and capitalist societies can be considered as *entities in themselves* not simply assemblages of the things that constitute them. ...entities have *emergent properties* which are dependent upon, but irreducible to their 'lower level' components.'

Explaining the relation or interaction between the parts is the key goal of the researcher. Both people and things are held to have causal powers or tendencies. The holy grail for CR researchers is the discovery of the causal

(generative) mechanisms or processes that bring about change. This is of particular significance to the teacher researcher whose aim is to understand and find ways of effecting transformation in the classroom.

The fourth key notion – that of *stratification* and layering - applies to critical realism's ontological as well as its epistemological underpinnings. At an ontological level, CR is committed to a stratified system. Bhaskar uses the metaphor of lamination whereby different mechanisms produce different emergent levels - from the physical through the biological and psychological to the socio-economic and cultural. The metaphor of lamination is used differently here from its use in post-modern and social constructionist accounts such as those of Erving Goffman (1981) who uses lamination to describe super-imposed layers of *meaning* and Holland and Leander (2004) who propose lamination as the overlaying of *social practices* in different spaces.

At an epistemological level, CR sees reality as a series of nested domains only some of which are amenable to observation. Figure 10 shows how this works. At the centre is the *empirical* – what was experienced by the participants. This is a subset of the *actual* - what actually happened (which may well be different from what was experienced). The largest circle of which both the empirical and actual are subsets is the *real*, which includes entities and structures as well the generative (causal) mechanisms that underpin events.

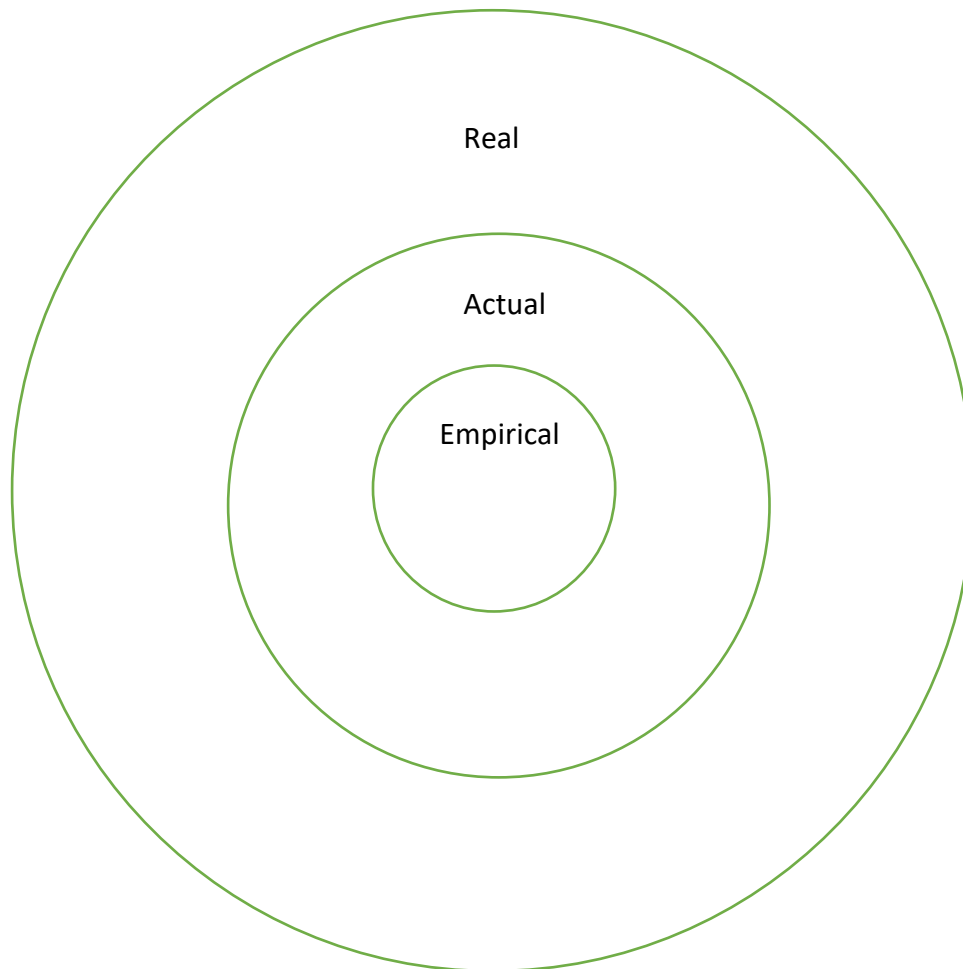


Figure 13: Empirical and actual as subsets of the real

However, as Wynn and Williams (2012: 790) point out, the real also includes powers and tendencies that may never be actualized: 'there are mechanisms which exist in the domain of the real but that are not activated, or are activated but counteracted by other mechanisms, and thus do not produce events in the domain of the actual'. Thus critical realism gives us the framework to examine and explain not just our findings but also, what are sometimes equally telling, our non-findings, which brings us to research design and data collection.

7.4 Critical realism - research design and data collection

The case study is the sine qua non for critical realist researchers although longitudinal studies and mixed methods are also part of the repertoire. This is good news for the teacher researcher, immersed in but bound to her context

and unable to venture out and about for any length of time. The tools for the critical researcher are much the same as for any other qualitative researcher, employing a mixture of ethnography, participant observation, semi-structured interviews and analysis of texts. However, the ontological commitments and goals are different:

The main implication of realism for qualitative data collection is that data are usefully seen, not simply as 'texts' to be interpreted, or as the 'constructions' of participants (although they are this) but as *evidence* of real phenomena and processes (including mental phenomena and processes) that are not available for direct observation. These data are used to make *inferences* about these phenomena, which can then be tested against additional data. (Maxwell, 2012: 103)

Critical realists use a method of inference different to that used by other qualitative researchers. It goes by the name of retroductive analysis and includes the terms abduction and retroduction. Although first developed by C.S. Peirce in the 19th century, the concept of *abduction* has experienced renewed take-up recently in the field of computer science (Fuller, 2008), particularly in the development of Artificial Intelligence (AI) (Glassman and Kang, 2011). Broadly speaking, *abduction* is inference about the most likely explanation for findings that may be surprising. Meanwhile retroduction is inference about context – what must the world be like to have caused this outcome? What is going on under the surface? Why has this happened in this particular context? In retroductive analysis, 'we take some unexplained phenomenon and propose hypothetical mechanisms that, if they existed, would generate or cause that which is to be explained' (Mingers, 2004: 94).

This unique form of inference is the necessary tool to build on the ontological and epistemological foundations of critical realism, including its acknowledgement that, while there is only one reality, there may be different experiences and explanations of it.

The principle of retroduction, the core of the CR explanatory model, is derived from the ontological assumption of emergence and epistemological focus on explanation, the use of causal mechanisms as

the basis for this explanation, the potential for multiple potential explanations, and the knowledge that these causal mechanisms may or may not be observable empirically. (Wynn and Williams, 2012: 799)

The lack of visibility of these mechanisms calls for a good degree of immersion by the researcher and a pair of finely-tuned antennae.

Data collection follows a similar timetable to conventional qualitative analysis. Grounded theory is widely used as a method by critical realists. Maxwell describes an iterative data collection process which involves 'categorizing and connecting' moves (2012: 119) which he sees as very similar to the open and axial coding used in grounded theory (Glaser and Strauss, 1967; Strauss & Corbin, 1990). Open coding involves grouping the data that are similar into segments to which conceptual labels are attached. This is similar to the 'categorizing' which Maxwell talks of. Axial coding, 'specifying a category (*phenomenon*) in terms of the *conditions* that give rise to it; the *context*...in which it is embedded: the action/interactional *strategies* by which it is handled, managed, carried out; and the *consequences* of these strategies' (Strauss and Corbin, 1990: 97) is very similar to the realist method of 'connecting'. The only difference is that realists might try to categorize and connect at the same time to the original data rather than doing these steps sequentially.

Critical realism works not just in conjunction with the principles and processes of grounded theory but adds to and enriches it.

Critical realist grounded theory, drawing upon retroductive argument, seeks to build an explanation of social processes and practices by first identifying generative causal powers that shape such processes and practices and second to explain how such generative causal powers are contingent upon local emergent causal powers.

By suggesting all this, we have not sacrificed the anchor-points of good grounded theory. Functions such as theoretical sampling, theoretical coding, iterative data-gathering and analysis, hierarchy of abstraction, causes and consequences are still as important as ever. It is just that

we have posed a richer way to explain the phenomenon and process that emerges. (Kempster and Parry, 2014: 108)

7.5 Critical realism and data analysis

In his blog on how to do critical realism, Joe O'Mahoney (2016) makes the point that: 'It is rare to read an empirical CR piece that actually names its entities and mechanisms, let alone the associated essences, levels of emergence, and potential and actualized powers particularly in PhD theses'.

Elder Vass (2010: 69) sets out clear steps for the researcher who, he argues, must identify:

1. the particular types of *entities* that constitute the objects of the discipline
2. the *parts* of each type of entity and the set of *relations* between them that are required to constitute them into this type of entity
3. the *emergent properties* or *causal powers* of each type of entity
4. the *mechanisms* through which their parts and the characteristic relations between them produce the emergent properties of the wholes
5. the *morphogenetic causes* that bring each type of entity into existence
6. the *morphostatic causes* that sustain their existence and
7. The ways that these sorts of entities, with these properties, *interact to cause the events* we seek to explain in the discipline

This work will try to follow the steps outlined by Elder Vass (2010) and name the entities before seeking to uncover tendencies and powers.

Critical realism is full of acronyms one of which is CMO - context, mechanism outcome. The website Betterevaluation.org lays out the following guidelines to prospective researchers:

In the first phase of analysis, data are organised in relation to the initial programme theory – that is, whether the data relate to what was done (the intervention activities) or to context, mechanism, outcome and (groups of) actors. ...

Once patterns of outcomes are identified, the mechanisms generating

those outcomes can be analysed, provided the right kinds of data are available. The contexts in which particular mechanisms did or did not 'fire' can then be determined. Contexts may relate to the sub-groups for whom outcomes were generated and/or to other stakeholders, processes of implementation, organisational, socio-economic, cultural and political conditions.

The analytic process is not necessarily sequential, but should result in a set of 'context-mechanism-outcome' (CMO) statements: In this context, that particular mechanism fired for these actors, generating those outcomes. In that context, this other mechanism fired, generating these different outcomes. (Marchal et al., 2014: online)

Thus the process involves describing the intervention and its outcome and then looking at both mechanisms and context to explain the outcome. It uses visual techniques proposed by Miles et al. (2014: 23-4) such as a *conceptual framework /map* to look at 'events, settings, processes, theoretical constructs and outcomes' of the intervention.

It also produces an *effects matrix* showing the short run effects and longer-term consequences as well as a hypothesized explanation for these. The process of retroduction involves considering alternative explanations and revising the coding scheme to incorporate these. Finally, it develops a *case matrix*, using a chosen cast of characters to map out the relationship between their individual outcomes and contexts and the hypothesized mechanisms which have brought about these outcomes.

Leonardi lays out clear instructions for the critical realist researcher:

when one adopts critical realism as a foundation for the study of sociomateriality they are directed to explain process and the ways in which the sociomateriality emerges and presents itself as indivisible, holistic, and a natural state of affairs. Consequently, analysts are given their methodological marching orders: explain how and why imbrication occurs, why certain practices come to take on the shape they do, and why people think those practices had to occur as they did. Here there

are clear methodological implications.

Researchers need to specify what they mean by “social” and “material.” They need to present mechanisms by which imbrication occurs. They need to show the role actors play in the creation of the sociomaterial over time.... And, they need to explore what actors do with a world that presents itself as though it were "sociomaterial".

By fleshing out these processes, scholars will be in a strong position to be able to talk about the role that materiality plays in organizational life without resorting to deterministic thinking and without treating materiality as though it does not exist on its own. They will also be well poised to understand the role that materiality plays in the ongoing process of organizing and the constitution of organization over time. (Leonardi, 2013: 71)

Good critical research seeks to identify ‘the conditions that encouraged (enabling conditions), triggered or reinforced (stimulus conditions), or removed impediments to (releasing conditions) the exercise of the hypothesized powers and tendencies’ (Wynn and Williams, 2012: 794). Hypothesizing using retroductive methods is necessarily creative and fallible. It is only one explanation of reality. The theories it appropriates will depend on the worldview of the researcher.

7.6 Ethics and accountability for the teacher-researcher

Before conducting the research, I sought and received ethical approval for the work from the Institute of Education, (see attached ethics form – Appendix 1), from the school’s head-teacher as well as from the local authority to ensure the research complied with guidelines for safe internet use. In consideration of ethical issues concerning the effect of the research on others, letters were drawn up to gain voluntary informed consent from participants, in order ‘to ensure that all participants in the research understand the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported’ in line with British

Educational Research Association (BERA) guidelines (2004: 6). Children's parents had already been sent a letter by the school about safe and appropriate internet use when using the MLE, Fronter, and other LGFL platforms. Their consent was sought again for the wiki project (see Appendix 2). Parents were asked to sign a further opt-in letter to allow their children to take part in focus group interviews and to ensure they were happy with me using their children's webpage contributions as data (see Appendix 3).

The contributions of the children were monitored to ensure there was nothing in the process (for example cyber-bullying) that could 'cause emotional or other harm' (BERA guidelines, 2004: 8). In order to ensure confidentiality and anonymity, the names of the children have been changed. In order to ensure the security of the data, the computer being used for writing and research was backed up and its contents kept safe at all times.

However, adhering to formal ethics guidelines is only part of the picture for teacher or practitioner researchers who have to show 'social accountability' (McNiff, 2007:2) in ways which may differ from researchers in the academy. McNiff (2007) stresses the importance of practitioner researchers producing 'autobiographical research accounts' (ibid: 6) which show methodological rigour in order for the academic research community to value these 'I' accounts. Section 7.8 will lay out in detail the methods used during this research in an attempt to show 'epistemic responsibility' i.e. 'critical reflection on the origin of the knowledge' produced (McNiff, 2007: 7). But for McNiff, epistemic responsibility also involves reflecting critically on the 'use' of the knowledge produced which will be discussed in this section as an essential element of teacher research. Fraser et al (2014:40) point to 'an increasing insistence that to be of value, research must contribute to improving policy or practice: for example, by making the lives of children and young people better.'

Cochran-Smith and Lytle (1993) also use the term 'I' accounts, with the 'I' standing for *insider*. For them, the teacher/practitioner researcher has a unique advantage as an insider by virtue both of their position and their professional training:

‘By analysing the patterns and discrepancies that occur, teachers use their own interpretive framework as practitioners to provide a truly emic view that is different from that of an outside observer, even if that observer assumes an anthropological stance and spends considerable time in the classroom’ (1993: 36).

Pappas and Tucker-Raymond (2011: 267) stress the importance of teachers’ voices being heard, of giving them a ‘megaphone’ in order ‘to disrupt social constructions of teachers as technocrats who take knowledge from one place e.g. the curriculum and plant it in another (students).’ Nevertheless, in foregrounding their own teacher voices, practitioner researchers have to be extremely careful in their privileged position both i) to make sure their dual role is fully understood by participants and ii) to listen to and **act upon** the voices of their pupils. We will come back to the way pupil voice was conceptualized and acted upon later in this section.

Many of those who write about practitioner researchers (Alderson, 2014; Pappas and Tucker-Raymond, 2011; Zeni, 1998) point out ethical considerations and issues of validity that are unique to them, given the paradox of their dual roles. For those like me working in their own setting, these are even more complex as parents and children may feel under pressure to consent and participate (Smith, 2014). Alderson (2014: 86) notes the duties of professionals, including teachers, are different depending on whether ‘they are being either researchers or practitioners. When they do research with children they already care for, they have to be extremely careful the children understand the nature of their different and separate roles and relationships’. Pappas and Tucker-Raymond (2011) advise teachers need to think carefully about the effect of their dual role on participants and any additional stress it may put on those participants. They should also be careful not to use academic time for the interviews as well as seeking to minimize bias by discussing findings with colleagues who can ‘provide their interpretations of the data’ (2011: 27).

In terms of validity, practitioner researchers are urged to demonstrate not just process, descriptive, theoretical and interpretive validity as other researchers

would but what Pappas and Tucker-Raymond (2011: 7) call 'catalytic validity'. For them, 'a study has catalytic validity to the extent that it caused a teacher to take action...[and] transform their practice' as a result of their research. This chimes with the widespread concern among those working in the field of Childhood Studies 'to highlight the restrictions that operate on the lives of children' and their insistence that 'research must be aimed at improving the lives of children...by challenging those restrictions, rather than simply documenting their lives' (Clark et al., 2014: 3-4). Alderson (2014) and Flewitt (2014) remind us to reflect on potential issues of exploitation and the importance of balancing out any 'personal gain' we may reap as researchers by ensuring 'benefit for participants' (Flewitt, 2014: 144).

Teacher research involves three dimensions, as Zeichner and Noffke (2001) suggest: – the *personal*, which links to questioning and improving our practice, the *professional*, which links to challenging and building on current theories and practice around literacy teaching, and the *political*, where we are asking how we can 'change and transform literacy education to challenge existing structures of power and privilege so that literacy education and the world are fairer and more just?' (Pappas and Tucker Raymond, 2011: 266). Yet not all teachers will find the 'politics of resistance' (Giroux, 2001) straightforward in their setting.

Clark et al., (2014), Kellett, (2014) and Alderson, (2014) all highlight the role of the UN Convention on the Rights of the Child in guiding research in recent years. I was very lucky that my setting was a UNICEF Rights Respecting School and that I had had the role in the three years before the research was conducted of making sure the UN Convention on the Rights of the Child (UNCRC) was embedded in the way of life of the school, including in curriculum and policies. I was also fortunate to be working with colleagues who allowed and valued questioning and resistance. The school's focus at the time was on the boys' progress in writing and the progress of disadvantaged children so innovation and trial and error were encouraged. Thus without my realizing, some of the ethical risks of practitioner research were mitigated by

the situation and values in which it took place. I know many teachers are not so fortunate.

Nevertheless, issues around consent and power in interviews (Flewitt, 2014) were real. Unlike Smith (2014), I did not decide to conduct research outside my own setting so had to contend with the possibility that children and parents were participating to please me. As with all research with children, letters of consent were sent to all participants who signed them alongside their parents. On top of this, I continually reminded both children and parents about the purpose of the research informally throughout the process, trying like Clark (2014: 206) to get 'ongoing assent from the children involved, at **each stage** (*my emphasis*) of the research process'. I did my best to make sure they understood the aim which was to improve and enhance their experience of school and the online space. The intervention was in addition to rather than instead of any other provision in class. Children who did not want to take part in either the wiki or the interviews or reflections were not forced to do so and their rights to be silent or withdraw were respected. I paid attention both to my body language and theirs to try like Clark (2014: 204) to 'show respect and exercise sensitivity to how the children might express their willingness to continue to take part or to exercise 'informed dissent''.

I was also very lucky to be working alongside a very reflective practitioner in a job-share with whom I could bounce around ideas. While she was in class being the teacher, I could play the different role of researcher without having to carry out the roles simultaneously. Thus, I could interview the children (in discussion with her) at times in the afternoon when this would not compromise their learning. I could also display a slightly different persona as you can with a small group of children than when you are managing a whole class. Flewitt (2014: 146) notes that 'young respondents may...blur the role of the interviewer with the authoritative role of a teacher, and this can result in them trying to give 'right' answers, rather than answers which truly reflect their standpoints'. For me, this potential blurring of lines was even more tricky because I *was* their teacher some of the time. However, I was also opening up a space with the wiki which involved a looser pedagogy. Thus in practice,

during interviews about this space, I tried to continue this different positioning, allowing children to speak openly and freely, letting talk which in class I might have consider 'off-task' or 'off-topic' to develop.

The idea of 'pupil voice', in line with the UNCRC Article 12 (a child's right to be listened to and taken seriously) and Article 13 (a child's right to express themselves freely), was a well-established principle in school and involved consulting children on issues of pedagogy and staff selection rather than just the conventional school council role of soliciting opinion on uniform and meals (Kellett, 2014). The practice of taking on board and acting on children's suggestions for improving learning environments and spaces was well-developed. The wiki research project was no different and took place within a context and a pedagogy which viewed children's voice as something to be listened to and acted on. Thus it could be considered participatory research. As Fraser et al. (2014) note, participatory research is a spectrum. This was not research 'by' children as such but research carried out nevertheless 'with' young people rather than 'on' them (Fraser et al., 2014: 41). It was similar to the Mosaic approach adopted by Clark (2014) but with older children, incorporating children's commentaries and visualisations of the process but under the guidance of the adult researcher. It was also research aimed at understanding and enhancing children's agency. For me, as for Kellett (2014), children's voice is not enough unless it leads to genuine agency. During the wiki intervention, I tried to make listening to and acting on their voice an iterative process both within and beyond the research. I acted on children's suggestions for improving the wiki (the content and tasks set). I used the strategies I thought would encourage maximum participation on the wiki but I also tried to value non-participation so that the voice of participants and their silence (both in interviews and online) was interpreted and acted on.

One advantage of working in the same setting as you do research is that, by virtue of that position, you may be able to achieve impact on the ground relatively quickly and easily. Pascal and Bertram (2014: 28) talk of how their 'experience has shown that to achieve impact requires an extended commitment to the process, deep attachment within the context where change

or impact is desired and a firmly held belief in equitable, distributed, social action'. This was the case in our school where I was able to implement change as a result of the research (e.g. disseminating practice to other staff; investing in equipment, using new software and hardware - in this case Google Drive and Chromebooks - to replicate the wiki space once defunct; hiring a part-time computer teacher to carry on work in a space similar to the wiki; identifying and taking small groups who might benefit from literacy intervention based on the outcomes; implementing a whole school focus on EAL learners and the expansion of oracy and vocabulary; hiring staff to support and work with particular EAL communities). This section has reflected on the 'use' of the knowledge produced. The next two sections will look in more detail at its 'origin' (McNiff, 2007: 7).

7.7 The ethno-case study

While writing up the methodology, I asked myself whether this study was really an ethnography or a case study employing ethnographic methods. As Parker-Jenkins (2018) explains, the lines between the two are often blurred, particularly since the internet has allowed observation to be carried out online, obviating the need sometimes for long immersion in the field. 'Both approaches employ research methods that are dynamic and have application to different contexts, sharing a variety of data collection techniques to answer a range of questions.' (Parker-Jenkins, 2018: 21). In some ways, this study did fulfil one of the criteria for ethnography because it involved being embedded in a context over a sustained period of time (unlike case studies which can be carried out in weeks or months). Nevertheless, it also involved some hypothesis-testing more common in case studies (Stake, Merriam, 1998 and Yin, 1981).

Hammersley (1990, 2006) draws attention to the potential failing of ethnography as a methodology in education. He identifies problems not only with the accuracy and generalizability of its description but also with content and construct validity. In particular, he is concerned that small, independent

studies do 'not provide an effective basis for the development and testing of sociological theory' (1990: ix). Traditional ethnographies used by anthropologists when researching remote communities have frequently positioned the researcher as having a sort of 'neutrality' (Hammersley, 2006) or 'detachment' (Parker-Jenkins, 2018). However, acknowledgement that this sort of positioning is not realistic or possible (Parker-Jenkins, 2018, Hammersley and Traianou, 2012) is now widespread. Critical ethnographies have allowed researchers to take up positions which advocate redressed power balances and highlight political issues.

Hammersley cautions that 'the ethnographer must neither be in the service of some political establishment or profession nor an organic intellectual seeking to further the interests of marginalised, exploited, or dominated groups. Both of these orientations greatly increase the danger of systematic bias' (Hammersley, 2006: 11). He also wonders whether true ethnographies should include interviews since 'there are those who insist that ethnography must involve, should perhaps even be primarily based on, participant observation' (ibid:9). According to Bloom (2011: 10), classroom ethnography is 'if taken literally' a 'misnomer' because 'the extent of the object studied – a classroom – is not sufficiently broad to provide a holistic understanding of the "culture" of a social group' and classrooms have to be seen as 'embedded in broader social groups and structures'.

Does being a teacher-researcher and thus in the service of some profession preclude ethnography? Does the fact that I carried out interviews also count against saying this was an ethnography? Parker-Jenkins (2018) coins the hybrid term 'ethno-case' study to address the changing methodological landscape. I will follow her in calling this an 'ethno-case' study – but a critical 'ethno-case' study because it addresses power struggles. It is a single case study (Yin et al., 2006) rather than a multiple one.

Yin et al. (2006: 121) describe how in practice, the criteria for choosing the case are often linked to what is possible because 'you need sufficient access to the potential data'. I chose this case because I was 'aware of the case to be

studied because of some special access' (Yin et al. 2006: 115), i.e. because of my position as a teacher in the school. I was already a gatekeeper and had access to approval from other gatekeepers. Thus I was not involved in a formal case study screening procedure as I would have been if I had to find a case from scratch. The research design, while acknowledging the rubric put forward by Yin in the positivist tradition, follows the rubric of Stake (1995) and Merriam (1998) which allows for a more flexible design. For Merriam (1998), a case study is 'an intensive, holistic description and analysis of a bounded phenomenon such as a program, an institution, a person, a process, or a social unit' (xiii) while Stake focuses on it as an 'extensive examining of how things get done' (Stake 2008, 444). It falls into the category of Stake's (1995) 'intrinsic' rather than 'instrumental' with case study dominant rather than issue.

I considered the possibility of doing a two-case study (for example using a contrasting context) but realized I would not have the privileged position of knowing the rich histories of the families as I do in my own setting. The pilot project could be seen as an exploratory case (Yin, 1981) while the main study was more of an explanatory case where I came to ask how and why something was happening and testing hypotheses.

This ethno-case study was carried out in an inner London primary school in the Year 4 class of which I was the teacher. The children were between 8 and 9 years old and consisted of 12 boys and 15 girls. The school has large numbers of children from different ethnicities, including recent refugees and the children of refugees. Almost three quarters of children (74%) in the class spoke another language at home and were classified as having English as an Additional Language (EAL). Around two thirds of pupils qualified or had qualified during their school career for Free School Meals (the measure used in the UK as an indicator of socio-economic deprivation).

The period during which the case study was conducted coincided with a period of considerable change in UK schools (including primary schools). The case study was conducted during the first year of the introduction of a new curriculum and assessment system by the British government across all

subjects. The literacy curriculum was replaced by a new English curriculum which placed much more emphasis on traditional grammar. A new subject, computing, replaced ICT (information and communications technology). The new primary computing curriculum has a particular focus on the teaching of coding and less on traditional word processing skills.

Michael Gove, Britain Secretary of State for Education, announcing the proposed changes to the curriculum in 2012, said:

“Imagine the dramatic change which could be possible in just a few years, once we remove the roadblock of the existing ICT curriculum. Instead of children bored out of their minds being taught how to use Word and Excel by bored teachers, we could have 11 year-olds able to write simple 2D computer animations using an MIT tool called Scratch”.

At the same time, with regards to educational technology for pupils to work on, schools were no longer being directed by the government or local authority towards specific (paid) software for Managed Learning Environments (MLEs or VLEs), online learning areas which pupils can access from home as well as school. Instead, they were left to choose from a range of (often free) options.

The software chosen for the case study was wikispaces, which I had previously used during Masters research. Wikispaces is an online space which is relatively intuitive and easy to use with young children. The interface resembles word processing software such as Word that they could be assumed to be familiar with. The software is provided without charge to teachers by wikispaces.com, a San Francisco based web-hosting service. At the outset, rules were agreed upon and laid down for appropriate online behaviour. Several lessons were conducted in class to model use of the software and conduct participant observation. It was also an opportunity to engage other adults in the school with the software. Homework tasks were also set to be completed on wikispaces. In addition, children were encouraged to generate their own writing within this space. The study was followed by expansion of the wiki software to other classes taught by different teachers and brief analysis of the effects of this. During this period, I moved from being

a class teacher to having responsibilities for managing literacy across the school.

7.8 Data collection methods

As Pahl (2014: 190) notes, 'methodologies for research are not separate from the research'. The metaphor of the 'theoretical lens' (Flewitt et al., 2015: 2) is often invoked to describe what researchers 'visualise and apply...to make sense of "what is going on here"'. The concept of Third Space can be both theoretical lens and methodological guide because of its 'possibility for disrupting epistemological hierarchies' and its predication upon 'an openness towards deep inquiry and dialogue' (Vasudevan, 2011: 1160).

In such a methodological Third Space, problematizing data methods and analysis are important. Vasudevan (2011: 1170) invites us to be constantly developing 'a new kind of relationship with the lens and its surrounding sculpture by engaging in a new posture of seeing'. We are asked to value 'unknowing' – 'an act of dwelling in the imaginative space between declarative acts of knowing and not knowing' (ibid:1157). Somerville (2007: 235) in her advocacy of a methodology of post-modern emergence asks us not just to do research in a 'space of unknowing' but to 'undo the self' as part of 'the messiness, unfolding, open-ended and irrational nature of becoming-other through research engagement'. Thus, just as emergence is part of my theoretical framework it is also part of my methodology and occurs 'in the space between data ...and analysis' (Somerville, 2007: 230). It is in this space that we develop as researchers and are ourselves changed during the process (see reflexive aside 9.8 in Part Two).

Much of the recent focus on methodology in literacy research, in schools and with young people (Flewitt et al., 2015) values the sensory, embodied nature of the research experience with all its 'folds, wrinkles, back alleys and whirlpools' (Davies, 2015: 35). Data was collected from the 27 pupil participants and 5 of their parents during the 12-month wiki intervention and over the following year when I continued to teach the same children. Data collection methods are

presented in detail below and included participant observation (including online observation), initial pupil questionnaire, interviews with pupils, parents and teachers (semi-structured individual interviews and focus groups) and analysis of documents and texts (online and offline texts created as well as scrutiny of conventional assessment data). Table 3 summarises the data collection methods which the following section describes in detail, including some of the messy realities and ‘turbulence’ (Davies, 2015: 32).

7.8.1 Participant observation

According to Gold’s (1958) typology, I was ‘participant as observer’ rather than ‘observer as participant’ i.e. my role as observer was subordinate to my role as participant (namely teacher) rather than the other way round. As Patton (2015: 338) notes, there are considerable challenges combining ‘participation with observation so as to become capable of understanding the setting as an insider while describing it to and for outsiders’. Participant observation took place over a full year as the wiki intervention was implemented, rolled out and amended. Observations were recorded in field notes which were written up in a journal later that evening: unfortunately video recordings in the class were not practicable given my teaching role.

Observation took place both in the physical space of the classroom as well as of students’ online behaviours and practices. I kept a research journal throughout the data collection period, contributing to it at least four or five times a week during term-time, including writing up notes from the three days a week I was in class as well as notes on other days including the weekend when I observed online participation. I made some journal entries during half-terms and in the holidays when it was also possible for students to continue online participation. I was able to continue observing beyond the year of the wiki intervention for a further year as I continued to be the children’s teacher and the wiki was still available for them to contribute on during this period.

Table 3: Data table

Research method	Participants	Data Collection	Data capturing	Data treatment	Data analysis
1. Participant observation as class teacher (in class and online on the wiki)	<p>Pilot: 27 children in Year 5 over 2 terms</p> <p>Main study: 27 children in the second and third term of Year 4 and first term of Year 5 during wiki project</p> <p>The same class of children were also observed in the second and third term of Year 5 and first term of Year 6 after wiki project</p> <p>Parents of the 27 children</p>	<p>One classroom over three terms during wiki project.</p> <p>Subsequent observation of same children over following three terms</p> <p>Ad hoc conversations with parents after or school</p>	Field notes and journal	Interpreting notes, coding and triangulating with 2 and 3	Observational data examined and interpreted for common themes
2. Survey and interviews					
2a) Initial survey	<p>Main study: 27 children in Year 4</p>	Questionnaire	Paper	Information tabulated and presented – Tables 7 and 8	Data examined and interpreted
2b) Focus group interviews	<p>Pilot: Group of 3 girls Group of 4 girls Group of 4 boys</p> <p>Main study: First round 5 girls 4 boys Second round 4 girls 2 girls 4 boys</p>	Semi-structured interviews	Voice recording (Audacity)	Transcription and coding	Interview data examined and interpreted until theoretical saturation reached

c) Individual interviews children	3 boys	Semi-structured interviews	Voice recording (Audacity)	Transcription and coding	Interview data examined and interpreted until theoretical saturation reached
d) Individual interviews with parents/carers	Main study only 5 parents (one interview was held with child present who also contributed)	Semi-structured interviews	Voice recording (Audacity)	Transcription and coding	Interview data examined and interpreted until theoretical saturation reached
e) Individual interviews teacher	Main study only 3 teachers (Year 3, 4 and 5)	Semi-structured interviews	Notes on interviews	Interpretation of notes and triangulation with 1, 2 a-d and 3	Interview data examined and interpreted until theoretical saturation reached
3. Documents and texts					
a) Analysis of texts (children's written work in books)	Main study only 27 children	Written work produced during literacy lessons	Photocopying	Analysis of content and triangulation with 1, 2 and 3 b-c	Texts examined and interpreted until theoretical saturation reached
b) Analysis of texts (children's written work on the wiki)	Pilot study 27 children Main study 27 children	Work produced on the wiki in class and at home	Screen shots	Analysis of content and triangulation with 1, 2, 3 a and c	Texts examined and interpreted until theoretical saturation reached
c) analysis of children's drawings of their home use of technology	Main study only 27 children	Drawings during reflection on wiki project	Paper-based drawings	Analysis of content and triangulation with 1, 2 and 3 a-b	Drawings examined and interpreted until theoretical saturation reached

Fieldwork in the classroom took place on a daily basis as children often came up to me first thing in the morning to talk about something they had posted on the wiki the previous evening. There were also the lessons in class where we used the wiki both at the beginning to set up the process and throughout the year as I planned and delivered lessons to model effective wiki contribution and try to increase participation as much as possible. As all participant observers find, participant observation as a research tool is riven with 'messiness and contradictions' (Montgomery, 2014: 124). One thing particularly difficult when you are teaching the class at the same time is to follow Taylor and Bogdan's (1984: 54) advice to shift from a 'wide angle' to a 'narrow angle' lens, and focus 'on a specific person, interaction or activity while mentally blocking out all the others. The classroom is noisy, what the teacher can see is subjective and selective: 'a vision that is free from everywhere and nowhere, equally and fully' is, as Haraway (1988: 584) observes, an illusionary 'God trick'.

I found, just as Merriam and Tisdall (2015: 143) note, that when you start 'you do not know what will be important, so you try to observe everything; you are concerned about the effect you will have on the scene; you miss things while taking notes and so on'. For me, snatched fieldnotes had to be frantically scribbled down while I was teaching or just after I finished, during break and lunchtime. These handwritten notes (what Lofland and Lofland, 1995, call 'jotted notes') then had to be typed up and fleshed out that evening as full field notes in an observation journal. I tried to keep the notes as descriptive as possible (Frank, 1999), leaving interpretation for separate analytic memos and the coding stage. At home, in the evening and on the weekends, I would also check the children's contributions to the wiki and document them as part of the research log. As Merriam and Tisdell (2016) note, online observation can be easier than offline as you are less visible as a participant. Certainly, times spent checking what had happened online were less fraught than recording the busy-ness of the classroom.

Participant observation also took the form of snatched conversations with children and their parents (apart from the official interviews) which I documented as best I could as in the following extract:

'After school had an informal meeting with Vladimir's mum. Vladimir told his mum about the wiki. 'It's like a Wikipedia for children but set out so children can understand it.' (His own words, not parroting anything I had said).'

Merriam and Tisdell (2016: 143) remind us that 'conducting an observation, even a short one, can be exhausting'. This felt particularly true when I was juggling the dual roles of participant observer and teacher, trying not just to make detailed-enough observations but also to make sure (in my role as teacher) that the children were safe online and that the wiki was a success – that the tasks I was setting were engaging and accessible for as many children as possible. This was without a doubt an exhausting and tricky balancing act. As Gans (1982: 54) describes, being a researcher participant can lead to feelings of guilt and even distress, 'an internal tug of war' as you worry about whether you are doing the right thing both by the other participants and by your dual roles. I wrote myself regular data summaries on a spreadsheet of who had contributed what and made notes to self of how to engage more students and increase participation.

7.8.2 Survey and interviews

At the outset, a structured survey (see Appendix 5) was given to all the children to ascertain the range and types of devices they were using regularly and the sorts of games and software they used frequently. They filled this in on paper during class before the first session during which the wiki was explained and set up. The main purpose of this was to find out whether and how children would be able to access the internet from home. In addition, this initial data also shed some light on children's current online practices out of school.

Interviews (with children, parents and teachers) were a key part of the data collection process. In all, sixteen children (of the 27 in the class) took part in

interviews (either individually or in a pair or in a larger focus group). As Flewitt (2014: 146) notes, interviews, especially interviews with young children, involve the process, of 'balancing the human concern of putting respondents at their ease with the precision needed to probe for information and listening actively and responsively to what is said'. Nevertheless, because of a previous career as a TV and radio producer, conducting the interviews was something I perhaps enjoyed the most during the research process. I felt at ease with the recording software and with holding and maintaining eye contact to reassure and encourage the interviewees, allowing them to speak without interruption as I nodded to signal my listening. Thus I was familiar with both verbal and non-verbal ways of probing to elicit more detailed answers.

An interview schedule was drawn up with questions for the semi-structured interviews (see Appendix 6). The questions included 'experience and behavior questions', 'opinion and values questions' and 'feeling questions' (Patton, 2015). In practice the interviews for the main study were slightly more conversational and less structured than those conducted for the pilot – I was more confident with the approach now to interviewing children and keen to allow their voice to be heard loud and clear. I allowed them in the focus groups to bounce off each others' ideas rather than me intervening too heavily. Just as Clark (2014) notes with her Mosaic approach, I tried to be inclusive and use different methods for different children. So for some children whose voices might have been muted in the larger group, I conducted individual interviews.

The choice of children to interview was made using purposive sampling techniques. The children who were participating most enthusiastically in the wiki were the ones chosen for the initial rounds of focus group interviews. At the end of the first term of the wiki, I held focus group interviews for several afternoons with groups of boys and girls. As Jon Swain (2011: 112) notes, group interviews have been found to be very effective with young children because they 'reduce the salience of the interviewer' while allowing 'shared perspectives' (Denscombe, 1995: 137) to emerge. The children were broadly in friendship groups with one group consisting of boys and one of girls. Swain

(2001: 113) notes that interviewing children in friendship groups creates 'a familiar and secure atmosphere of trust ...and being with friends also enhanced the possibility of them talking more freely'. Five girls took part in the first group and four boys took part in another group. At the end of the second term of the wiki, theoretical sampling was used to select the children for interview. I conducted focus group interviews with two groups of girls (four in one group and two in another) and one group of four boys. At this time, I also conducted three individual interviews with boys (two of whom had not been in the focus group – the aim here was to find out more about the specific circumstances of their participation which was inconsistent) and interviews with five parents. One child (who had also been part of the focus group) was present during the interview with his mother and was encouraged by her and me to contribute. As I was only teaching the children part-time, these interviews were conducted on the days I was not teaching. Where possible, interviews were conducted after the school day or in the later part of the afternoon so that children were not missing lessons. All these interviews were recorded using Audacity and transcribed verbatim. During the third term, short interviews were conducted with three teachers in the school (one was the teacher with whom I job-shared the class; the other two had tried to implement a wiki in their classes).

7.8.3 Data from documents and texts

Data from interviews and observation were also triangulated with documents and texts - both those which were 'produced independently of any research project', known commonly as 'found materials' (Hearn and Thomson, 2014: 157) and those generated by the research process such as the writing on the wiki. The problematized notion of 'texts' is defined here as written language to include multi-modal 'writing' i.e. meaning-making to include other modes such as images, audio or video. As an insider researcher, I had access to number of 'found materials' such as ongoing assessment data and contextual demographic data that might not have been available to an outsider. I was also able to see the children's offline writing in their school books and compare this with the writing produced online. As Bryman (2008: 526) notes, 'the social

researcher is always providing his or her own ‘spin’ on the texts that are analysed....the conclusions you derive ...are always going to be a reflection of your own personal interpretation’. It is important to be honest about the fact that I inevitably interpreted these texts both through a ‘teacher’ lens as well as a researcher one.

Following Hearn and Thomson (2014), Table 4 is a summary of the texts and documents which were analysed using qualitative content analysis or what Bryman (2008) and Altheide (1996: 16) call ethnographic content analysis which ‘follows a recursive and reflexive movement between concept development, sampling-data, collection-data, coding-data and analysis-interpretation’.

Table 4: Matrix of found and researcher-generated texts

	Texts and documents which exist independent of the research process	Texts produced during the research process
Generated by children	Written texts in school writing books	Wiki texts Written texts in school writing books Drawings
Generated by adults	Demographic and attainment data School reports	Wiki texts

According to Krippendorff (2013: 49), qualitative content analysis is ‘an unobtrusive technique that allows researchers to analyze relatively unstructured data in view of the meanings, symbolic qualities and expressive contents they have and of the communicative roles they play in the live of the data’s sources’. Examining and analyzing the texts on the wiki involved looking not just at meaning but making the most of the affordances of the software to look at the frequency and timing of posts as well as the edit history of each wiki page in order to build up and develop the picture of the child as a writer which I was already forming as their teacher. The online texts were also what Marotzki, Holze and Verstandig (2014: 253) call ‘dynamic data’ i.e.

‘data that users generate in interactive contexts’ rather than static data. Because it was possible for me to respond to posts or delete them, the data were not independent of my role as participant observer as static data re. At the end of the project, all children were asked to reflect on their engagement with the wiki and their use of technology in the home by drawing an annotated picture and this also formed part of the dataset.

7.9 Sub-case selection

Table 5 shows the children who were chosen using theoretical sampling for further analysis and whose data is presented in more detail in Chapter 8 as sub-cases.

Table 5: Participants selected for further analysis

Child	Demographic information
Significant change in teacher-assessed writing outcomes	
VLADIMIR	EAL (English as an Additional Language) Pupil Premium*
FINLAY	English as First Language
KATERINA	EAL Pupil Premium
Moderate change in teacher-assessed writing outcomes	
MOHAMMED	EAL
ZACHARY	EAL
CELINE	EAL Pupil premium
CHRISTINA	EAL Pupil premium
No change in teacher-assessed writing outcomes	
AISHA	EAL
SAMARA	EAL Pupil Premium
*Pupil Premium denotes a child who receives or has received Free School Meals during their school career – an indicator of socio-economic deprivation.	

All the children who were chosen were those who had made significant contributions on the wiki. However, they come into three categories – those for whom practices on the wiki made a significant difference to their development

as a writer (three children – Vladimir and Finlay and Katerina), those for whom it made a moderate difference (Celine, Christina, Mohammed and Zachary) and those for whom it seemed to make no difference (two children - Aisha and Samara). All children's names are pseudonyms. Demographic information about children is included in this table as this was also analysed during the coding process.

7.10 Coding process

The data was analysed using a combination of NVivo software and manual colour coding. The theoretical categories from Archer's (2000) work were used in conjunction with Leonardi's (2013) concept of sociomaterial imbrication to identity categories once the initial coding had taken place (see Table 6). Data were initially coded and put into data fragments using NVivo. The initial codes involved different types of codes appropriate to research on literacy learning (Burns, 1999): participant (or *in vivo*) codes such as *fun or enjoyment*, process codes such as *peer scaffolding*, activity codes such as *handwriting versus typing*, strategy codes such as *revision/editing* and relationship (social structure) codes such as *community of practice*. However, I found, just as others have (Bryman, 2008), that this fragmentation and chunking of the data led me to lose sight of the context and feel, like one of the researchers quoted by Bryman (2008: 583), 'detached from the findings'. Smith et al. (2015: 8) talk of the feeling of being 'constrained by the output of coded transcript snippets'. Like Smith, I felt that 'I was not seeing the movement of the categorised practices across contexts and time, or in other words, seeing the developmental relationships and patterns amongst the data' (2015: 8) so I decided to immerse myself back in the data, reading and rereading the field notes and interview transcripts and listening again to the interviews - a 're-insert(ion) through memory and imagination work into the sensory lived experience of the field' (Pink, 2009: 120).

Table 6: Coding scheme

Initial codes	Analytical categories							
participant codes e.g. <i>fun or enjoyment</i>	Imbrication							
process codes e.g. <i>peer scaffolding</i>	Spatial				Temporal			
activity codes e.g. <i>handwriting versus typing</i>	Social		Material		affect	personal emergent properties	identity development	structure/agency
strategy codes e.g. <i>revision/editing</i>	Online	Offline	Online	Offline				
relationship (social structure) codes e.g. <i>community of practice.</i>	Emergent properties	Emergent properties	Emergent properties	Emergent properties				

I then started to colour-code the data manually using Microsoft Word. After this, I generated categories as nodes visualized on a mind map. An overarching category of *imbrication* was used as a main (parent) node in the middle of the map – see Figure 14.

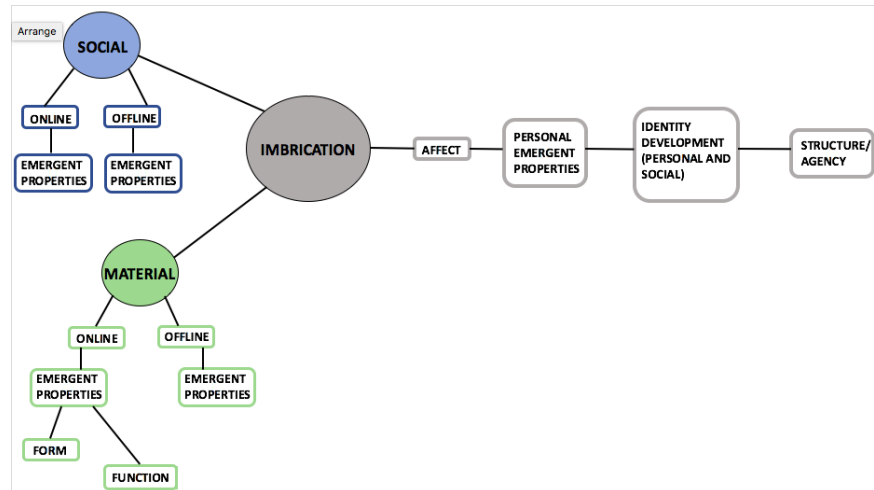


Figure 14: Mind-map used during the categorizing and connecting process

The left side of the map was used for categories linked to *spatiality* and the right hand side for those linked to a *temporal sequence*. On the left of the map were the sub-categories or child nodes *social* and *material* seen as analytically distinct as advised by Archer (2000) and Leonardi (2013). Further sub-categories *online* and *offline* for each of these were drawn. The category *emergent properties* branched off each of these four categories. These nodes allowed for the analysis of children’s literacy practices as discussed by them and their parents in their interviews and as observed by me both in class and online. This way of visualizing the codes helped me to unpick the distinct factors for each child and try to fathom the answer to why different children’s outcomes and practices differed. The right hand-side of the mind-map looked more like a time-line, starting with the category/node of *affect* leading to further sub-categories *personal emergent properties*, then *identity development* and finally *structure/agency* in line with Archer’s theories of identity and agency. This way of coding helped me to understand the development of identity and agency as a temporal sequence in line both with what I had observed and with the focal theory.

The next chapter, Chapter 8, is a descriptive account of what happened during the empirical research for this thesis written very much in 'teacher voice'. It is largely a narrative but is followed by two chapters of theorized analysis, Chapters 9 and 10, which link back to the themes discussed in Part One.

Chapter 8 – ‘Imma do about 30 chapters...’

8.1 Introduction and context

This chapter describes the *people* and the *parts* as well as what happened when they were put together in the Third Space. It will start with a brief summary of how the project was set up and how it progressed, detailing initial and subsequent successes and challenges. The second half of the chapter consists of individual case studies of the sociomaterial practices which resulted from selected children’s imbrication with the technology.

The school, as mentioned in the last chapter, is an inner city school serving families with high levels of deprivation and English as an Additional Language (EAL). The work began while the children were in the Spring Term of Year 4 and continued for a full year right up until the beginning of the Spring Term in Year 5. Some children continued to use the wiki after this. The class consisted of 14 boys and 13 girls at the outset although there was some pupil mobility during the project with two new EAL children joining who had limited English. The cohort included some boys with very difficult family backgrounds and serious behavioural issues who were receiving support both in school and from outside agencies. The class was well-known throughout the school as challenging. For this reason, they had the same teachers (working part-time and job-sharing) throughout the last three years of their primary schooling – Years 4, 5 and 6. I was one of these teachers.

The project took place against a backdrop of considerable change in UK primary education with the new national curriculum and assessment requirements coming into force the year in which the research was conducted. The new English curriculum (formerly known as *Literacy*) involved much more focus on grammar, spelling and the technicalities of writing composition than previously. Children were assessed at the end of the academic year as to whether they were meeting the expected standard for the year group. This differed from the previous system of National Curriculum levels which could be applied to children in any year group.

As discussed in Chapter 7, a research log (journal of observations) was kept throughout the project, interviews were conducted and children’s written work online and offline was scrutinized and analysed. The advantage of being the children’s teacher for the three years meant that the work on the wiki could be seen in context and its usefulness related to other work in class. An understanding of the children’s family backgrounds, built up through interaction with them and their parents over these and previous years, also informed the data and analysis of them.

8.2 Initial data-gathering questionnaire

At the outset of the project, a short questionnaire consisting of some open and some closed questions was given to the whole class to gauge the extent and range of children’s internet usage outside school as well as to find out which devices they were using to access the internet (see Appendix 5). 100 % of children reported that they were allowed to use some sort of electronic device which gave them access to the internet at home. 9% could only access a games console but 82% had access to two or more devices while 55% had access to at least three devices (see Table 7 below).

Table 7: Number of devices per child

<u>Number of devices</u>	<u>% of pupils</u>
One device	18%
Two devices	27%
Three or more devices	55%

Computers (PC or laptop) and iPads were the most popular devices used by children - 33% and 31% respectively of all the devices reported. Phones (19%) and games consoles (17%) were less widespread– see Table 8.

Table 8: Distribution of devices reported

<u>Device</u>	<u>Frequency</u>	<u>% of Total devices reported</u>
X box OR Nintendo or playstation console	IIII IIII (9)	17%
Phone	IIII IIII (10)	19%
PC/Laptop	IIII IIII IIII II (17)	33%
Ipad/tablet	IIII IIII IIII I (16)	31%
TOTAL	52	100%

Children reported accessing a wide range of software and multi-modal content, largely computer games and Youtube videos. More than 40% of children said they watched Youtube every day. With the exception of two girls, every child reported playing computer games weekly and for many children it was daily or several days a week. The most popular games accessed among boys were Minecraft followed by Roblox. For girls, it was Friv, while almost a third said that they played Minecraft. Some children also reported using instant messaging and communication software such as Whatsapp, Viber or Skype daily to keep in touch with each other. Apparently then this was a class with a rich immersion in and imbrication with the digital world outside school hours.

8.3 Project launch

Wikispaces was chosen as the platform for this research into what can be accomplished by children in the Third Space. It was a San Francisco based web-hosting service set up in 2005. In 2014, it was bought by the company that owns TES (Times Educational Supplement), well-known to teachers in the UK both for its weekly paper publication as well as for the wide-range of lesson plans which are shared by teachers on its collaborative digital platform. This gold-standard name gave wikispaces more credibility in the eyes of the school management and made them willing to allow it to be trialled with the class. Wikispaces wikis were free for educators. By 2015, these had been developed

from earlier iterations into *Wikispaces Classroom* which offered not just the possibility of generating a set of linked pages but also the opportunity to add a discussion/comment section underneath it. The pages were editable, with each version being saved. The comment section beneath was more like Twitter or a blog in that children could not change their contribution once posted. However as an organizer, it was possible to delete individual posts or whole discussion threads. There was also a way of inviting selected users to a smaller 'wiki within the wiki' in order to customize work for different groups of children and promote collaborative work. It is quick and easy to add users to the wiki and this was done using children's existing Fronter login and password details for ease and consistency.

The wiki was introduced during a lesson at the outset of the Spring term. The aim was to encourage independent writing by creating a space which children could add to during out-of school hours. Ground rules were agreed on and set, such as not deleting each other's work and making positive comments only. A wiki home page which included these rules was set up. Further pages including multi-modal elements relating to our history topic, the Anglo-Saxons, were also added. Pupils were told that they could make their own pages, provided the content was linked to learning.

They were shown the basic set-up of the wiki and a letter was sent home for parents to sign, giving consent for children to work on the wiki and for their work to be used for academic research purposes (Appendix 2). Parents were also asked to sign an agreement to supervise their child's work on the wiki, making sure it was appropriate, accurate and respectful. Children were told that they would not receive login details until the signed letters had been returned. The launch generated a considerable amount of excitement with children especially enthusiastic about the prospect of being allowed to write about subjects of their own choice. By the next day more than a quarter of class had returned the letters. The following week, once the rest of the letters had been returned, a further lesson was held, showing children how to log in effectively and build a page which would include multi-modal content.

8.4 Project progress: initial successes and challenges

By the end of the first weekend following the wiki launch, more than a third of the class (roughly 10 children) had logged on and made some of their own content of varying quality which, with the exception of one child, involved adding images and hyperlinks. The pages were linked to content covered in class and covered a range of topics (such as Narnia, Anglo-Saxons, times tables, playing the ukulele). There were also examples of positive comments which children had made about each others' work in the comment section at the bottom of each page.

The main successes after the first two weeks were: several children (more able writers) had used the affordance of being able to see each other's work to edit and improve their own; a child who hated writing and sometimes refused to write had written several long pages of content with multimodal elements inserted; a child who struggled in maths had built a page inserting videos of times tables raps to help him; a child who struggles with reading and never filled in her reading record had made a poetry page with Rudyard Kipling's Poem 'If' on it adding the comment below: *"I read it all it makes sence (sic) to me, i hope you like it."* During class, such contributions were praised and shown to the whole class. This was clearly motivating for children – they realized that this was a way both to get the teacher's attention and have their work showcased in front of their peers.

The project encountered a couple of early teething problems such as the children's lack of basic wordprocessing skills and understanding of appropriate etiquette. These challenges had not arisen during earlier years using the wiki and came as a something of a surprise. However they were quickly overcome.

The new computing curriculum in the UK, which came into effect the same academic year as this study commenced, has a heavy emphasis on programming or coding, partly as a reaction to the emphasis of the previous ICT curriculum on wordprocessing skills. However, the baby may have been thrown out with bathwater, in so far as equipping children to be 'active participants in the digital world' which the new curriculum also charges

educators with. As other teachers, such as those who took part in Barrs and Horrocks's (2014) research about blogging in schools, have found, the new curriculum makes no mention of explicit instruction of basic starter skills such as logging in, inserting links and images and fluent typing. The assumption underlying this omission may draw on Prensky's 2001 (now widely regarded as flawed) characterization of this generation of children as 'digital natives'. However as Selwyn (2008) notes, consumption of digital content (whether playing games, surfing the internet or watching Youtube, whether via games consoles, phones, tablets or computers) does not necessarily give children the skills to produce their own content. What quickly became clear at the outset of this research was that time needs to be set aside to teach these basic skills (some of which were covered in the old ICT curriculum) before any such project can get off the ground and any wider affordances of the technology can be accessed and taken advantage of.

There were also some teething problems during the first few weeks of the project around appropriate online behaviour and children's representations of themselves. One child deleted the pages of two children she was in a playground argument with. She had to be shown that internet actions and comments can easily be traced to the user who has made them. The whole class was reminded of this and this behaviour did not happen again during the project. It was necessary in the initial weeks to delete a couple of comments which did not link to the pages or the learning in order to be clear what the focus of the discussion sections should be. Children were spoken to individually and the whole class was reminded that this was a work environment. Examples were given of adults losing their jobs over social media comments. Some children soon realized that they could change their usernames and add a profile picture. One (mild-mannered) child posted an image of a masked man with a bazooka to identify himself. Again, this was an opportunity to discuss internet safety and appropriate representations of themselves.

E-safety and appropriate comments were repeatedly stressed to the whole class and discussed in circle time which gave children an opportunity to raise

issues about their online safety at home. Many of them mentioned having encountered trolling while playing online games and being asked for their details by strangers. One child raised the fact that he was playing a video game with people he doesn't know. The wiki project gave us an insight into children's online behaviour at home that enabled us to alert parents to concerns. Some children talked about how they preferred the stricter rules of the wiki to what they had previously encountered online at home. A couple of boys went on to make their own unsolicited internet safety pages on the class wiki.

One child with severe behavioural problems made negative comments on our wiki and on other children's wikis. It was necessary to be very vigilant about this with a *one strike and you're out* policy. After one negative comment, he was banned from the class wiki. After one negative comment on another child's wiki, he was removed from the whole wikispaces site. This was despite a discussion with his mother and a further 1:1 chat he had with the learning mentor where he did not seem to understand what he was doing wrong. This child was eventually excluded from the school the following year for other reasons.

8.5 Developing the Third Space in class

The initial focus had involved allowing children to have a more or less free reign on content as they got to grips with using the technology. Over the following weeks, the aim was to scaffold more content in class so as to ensure that children had adequate support and a framework to aid them with the development of their writing in the Third Space. The first attempt to do this involved incorporating all the elements children were used to having in a class-based writing lesson into a page. This included a learning objective and pointers about how to be successful (success criteria) as well as a writing frame. Children were given the opportunity to start the task in class and finish it for homework. This turned out to be a less than inviting task for the children – some pages were not finished. In general, the quality of the work was lower

than it would have been in the writing books. However it was clear from observing the children during the lesson where this task was set up that even the most able children were struggling to interpret and use the simple toolbar buttons and tooltips such as those which allow you to align or re-size an image. They also had trouble with the materiality of the wiki page, struggling to manipulate the screen and scroll up or down using arrow keys. A few children were still not able to log on or add pages at all. More class time was therefore allocated to familiarize pupils further with the software.

Linking the wiki to existing classroom practice caused problems. Children were demotivated by seeing some of the same prompts, such as Learning Intentions and Success Criteria. The offline practice of making 'two stars and a wish' comments by the teacher did not work on the wiki because the comment space below the pages was public. On the one occasion when a teacher's 'next steps comment' was made in response to a child's work - "Can you add an image or a video of someone playing the ukulele", this elicited further comments from other children that were negative, such as: *"Add more. Right now it's a little boring."*

The following term, we tried to use the wiki in class to develop collaborative writing. A session was set up where children were asked to work in pairs on the same page. Children started by using books and internet research to write notes offline about wolves. They were then asked to pool ideas and write them up together on the wiki page. Although this task was done competently in class, no-one went on to elaborate on or continue these pages after school.

8.6 Development of the Third Space out of class

Some of the most successful writing on the wiki was done in response to loosely framed homework tasks which the children were given time to develop over several weeks. In the spring term, they were asked to write a page about their own country. This was very successful and there were only three children who did not make a page (these were children with chaotic home lives who struggled to submit any kind of homework). The others created a variety of

excellent pages, well-written and including multi-modal elements. When I asked some of the children about their work and praised it, they told me of help they had had from siblings or cousins. At parents' evening, parents also spoke of how motivated their children had been during this task and how much they enjoyed working with them.

In addition to this, about a month into the project, some of the boys realized that it was possible to make their own wikis and came in to tell me. I told them that they needed to be careful about this and ensure the wiki settings were set to private. The boys took on board and respected this advice and also made me an organizer of their wikis. I also informed parents and reminded them to monitor their child's use of the site. The personal wikis that the children create are only free for one month. After this they expire. Various boys and girls tried this for several months, creating their own wikis covering topics from Pokemon and internet trolling to fashion.

One of the boys had started his own wiki and off his own bat invited three friends to contribute to it. They were asked to write a Minecraft story from different points of view. In effect, this child was using the affordances of the wiki to set up a collaborative writing task. This story was added to over time and became one of the key ways one of the most reluctant writers in the class developed as a writer. This wiki, like the others, expired but I was able to use the affordances of Wikispaces Classroom to invite the four boys into their own unique project space where they continued to write. Five months into the project, our most reluctant writer was adding many chapters in his own time, writing in perfect narrative style and posting in a different register underneath (Figure 15):

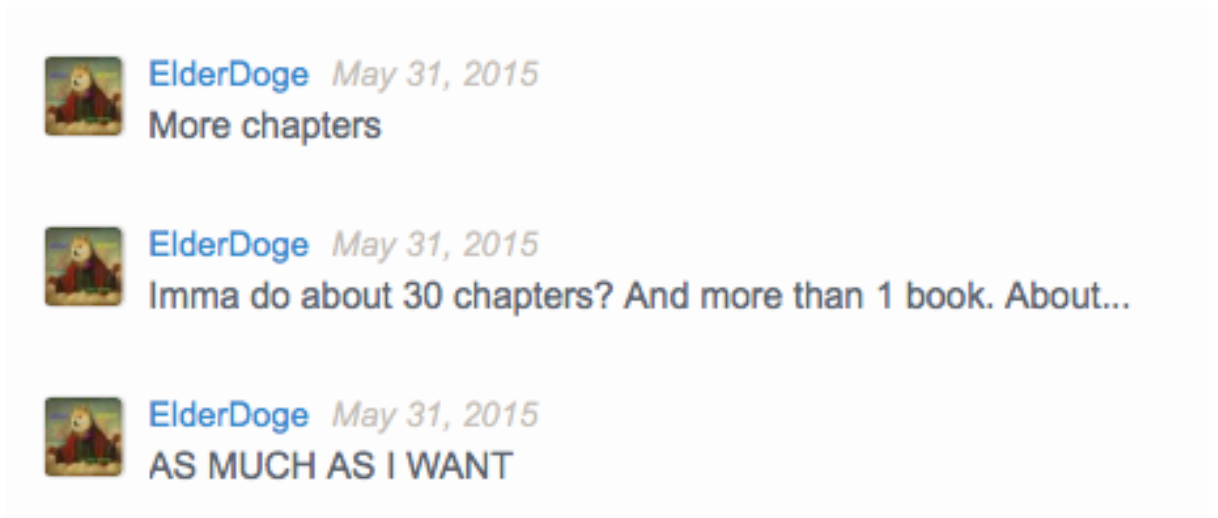


Figure 15: Vladimir's post in the comment section below the Minecraft collaborative writing page

8.7 Assessment of children's writing out of the Third Space

At the end of the summer term, conventional assessment of children's writing (in their books) was undertaken, using the new assessment criteria under the new curriculum. This made it hard to assess progress from the previous year in the way we had previously. However, from scrutinizing the content in the children's books, it was clear that some of the children who have used the wiki extensively in their own time have made excellent progress. Their handwriting, fluency and stamina as writers showed considerable improvement. Discussion and moderation of writing was carried out with the other teacher involved in the jobshare. She too was pleased with the wiki intervention and believed it had impacted positively on certain children's writing.

Some children had also benefitted from a session in class, during the spring term, when we used the affordance of being able to see each other's pages to see if children could edit and improve their offline writing. Children had written their own narratives of the Narnia story, typed these up and uploaded them to wikispaces. During the lesson, children were asked to read each other's work and make positive comments in the comment section. In the afternoon a lesson was scheduled for children to re-draft a section of their work having seen other children's. This worked particularly well for a couple of children

who write technically well but have less creativity or imagination. They were able to edit and improve their work. However, the effect for some others was negligible.

8.8 Final term and subsequent use of the wiki

During the summer holidays, several children continued using the wiki, adding and editing content and expressing interest in using wikispaces in the next academic year. One girl posted in the comment section on the front page: *“I am so exited [sic] to go on to year 5 I hope wikispaces is still with us when we go there....happy holidays....bye”*

By the third term, (Autumn of Year 5), the variety of uses of the wiki was embedded. As had been the case in the previous terms, loosely framed tasks were set for homework. This term the topic was Ancient Greece so tasks included making pages about gods and goddesses and famous Greeks of their choice. The wiki was used as a showcase for children’s written work in class (Greek myths) once it had been typed up. Children were encouraged to improve their own work in response to seeing that of others. There were word and sentence level tasks on the wiki to include spelling and grammar pages with more tightly-framed tasks. These pages were the least popular. In addition, children were allowed to contribute their own content provided it was linked to learning.

Children were becoming much more adept at editing and improving their texts. This tended to be improving punctuation and spelling although for some children it could involve substituting words with more ambitious vocabulary or improving sense and flow by changing repeated nouns to pronouns. In addition to the set homework, several children did their own unsolicited work, for example writing up versions of myths other than the ones we were covering in class. A couple of children changed their usernames to Greek linked ones – Hermes and Apollo.

My own role during this term changed. I became responsible for English throughout the school and now had a management role on the senior leadership team. The success of the wiki in our class in increasing motivation and standards meant that we rolled it out to two further classes with experienced full-time teachers. Due to competing demands on teacher time, one of these wikis never got off the ground. The other one was used for open-ended homework tasks such as Roman project and short stories on any subject, the results of which were varying in quantity and quality. There were no unprompted contributions and the wiki ran out of steam after a few months.

Once the Autumn term ended, the official gathering and scrutiny of the wiki data was over. However, as I continued to be the children's teacher for the next 18 months, it was possible to watch how they continued to use it. Two or three children continued to use it to contribute homework throughout year 5 and 6. One or two children continued to use it not for homework but to add pages around their own interests such as *2016 Fashion Styles*, *Scratch*, *How to Speak Fluent Algerian* and *My Adventure story*. Two of the most prolific users (and originally reluctant writers) went on at the end of Year 6 to have their portfolio of work in writing judged to be *At Greater Depth* by external moderators. Yet two who had also used it extensively were right at the other end of the scale (one was judged to be only just *Meeting the Expected Standard* while another was working *Below the Expected Standard*). How and why this could be the case continued to perplex me and led to my further refining the theoretical notion of sociomateriality. The following section looks in closer detail at selected children to describe their contributions to the wiki as well as interview data and contextual information. Theoretical sampling was used in the choice of focus children as described in Chapter 7. These sub-cases have been organized into those students who had significantly improved outcomes, those with moderately improved outcomes and those with no improved outcomes in their development as writers using conventional offline teacher writing assessment. There is also a brief section describing the outcomes for the other boys and girls in the class.

8.9 Sub-case studies

Boys' case studies

Significantly improved outcomes: the cases of Finlay and Vladimir

Finlay was one of the few children in the school with two professional parents, a child who would be classified as middle class - whether under traditional sociological definitions or the new seven-class system introduced by sociologists Mike Savage and Fiona Devine (2013) in the *Great British Class Survey*. Year 4 was to be his last year in the school as his parents were moving him to join his sister at a nearby fee-paying school. This was quite common practice among high-income parents at neighbouring schools in the locality though relatively rare at our school.

Finlay did the early homework set on the wiki, such as continuing a recount of a class trip. He completed this competently (though not in great detail) as he did with other later homework, for example when the children were asked to make a page about their country of origin. When asked to add a poem to the wiki for homework about three weeks into the project, he chose the William Blake poem "*Tyger, Tyger*" and was able to link his new page to the main page. Finlay had two great successes on the wiki. Firstly he used it to 'magpie' ideas from the class's most fluent and competent writer and improve his own offline writing in class. This was particularly obvious in narrative writing around Narnia where he was able to add figurative language and more complex syntax to his own writing as a result of reading the higher attaining writer's work on the wiki. Finlay was very aware of the collaborative, social nature of the writing practices on the wiki and excited about and able to leverage its affordances for this. His second and most important success was setting up his own space within which he and his friends co-constructed a Minecraft narrative.

A month into the project, he made his own wiki called "Year 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29", telling me about it and saying: "*Wikispaces is the best thing on the internet. When I leave I will*

be able to keep in touch with my friends.” Because of discussions we had had about internet safety, Finlay also made me an organizer of his wiki. Finlay copied the school wiki model by setting ground rules on the first page (Figure 16).

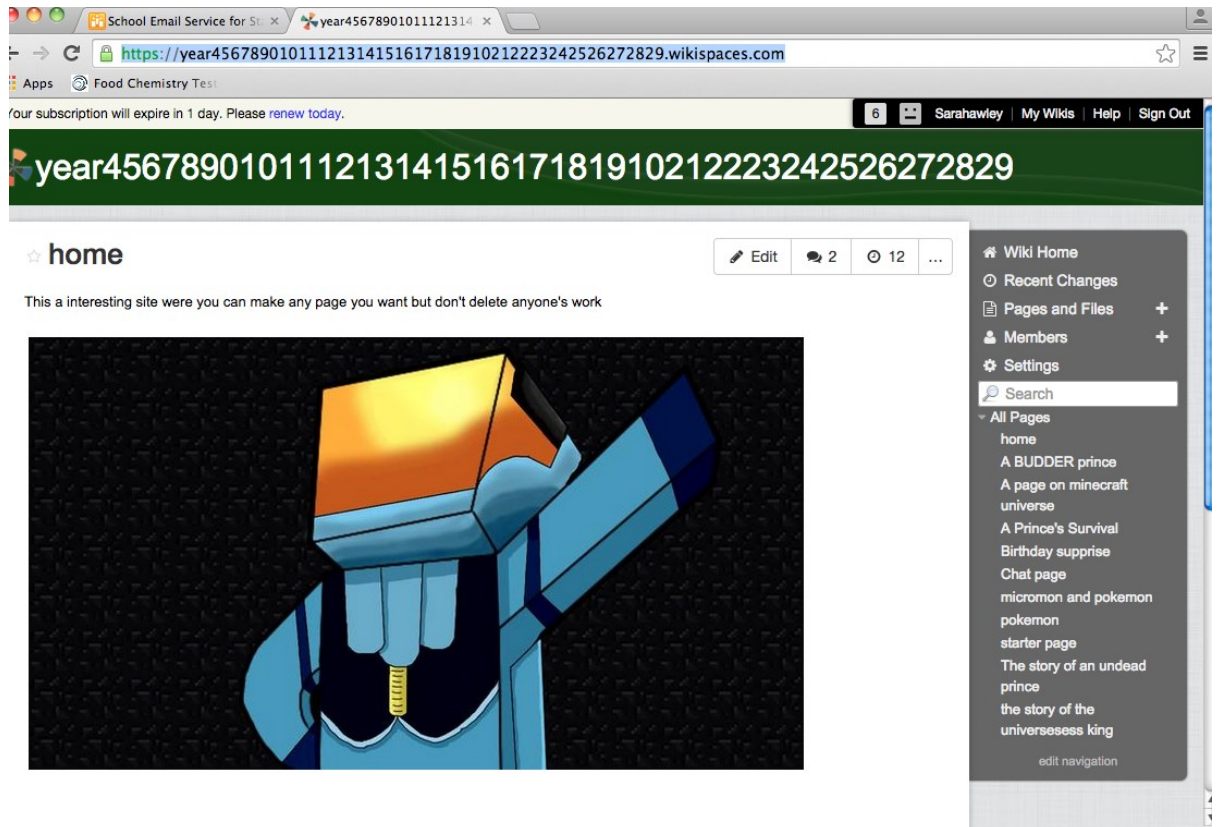


Figure 16: Home page of wiki created by Finlay at home

As is evident from the menu on the right hand side, there are a couple of Micromon and Pokemon pages. These are galleries of pictures and videos. On these pages, the children are practising inserting images and remixed Youtube videos of Pokemon anime with very little writing. However on another page, Finlay set up a collaborative Minecraft writing task, asking three of his friends to write from the point of view of different characters (Figure 17).

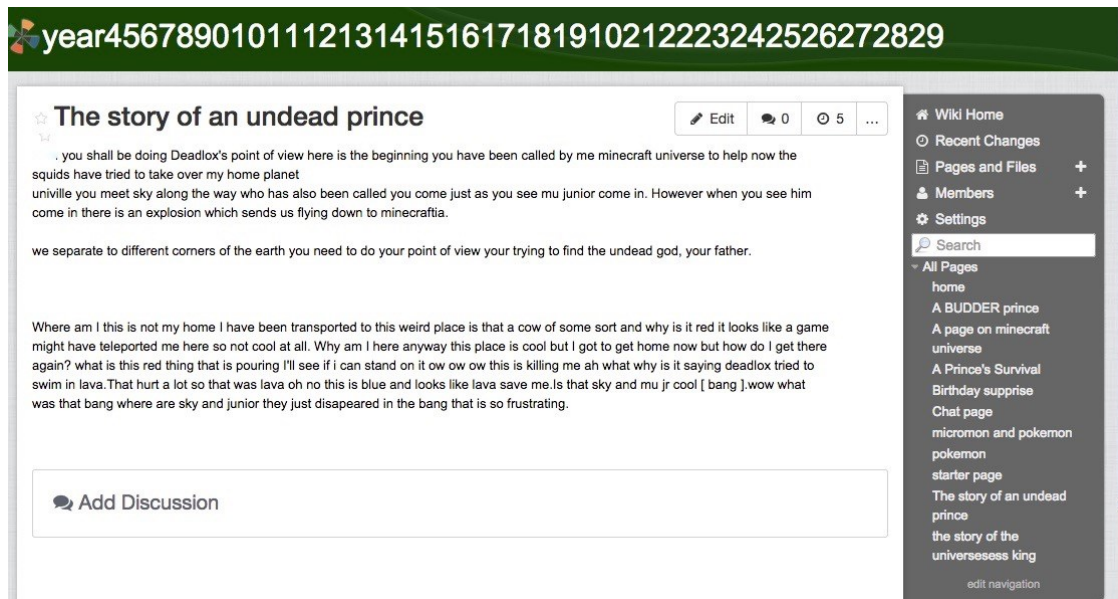


Figure 17: Page from Finlay's wiki where he issues instructions to his friends about their roles in the collaborative narrative

Finlay's mother showed clear enthusiasm for this initiative, approaching me at the school gates to discuss it, saying: *"It's great. It's all his own doing."*

During an extended interview at the end of the second term, Finlay explained the genesis of the collaborative story space – how the game had inspired the narrative and how the narrative could inspire the game:

"It was on a day that [names 3 friends] and I were really into Minecraft and were talking about it lots. We all have our characters. I decided maybe if we write down an adventure, it could be quite cool, because then we could relate back to that if we are ever playing it. It would also help us understand each other's character a little bit.

Then I did think – if we all had separate adventures, it could take quite a while and we might argue. If we do it all from our point of view, on that story, we could really collaborate and it would really work out well."

Three of the boys went on to develop a considerable amount of writing on this wiki, writing for many months throughout the duration of the project and for about six months beyond.

When asked to reflect on the wiki during the focus group interview at the end of the first term, the boys immediately got into a discussion where they shared advice on how to fix technical issues. They freely asked and answered questions, showing agency and empowerment. Finlay offered his advice on how to space out pictures on the page while others pitched in. The boys used their knowledge of overcoming technical difficulties when they play games to attribute any unresolved issues to 'lag' which Finlay showed great pride in explaining to me, knowing himself to have more expertise than the teacher with this:

“Lag is when something’s much slower than it should be. When you’re typing something, if there is a bit of lag, then it will take a bit of time to type in. Sometimes it will look like you haven’t typed anything at all.”

It was clear that being able to create his own wiki and invite friends as members had given him a sense of himself as an agent. *“I think one of the things that makes wikispaces really special to me – the grown ups and older children they have things like facebook and snapchat and we have our own website where we can do our own things, make our own chat pages where we can talk about things.”*

Finlay discussed avenues he was exploring to extend his personal wiki’s life, (given that there were only 30 days of free trial) such as copying and pasting the content onto a back-up wiki.

Finlay was articulate and high-attaining in other subjects but poor handwriting was hampering his composition and the fluency of his writing in class. During the focus group interview, he explained how the materiality of the keyboard affected his affective engagement with writing:

“It’s easier when you are typing because you just have to press a button. I’m not really that good at writing but in typing I’m quite fast and I just feel more attached to typing than writing.”

However, it is clearly the social aspect, in particular the link to his game-playing that was the most motivating. When probed in an interview at the end

of the second term where Finlay and his mother were interviewed together, Finlay was able to articulate further what his affective engagement with wikispaces was and how, when he was using wikispaces, he saw himself in role both as a game player and online content maker.

“When I do write on wikispaces, I do get really into it and I imagine myself as that player – I imagine what is happening and what is going on and what would happen next... When we watch Youtubers, we admire the Youtubers. But when we are writing this, we can imagine we are them and we can do what we think they would do, what they should do in this situation.”

Finlay’s Mum intervened to explain how the software allowed them to move from being passive consumers of content to actively creating it and hence have greater opportunities for action:

“My interpretation is when they watch something, they are observers. On their wikispaces, they are owning it, they are controlling the story, they are the owners.”

Finlay enjoyed using wikispaces so much that he asked, during the focus group interview, for ‘bonus homework’ there, explaining that it felt different to conventional handwritten homework:

“Since I spend a lots of my time on wikispaces, It feels more like I am having lots of fun playing around and I would definitely ask for more homework on wikispaces... I’ve just got a really good idea for one. How about we do a page on our favourite poets? It might be a bit hard. My favourite poet is William Blake - my sister is doing that. She is 13, almost 14 so it might be a bit hard but I’m ready for the challenge.”

Finlay was able to be reflective about how the software allowed the children to learn both *with* and *from* each other:

“You are learning how to express different things with others through the internet but also you are learning about the other things that people type up on their pages. It’s a great way to share things.”

For him, the discussion, or chat space, below the formal pages was useful in

enabling peer-to-peer mentoring and assistance – a chance to empower each other and take on a teacher-like role.

“Best thing is if I am on the computer, and I realise something my friends had written is a mistake, and they might have not realised - like if they were writing in the past tense and it should be in the present, I could write it in the chat and if they agree and let me change it I could go onto their work and change it if they allow me.”

Finlay’s mother was also interviewed on her own and expressed delight at the way her child had become ‘*massively engaged*’ in something which removed spatial and temporal constraints and allowed collaborative learning, ‘*almost extending the school day*’:

“I think it’s phenomenal. I think it provides a medium which is hard for them to find anywhere else. For [Finlay] at his age and with his particular set of skills, it has allowed his imagination to skyrocket in a way I can’t believe it would have if it was handwritten and the whole collaboration idea in their spare time, when they are all sitting at home at the end of the day ...is completely different from anything I have ever seen before. ... I think it was the first time he saw a purpose for the internet rather than playing games. It was a way of engaging, putting information over for his friends to be able to contribute with, using a medium he intuitively understands to build stories collaboratively with kids he sees in real time.”

She was also pleased that, because of his engagement and enthusiasm with the medium, she was asked for advice and could engage further with him to help improve his work.

“He spent a great deal of time and care, beyond what I thought he would ever do, in really building stories and really thinking about his vocabulary and whether things made sense and he would ask me to comment on what he had written in a way he would never do with his handwritten work, because it holds him back - it hinders his real natural storytelling abilities... It was the first time I had ever been asked or invited to get involved in his story writing. And the first time I realised he’s actually quite talented.”

Finlay and the case study which follows, Vladimir, are examples of outstanding successes and hence could be classified as 'extreme' cases. Vladimir's which follows could be argued to be even more successful than Finlay's as he was continuing to write on the wiki well into Year 6 and made huge gains in his offline writing as well.

Vladimir was one of the many EAL children in the class. He lived with his mother who paid a very keen interest in his education and had sporadic contact with his father. Vladimir sometimes found it difficult to concentrate in class and had weekly meetings with the learning mentor to discuss improving his focus in lessons. Like Finlay, Vladimir's writing in class was hampered by poor motor skills. He had worked with an occupational therapist and been given various physical supports by the school's SENCO (Special Educational Needs Co-ordinator) such as a pencil grip and slanted desk to help him with his handwriting. He was also in a weekly boys' handwriting group. During the year of this intervention, it was recommended to the teachers by outside agencies (including the occupational therapist) that he should sometimes be allowed to use a laptop in class to complete writing tasks.

When asked at the outset about his attitudes to writing, Vladimir said he felt 'bad' about writing', thought there was 'nothing' good about his writing and had no ideas on how to improve it. In weekly extended writing sessions, Vladimir would be disruptive and refuse to work. He was particularly unenthusiastic about narrative writing and would often seek excuses to leave the class, saying, "*I hate literacy. I feel sick in literacy.*" One of the lowest points was when, during a creative writing session with a writing expert from the local authority near the beginning of Year 4, he scribbled on his book (Figure 18).

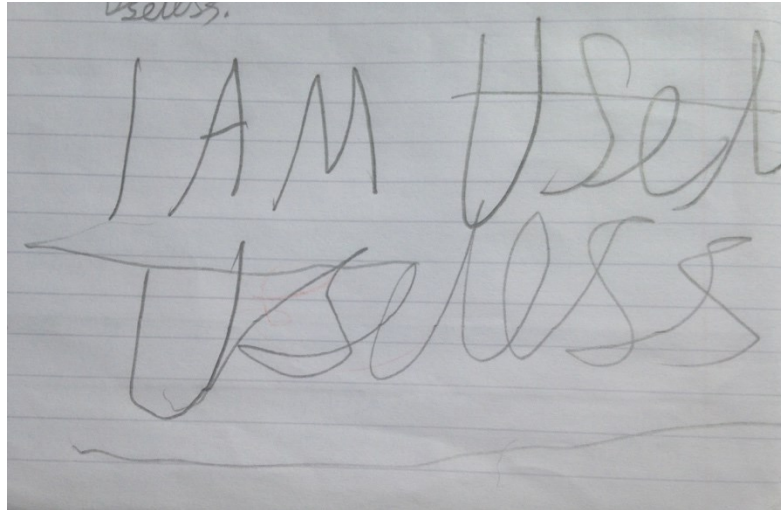


Figure 18: Written by Vladimir on his book during a writing lesson in class.

Out of school, he was an avid user of technology with access to a laptop, ipad and iphone for at least two hours a day. He played a variety of games daily and during the year started to upload his own content to Youtube – usually Scratch projects.

Vladimir was extremely enthusiastic at the launch of the wiki and told his mum on the first day after school about its, saying, *“It’s like a Wikipedia for children but set out so children can understand it.”* Within a week, he was able to support other children during a class wiki lesson, helping them log in and create and edit pages. On the same day, he refused to write during the weekly extended writing session in class unless he was given a writing frame, (a scaffolded outline of a text with prompts often given by teachers to reluctant writers). The result was perfunctory, a text containing some high-level vocabulary but poor in terms of structure and presentation (see Figure 19).

The page included images and links to websites where children could learn to code. The following day after school, he spent time editing and improving it. Over the following weeks, a pattern emerged. In some class-based offline writing lessons, he was still a very reluctant writer. But during lessons where the children were using laptops, Vladimir was so confident that he could be used almost as an additional adult, supporting children who were struggling. This was an enormous boost to his self-esteem and Vladimir was, over the next few months, encouraged by both teachers to think about applying the positive attitude he had to writing on the wikispace to his class-based work. After half a term, the other class teacher had noticed a significant improvement in his motivation, stamina and handwriting in his writing book (Figure 21).

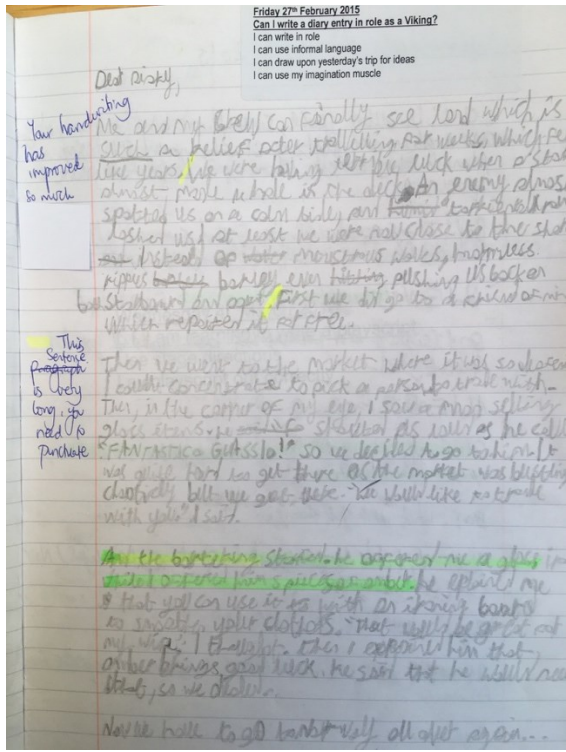


Figure 21: Work in Vladimir's writing book in class after half a term of the wiki project

Vladimir was the first to start his own wiki (about trolling) where others who he invited from the class were invited to discuss their trolling activities. Vladimir told me about the wiki and made me a member which gave me the opportunity to discuss appropriate online behaviour with him and the others in whole class circle time. Vladimir then took up 'netiquette' and internet safety as causes. During focus group interviews at the end of the term, he spoke knowledgeably about online safety, spotting that some girls were using profile pictures of their

own faces (unlike what he and other boys had done which was to use cartoon characters) and showing agency in his assertion that: *"Internet safety day is quite far away so we should discuss it even earlier, before the end of term."*

In class every day, he would ask when we would have a wiki lesson.

"When we are going to do our next lesson because I did miss the most recent lesson that we had because it was Friday and I was sick? Sad days."

During the focus group interviews, children were repeatedly pressed to try to unpick why they found working on the wiki more fun than writing in a book.

Vladimir describes his affective relationship with technology in a conversation with Finlay:

FINLAY: "I can tell you why in the 21st century we are so attached to these screens. Every generation people have said this is new technology and it's amazing. This generation we have done so many things that can change the universe".

VLADIMIR: "For me, computers are like my parents."

During the wiki interviews at the end of the first term, he was particularly enthusiastic about the material elements of writing on the wiki, in particular how the keyboard liberated him from transcription that he struggled with using pen and paper:

"You don't need to know your handwriting ...I prefer to type more than anyone else in the whole world. When you type, it's quite easier. All you have to do is press a button. But when you are handwriting, you need to write the whole thing."

He was also motivated by the ease and speed with which you can edit and improve texts:

"In your book, you need a rubber and if you need to improve something, it will take some time to rub out one line. On the computer you can just.... In a few clicks."

When asked whether his writing on the computer was literacy, he insisted it wasn't. He described an overall sense of corporeal ease when using a computer, saying:

"You can't slouch and do some writing. You need to be on a table. With a computer you can slouch as much as you want."

In particular, Vladimir loved the removal of spatial boundaries: *"You can do it at home as well and other places, not just at school"* and temporal constraints. He spoke of how the wiki allowed him to work in bursts and build up longer texts over time:

"For example, you're doing your work, your mother or father says it's time to finish. You can just finish the paragraph and once you've finished the paragraph you can click save and then can sign out, close and the next day you can continue it. You can do it day by day by day if you are making a really long wiki like I am."

He was able to elaborate on how the wiki's affordances of asynchronous and disembedded communication facilitated the social aspect of the learning:

"And when you share, the best thing about sharing like that is you don't have to share it in school. Other people can see it online. For example it's the weekend, then you can just communicate with them on wikispaces, meet up with them and communicate with them. ..What you are learning is you are learning how to learn from other people."

As the project progressed, Vladimir's contributions both on and offline became longer and more confident. One of the most noticeable drivers of this improved attitude to writing was his enthusiastic contributions to the collaborative Minecraft narrative, particularly during the second term of wikispaces. He started to write more frequently and at greater length than Finlay, the creator of the project (see Figure 22). During the summer half term, he worked on it on two different days for bursts of several hours and in the discussion comment section below the main page, urged Finlay to write more. *"Make more of urs as u try to find me"*.

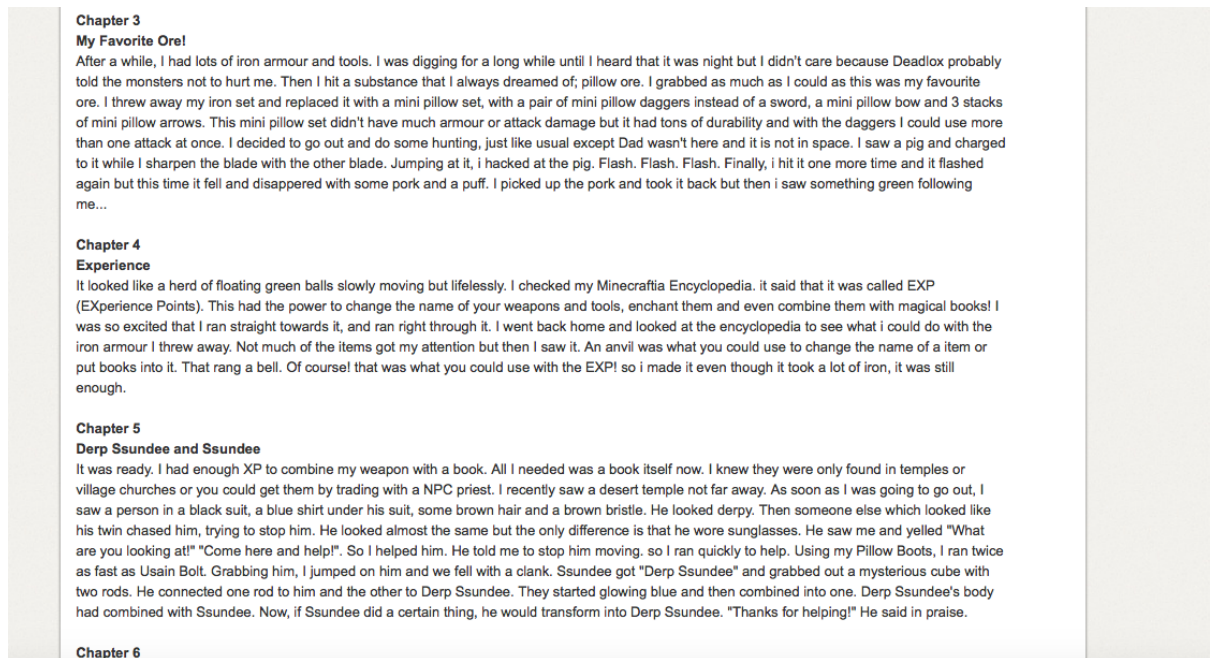


Figure 22: Vladimir's Minecraft narrative on the wiki

Vladimir continued to work on this for a year, producing a sustained text that used a variety of syntax and accurate punctuation. He showed clear understanding of the appropriate register, using a more formal style in the main page and a more informal one in the comment section where he also uploaded multi-modal elements, such as, at the beginning of the third term, a Shia La Boeuf motivational video from Youtube (Figure 23).



https://www.youtube.com/watch?v=ZXsQAXx_a00

Figure 23: Motivational speech posted by Vladimir in the comment section under the Minecraft collaborative narrative

In an interview at the end of the second term of the project, Vladimir's mother expressed relief that her son had found a space in which he could thrive as a writer:

“He uses it a lot. You know that yourself. You have seen him there. I’m happy about that because that’s the place where he can apply his skills, his knowledge because he hates handwriting. And the place where he can express himself: writing or even correcting someone else or commenting on something... He is really really loving it – really.”

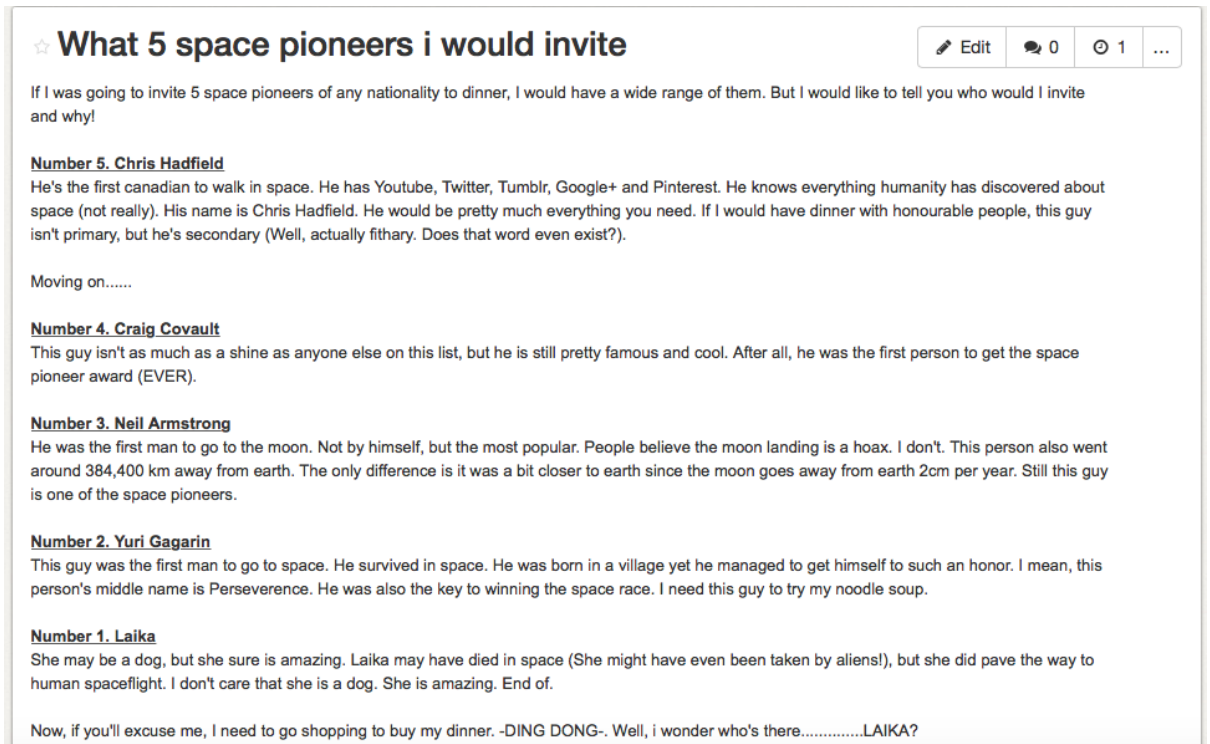
She went on to comment on how he was motivated enough by wikispaces to prioritise it over computer games, during the limited ‘device time’ that she allowed him:

“He uses it at least two or three times a week. Actually what we do at home, he has certain days and limited time for the use of his devices. I was interested...: ‘Is he going to use this time for playing games or going on wikispaces?’ and surprisingly enough he went on wikispaces instead of games. That tells a lot.”

In the third term of the wikispaces project (Autumn of Year 5), Vladimir started to do unprompted fiction writing on the wiki linked to work in class. This was significant as, although he had started to enjoy non-fiction based writing in class, he had continued to be more reluctant with narrative writing. Every child in the class wrote their own version of the Perseus and Medusa myth in their writing books. They then published them in Microsoft Word and these were uploaded on to wikispaces. Vladimir went on to write two of his own myths unprompted - his own version of the Greek creation myth and the story of Hermes and Apollo.

Although the wikispaces intervention officially finished at the end of that term, children were allowed to continue writing on it if they wished to. Vladimir continued writing for another full year after the end of the project. In particular he completed all his homework on it, on the topics of Space and the geography of London (Spring Year 5), Tudor monarchs and Shakespeare (Summer Year 5) and WWII local history (Autumn Year 6). During this time,

he produced a variety of texts such as report texts (Yuri Gagarin's biography and a report on Planet Nine), explanation texts (such as an explanation of why we are different ages on different planets), acrostic poems about Shakespeare and London and a humorous blog-style page about his favourite astronauts (Figure 24).



The screenshot shows a wiki page with the title "What 5 space pioneers i would invite". The page content is as follows:

If I was going to invite 5 space pioneers of any nationality to dinner, I would have a wide range of them. But I would like to tell you who would I invite and why!

Number 5. Chris Hadfield
He's the first canadian to walk in space. He has Youtube, Twitter, Tumblr, Google+ and Pinterest. He knows everything humanity has discovered about space (not really). His name is Chris Hadfield. He would be pretty much everything you need. If I would have dinner with honourable people, this guy isn't primary, but he's secondary (Well, actually fithary. Does that word even exist?).

Moving on.....

Number 4. Craig Covault
This guy isn't as much as a shine as anyone else on this list, but he is still pretty famous and cool. After all, he was the first person to get the space pioneer award (EVER).

Number 3. Neil Armstrong
He was the first man to go to the moon. Not by himself, but the most popular. People believe the moon landing is a hoax. I don't. This person also went around 384,400 km away from earth. The only difference is it was a bit closer to earth since the moon goes away from earth 2cm per year. Still this guy is one of the space pioneers.

Number 2. Yuri Gagarin
This guy was the first man to go to space. He survived in space. He was born in a village yet he managed to get himself to such an honor. I mean, this person's middle name is Perseverance. He was also the key to winning the space race. I need this guy to try my noodle soup.

Number 1. Laika
She may be a dog, but she sure is amazing. Laika may have died in space (She might have even been taken by aliens!), but she did pave the way to human spaceflight. I don't care that she is a dog. She is amazing. End of.

Now, if you'll excuse me, I need to go shopping to buy my dinner. -DING DONG-. Well, i wonder who's there.....LAIKA?

Figure 24: Page created on wiki by Vladimir about which space pioneers to invite to dinner

He also created multi-modal elements, using a variety of software such as Mac's pages to make Yuri Gagarin's passport and Pixlr to make a space mural, which he uploaded to wikispaces. Vladimir's writing started to show increasing fluency within and across genres and to take on some of the register of a teacher (Figures 25 and 26).



The screenshot shows a comment post with the following content:

Hope Ya Liked It
ElderDoge Jan 24, 2016

If you don't understand any words/things then just write them down here and i will tell you.

Figure 25: Post by Vladimir in comment section under wiki page he had created

Lesson for people Tudor

There was a big war between the Spanish and English. Write down why you think so.

Figure 26: Post by Vladimir in comment section under wiki page he had created

In terms of summative assessment data, Vladimir went from a *Level 2a* at the end of Key Stage 1 to *Working at Greater Depth* at the end of Key Stage 2 under the new curriculum helping to put the school in the top 2 percent of schools nationally for the progress of higher attainers in writing from KS1 to KS2.

Moderately improved outcomes: the cases of Mohammed and Zachary

Mohammed and Zachary were both known by teachers as ‘reluctant writers’. They nevertheless worked frequently on the wiki, developing as offline writers during the intervention. Mohammed was an avid games player out of school. He was someone who clearly understood the affordances of the wiki and the way in which it could help with learning:

“You can learn many things on wikispaces by sharing your ideas, reading other people’s work and cherrypicking....Using wikispaces and learning from other people is like achieving excellence together [this was the school motto].”

A child with neat handwriting, his contributions at the start of Year 4 in his writing book were very limited. He struggled to get started and generally in an extended writing session in class would struggle to produce more than two

sentences even in a guided adult group (see Figure 27 and 28).

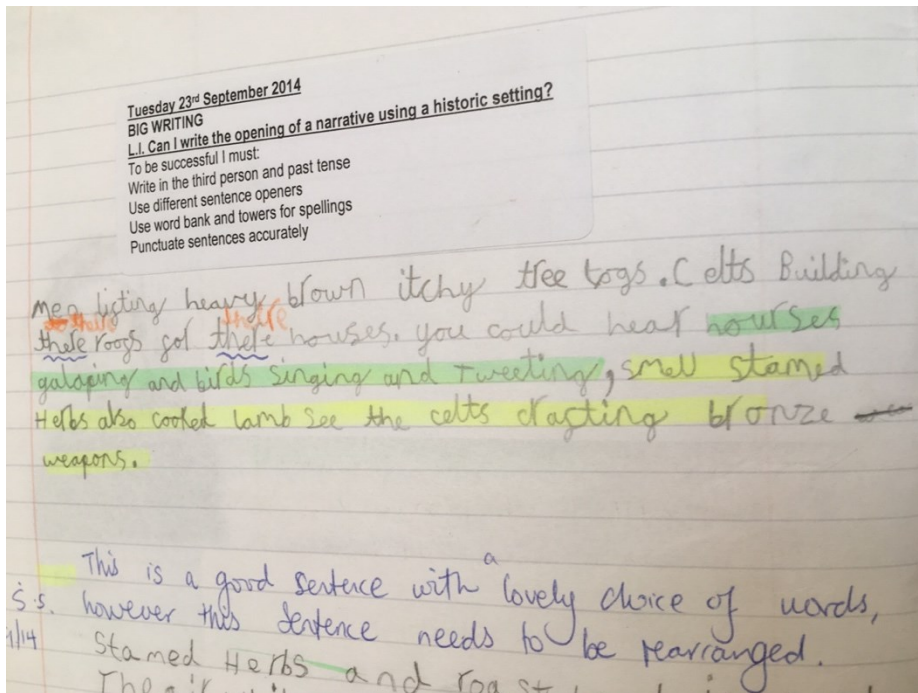


Figure 27: Work in Mohammed's writing book in class before wiki project

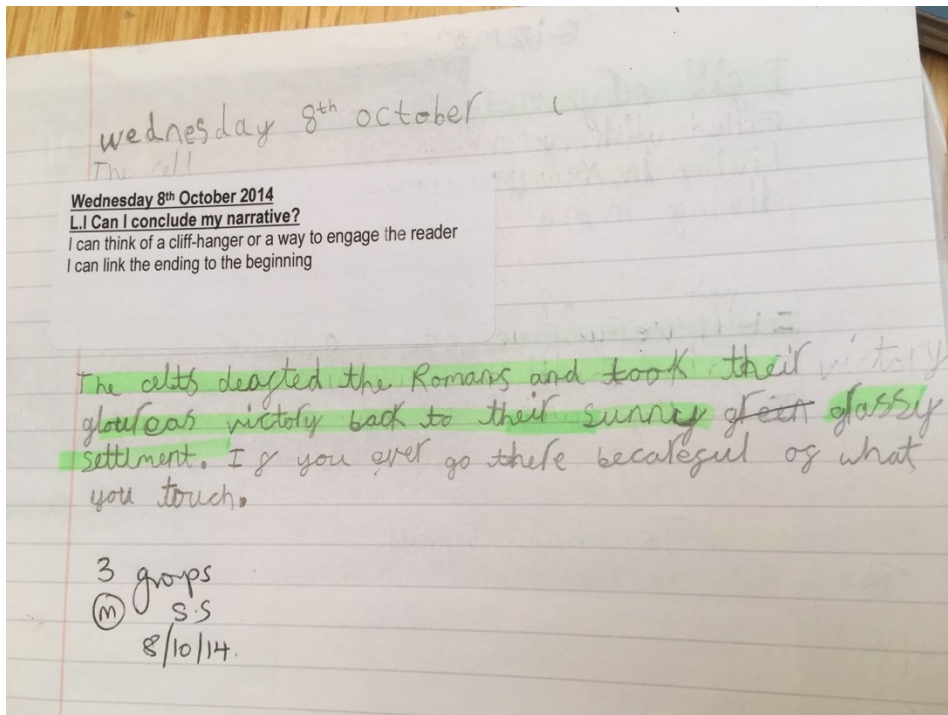


Figure 28: Work in Mohammed's writing book in class before wiki project

A month into the wiki project, he too was making his own pages – he was particularly interested in internet safety. During a focus group discussion

about making appropriate profile pictures, he showed increased capacity for action when he suggested that:

“I could put it on my internet safety page so when people go on it they could look at it and see the rules of internet safety.”

During the first term, Mohammed came to me frequently to talk about his use of the wiki, asking how to insert a link or telling me with pride about having completed work on it. He took particular pride in the homework about his country, producing a clearly written, laid-out and punctuated page about his country, using bullet points. From the editing history available each time a page is saved on wikispaces, it is clear that he continued on into the evening working on the page, crafting it and going on to add further images and captions (evident from the green highlighted portions - see Figure 29).

Bangladeshh Edit 2 3 ...






Image result for bangladesh flag

- The word Bangladesh means "Country of Bengal" in the local language.
- Bangladesh being so low lying and tropical, the ground has never frozen.
- Over 98% of Bangladeshis speak the official language of Bengali. English is spoken as a second language.
- Bangladesh has a population of 163 million people (163,654,860) as of July 2013 making it the world's eighth most populated country.
- For such a large population, Bangladesh is small country, 147,570 km² (56,977 mi²), making it one of the world's most densely populated countries.
- The largest city and capital of Bangladesh is Dhaka. The city has an estimated population of 15 million people making it one of the largest city in the world. It is known as the "City of Mosques".
- In 1947, Bangladesh was part of Pakistan known as East Pakistan. East Pakistan fought against West Pakistan a Civil war in 1971, and gained independence from the West (Pakistan) to become the country of Bangladesh.
- The currency of Bangladesh is called the taka which means 'currency' in Bengali.



• The Magpie Robin (or Doyel or Dole) is the national bird of Bangladesh.



Jackfruit (Kathal in Bengali) is the national fruit and the Mango tree is the national tree of Bangladesh.

Figure 29: Page created by Mohammed on class wiki

During focus group interviews, he said that this had been work he had done alongside an older cousin who had coincidentally had a similar homework project. At the end of the first term, Mohammed showed real enthusiasm for

David also does a lot of charitable work for Sport Relief and other charity organisations. He has done long distance swims of the English Channel, The Strait of Gibraltar and the River Thames, he raised millions of pound for charity.



Currently he is a judge on 'Britain Got Talent' with Simon Cowell and Alesha Dixon.

Figure 30: Page created by Mohammed on class wiki

Mohammed's progress in writing across the year is evident in his school writing book where, by the end of the summer term, there is a clear improvement in stamina, spelling, sentence construction and use of imaginative ideas (see Figures 31 and 32).

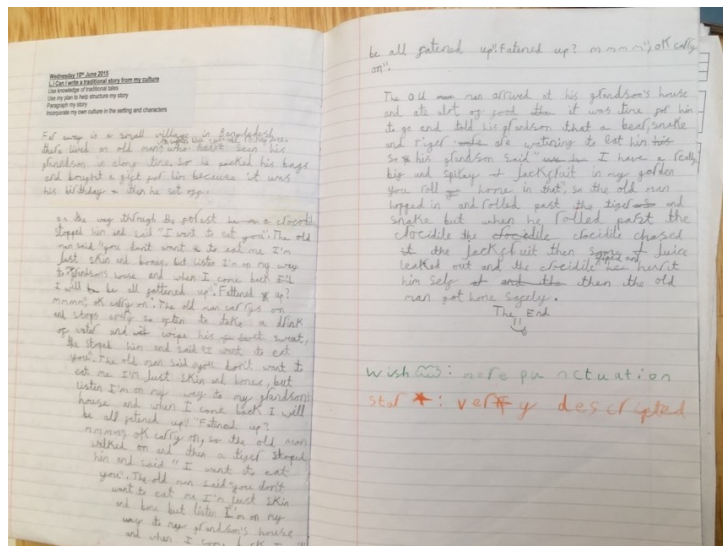


Figure 31: Mohammed's writing in class after two terms of wiki project

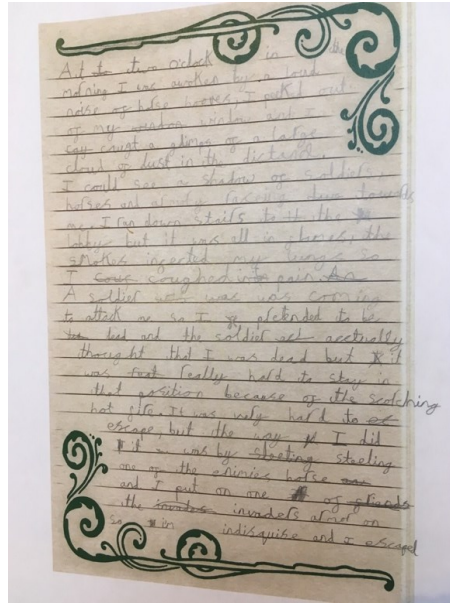


Figure 32: Mohammed's writing in class after two terms of wiki project

At the end of the year, in the pupil self-assessment part of his school report he noted an improvement in his work in literacy:

“What have I learned this year?”

I have learnt how to play the ukulele and I now know how to use Wikispaces

Where have I made improvements in my work?

I have improved in RE and literacy”

When asked about his use of wikispaces, Mohammed talked about enjoying the social aspect of it, comparing it to Whatsapp. Because his writing was neat, he was particularly interested in the wiki's affordances for editing and revision: *“When you write on paper and you've lost your rubber, you have to cross it out and it will be quite messy and with technology you can delete things without losing it.”* Despite significant improvements in his online contributions and offline writing in year 4, once the project was over, Mohamed did not continue to use the wiki.

Zachary was a reluctant writer who struggled with spelling. He did not always complete the required homework either online or offline – for example he did not produce the country page that others had done until his parents were spoken to and he never produced a *My Favourite Author page*. Discussion with his parents revealed that they often thought he was doing his homework

on the computer but didn't support him with this or check what he had produced. He spent a considerable amount of time on the wiki (especially in the holidays) producing his own short texts which he then revisited regularly to improve the spelling. When asked what he enjoyed about the wiki, he focused on its affordances for revision and editing: *"You can check your work and delete it and add some more bits."*

During the holidays after the project started, he produced a simple page about the Vikings with pictures and a short amount of text. At the beginning of the second term, during a holiday weekend, he also added a page with his own kennings (riddle-like Anglo-Saxon poems with two words per line which the children had worked on offline in class the previous term). The editing history shows multiple revisions, in particular focusing on correcting spelling (see Figures 33 and 34).

VIKING POEM

Strong human

Axe thrower

Roman hunter

vicious fighter



Figure 33: Wiki page created by Zachary

Thirst Fierce fighter
Strong warier

ROMAN POEM

Fierce fighter

Strong **warier** **warrier**

Figure 34: Edit history on Zachary's wiki page shows revisions (in green) and words changed (in red)

This work was praised and shown to the class at the beginning of the second term which motivated Zachary to generate further unsolicited pages such as a word level page – a page of adverbs which he asked me to look at and comment on. He continued to use the wiki during Year 5. Zachary went on to meet the required standard in writing at the end of Year 6. This is despite more stringent requirements around spelling than under the previous curriculum.

Outcomes for boys not selected for detailed case study analysis

Amir and Kai were two boys who if selected for detailed analysis would have fallen respectively into the cases of significant improvement in outcomes and moderate improvement. Amir was part of the Minecraft collaborative writing group and also spent a lot of time on the wiki crafting his writing and using peer scaffolding to improve his work. Like Vladimir he achieved *Working at Greater Depth* at the end of Key Stage 2 having been a Level 2A *Level 2a* at the end of Key Stage 1.

Kai, like Mohammed, produced excellent contributions when working with an adult (a friend of the family) after school. This work was presented in bullet points and included short biographical notes about Ted Hughes and (during the Autumn term of Year 5 when we were studying Ancient Greece) about Hippocrates (see Figure 35).

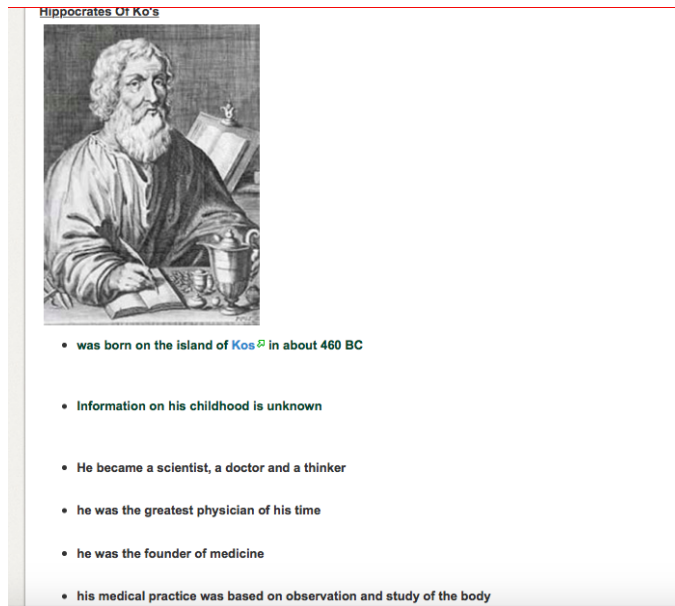


Figure 35: Wiki page produced by Kai at home

Discussions with the adult (who picked Kai up and asked for tips from us on how to help him) revealed that he was under a lot of supervision when making these pages. He did not make any independent page on the wiki or continue contributing when the family friend stopped working with him.

Six other boys, despite extensive use of technology outside school (evident in their answers to questionnaires and the playground games they were involved in, imitating characters from their online games), made very scant contributions if any. One of these children, Matthew, the highest attaining writer in the class - a child with neat handwriting and many ideas, used the wiki only once out of school for homework. Like the other children, he was asked (in class) to type up some of his narrative work on Narnia from his writing book and publish it on the wiki (Figure 36). Children were asked to read and comment on each other's work during an in-class wiki session. This child's work was showcased because of its proficiency and use of metaphor:

As the misty fog crept sluggishly, Aslan edged his way towards a stone creature and breathed his life-giving breath like a piece of kindling set alight. Nothing happened, but suddenly a flicker of gold travelled from the statue's feet to its head and then the stone creature who was a lion broke free. His shining gold mane swished back and forth as the lion pounced on Aslan, caressing his face with his soft mane and applauding him. Aslan breathed into another and another until the whole of the courtyard was engulfed by neighing cries of joy and happy songs. After they had enough, they gathered around Aslan, they sang hymns of such beauty they whipped up another wave of laughter. The pounding stomps of giants made everyone feel embraced by goodness. The spine-tingling museum converted into a zoo full of all sorts of bustling.

Figure 36: Class writing published during class wiki session by Matthew

Two thirds of the children made positive comments about the work in the discussion section at the bottom of the page (Figure 37).

you should be a poet and my most favorite part is Aslan breathed another and another until the whole courtyard was engulfed

Figure 37: Post by another child in the comment section below the page

However, despite the fact that Matthew's work inspired several other children including Finlay and Vladimir, he made no contributions outside class and when asked why he was not doing the homework set on the wiki, said that his mother did not allow access to the internet. During parents' evening, she was asked about this and said he had told her that wikispaces was a chat website. We explained that we were asking children to do their homework on it and requested that he do so. He went on to produce a short homework page about his country (a less proficient piece of writing than his usual classwork). However, this was the only piece of work he did on the wiki. This child moved from the school at the end of year.

The remaining five boys were children who played online games extensively with the others. In school, they changed their usernames and profiles to reflect this with aliases such as "Gamingbro" and "Blackopsrolling" but in talks with them it transpired that they were using the internet through games consoles

and did not have regular access to laptops. Two boys, (white British boys on Free School Meals), Joe and Sam, who rarely handed in their homework on paper either, made no contributions at all on the wiki out of school. (One of them had been invited to Finlay's collaborative Minecraft narrative wiki but hadn't taken part). Attempts were made to offer them extra access in school and to help purchase a laptop for the family. Neither the boys nor their families followed these offers through.

Girls' case studies

Among the girls, there were none who benefitted from the project in quite the way Vladimir and Finlay had. One EAL child newly-arrived in the class (Katerina) made rapid progress thanks to her use of the wiki. One child's case, Celine's was similar to Mohammed's in the way it meshed with her progress offline. There was a big improvement in her writing online and offline during the project. Another poor speller similar to Zachary (Christina) enjoyed spelling games on the wiki and the sense of agency it afforded her. Two of the girls, Aisha and Samara, despite frequent, almost daily use of the wiki, showed no progress in their writing on or offline. In fact these two girls were among the weakest four writers in the class by the end of Year 6, with one of them failing to meet the expected standard.

Just as the boys talked about the materiality of the keyboard being important, so the girls agreed in focus group discussions that ease of typing was an important factor for them:

“Q Do you enjoy using wikispaces?”

ALL: (in unison) Yes

Q: When you do homework on wikispaces, does it feel different from normal homework?

KATERINA – (newly arrived EAL student) At [sic] homework book, you need to write with a pencil or a pen. At wikispaces you just need to type the letters. To write is harder; to type is easier.

NITA – When I write my hands get really tired and I like to type on computers, you just need to press the letters.

Q: Does it make you want to write more?

CELINE – Yes, it's comfortable and sometimes your hand aches and like I'm not bothered anymore. When you hold it, you're just literally typing.

NITA: When you're given homework, and you have to write it and it's not to do with wikispaces, you can't be bothered. You say, 'Ah, I don't care anyway. The teacher won't mind.'"

Significantly improved outcomes: the case of Katerina

Katerina arrived during the year from another European country. She had learned some English in her old school but was far from fluent either orally or in writing. A high-attaining girl in her previous school, aspirational and competitive, she sought to catch up with her peers as quickly as she could. She began contributing to the wiki as soon as she arrived and diligently completed the homework set there, supported by her mother. Her contributions to the discussion forum sections were more limited. As her mother put it:

"She didn't like to communicate with other pupils because she was new."

When asked how the wiki had helped her learn, she responded, citing both social and material factors as helpful. In terms of the transcription element of writing (handwriting and spelling), Katerina cited material elements such as the keyboard and the enduring nature of the digital text as factors which supported her.

"It helped me because if you do homework, if you are writing your hand hurts. You can just write by typing.... Even if I lose the paper of spelling I can find tn on wikispaces; now I know all my spelling."

She was also keenly aware of the power of the peer scaffolding in supporting both the generation of ideas and the revision and editing process, saying at different times:

"It helps me because I can see other people's work and I can get some ideas."

It helps me to learn because I can see other friends' work, and then I can learn from mistakes that I've done and then touch edit, then I can [improve]..."

When interviewed at the end of the second term of the project, Katerina's mother spoke of her daughter's motivation, citing the link with her previous use of technology out of school as an important motivational factor.

"How has she engaged with wikispaces?"

I think she used it very fast and very well because she likes it very much so for her, it was not something new – it was something that she liked a lot

Q: Did she do a lot of IT in her old school?

No, not at all.

Q: So she has picked this up on her own

She has done it on her own. She used to have these gadgets back home. Even though we tried not to give it to her so often – computers".

Her mother described how her daughter knew more than her about the technical aspects of uploading and that this gave her agency and a sense of accomplishment:

"For example when there was some homework, I wanted to see how wikispaces worked because she told me there was wikispaces which was new for her. I got stuck and said 'What do we have to do?' She knew immediately how to make pages, how to copy paste and then just upload it.... She found it very easy."

Katerina confirmed that the wiki gave her a sense of agency because she was able to access it at a time of her choosing.

"I like wikispaces because ... you can use it when you want.

Q. Do you prefer being able to change your work?

When you write you can edit it and you can change it if you don't like a spelling wrong."

Katerina's work in class displayed errors in the use of tense and the article as well as relatively simple clause structures. Her work on Narnia, written in class, was published on the wiki (Figure 38). The difference between this and

her homework on her own country (Figure 39) is evident in terms of fluency and sentence structure.

Narnia

It was frozen, and the queen in her kingdom has so many statues and they faces shows some feelings angry. Were the queen goes she freeze every animal, every insect and every people. The spring start and the frozen were melting on river. The queen went in some places and she saw a butterfly also she freeze that butterfly, now butterfly is statue.in that place the birds were singing, the sun has shine and everything seems beautiful. The queen doesn't like the spring. The queen has 9 wolfs and the wolfs helps the queen. She saw a fox also she freeze that fox and the fox is statue.



Figure 38: Katerina's writing in class published by her on the wiki during a class session

My country

My parents are from Kosovo. Kosovo is the country were I used to live.



It is a small country located in South eastern Europe in the Balkans. The neighbor countries are: Albania, Macedonia, Serbia, Montenegro.

- Kosovo has 2 million people
- Climate in Kosovo is European continental. In spring and autumn it rains a lot, and summers are very hot.
- Different nations lives in Kosovo with different religions.

Language spoken are: Albanian , Serbian , Turkish and English.



Kosovo is the newest country in the world, declared independence on 17.02.2008. The statue at the centre of capital Prishtina showing the sign 'NEWBORN' tells the country is just born.



Kosovo has beautiful nature. It has lakes, waterfalls and mountains. A popular lake is Batllava where people can go camping and swimming during the summer etc.



During the winter people can go to mountains to ski. Brezovica is a holiday resort. Brezovica it's called Albanian Alps. I used to go every winter during the holiday to ski and rest at these beautiful mountains.



Kosovan cuisine is influenced by Turkish and Balkan cuisine. Common dishes are flia, pies (TRADITIONAL ALBANIAN FOOD), burek (SIMILAR TO PIE) suxhuk (KNOWN AS KEBAB), beans, stuffed peppers ajvar (IT IS MADE WITH RED PEPPERS AND WITH AUBURGINE) etc... People prefer to make home made food rather than buying ready meal food.



When it comes to famous people there are many figures to name out. Rita Ora was born in Kosovo and after she came in UK she became famous.

Kosovo has many sport talents such as; Majlinda Kelmendi a world champion in Judo, Adnan Jonuzaj is a soccer player for Manchester United and their parents are from Kosovo.



This is traditional costume dating back since Illyrian era. It is very unique costume and in rural villages when the bride gets married, she wears the costume as part of the ceremony.



This is bride from Donje Ljubinje in Zhupa area in south Kosovo. It is an thousand old tradition that only one old woman continue to use this art in young brides. Colours on the face of the bride symbolize cycles of life, fertility and healthy happy family. The photo of this bride became well-known through magazine, 'National Geographic'.

Figure 39: Katerina's page about her country of origin produced at home on the wiki

This work on the wiki was praised and shown to the class. In interviews at the end of the second term of the project with Katerina and her mother, it became evident that they had worked together on this:

"When you said to do our country work, I done it with my mum, because for the first time I made some mistakes, my mum said we need to do it together and then she helped me. I saw everybody's work and then I learned."

Although it was the technology which had given them access to classroom work outside school, the real benefit had come from Katerina's mother

investing time in working with her daughter because she saw wikispaces as beneficial not just in supporting her child's writing but in preparing her for the future:

“Q. What I noticed was that because she was new, she was able to access a lot of stuff outside school. Do you think that was helpful?”

I also worked with her a lot because I knew that she is new and that the language is new as well for her and I wanted her to catch up with other children because now secondary school is coming and people there don't know when she came but they want results. So I was trying hard.

Q. Is it a useful tool to add to our repertoire?

Yes, very much. I like it.

Q. Why is it good from a parents' perspective?

Because at the same time they learn the new technology because it's not about writing but about using the computer ...it's good for the future of our kids.”

During the summer term, Katerina continued to add pages (mainly word level work such as suffix, adverb and spelling pages). By the end of the summer term of Year 4, Katerina's descriptive writing in class (Figure 40) showed much more fluency, better choice of vocabulary and more elaborate syntax than her Narnia work the previous term.

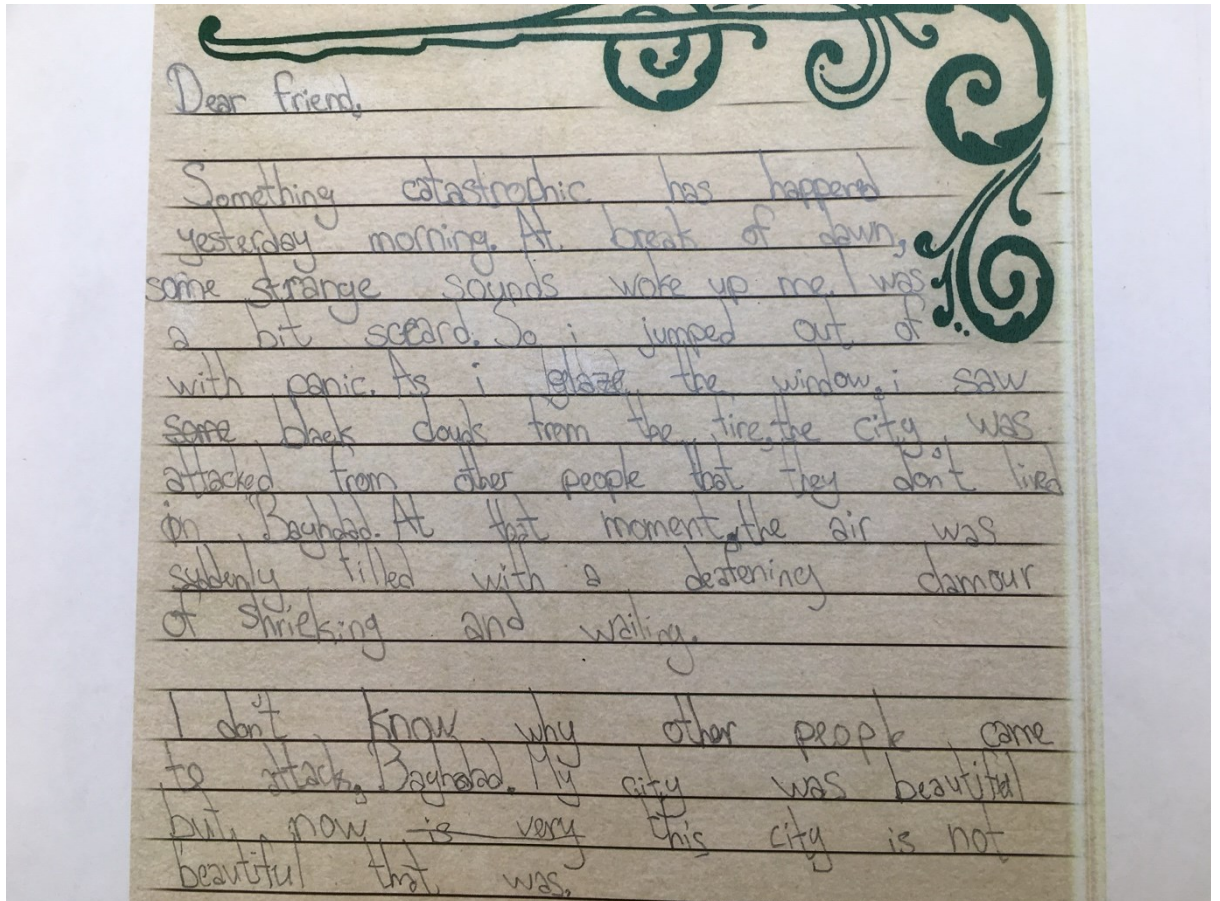


Figure 40: Katerina's writing in class after two terms on the wiki

Katerina continued to write on the wiki into Year 5 producing work on the Greek gods and a biographical page about Aeschylus in her own words, the beginning and end of which is shown in Figure 41.

Aeschylus was an Ancient Greek author. He was known as the first writer to bring dialogue and action on stage. Also he was the father of Greek tragedy. He's dream was to become a writer, so he never gave up by reading and practising his writing skills.

As a patriot, he never gave up, and he fought in a war against persians to give freedom to Ancient Greece. These are only two (2) of many virtues that Aeschylus had as a person. Everybody were proud

Early life

Aeschylus was born in 525 BC in Eleusis in North Athens. He came from a rich and aristocrat family. Aeschylus, together with his father Ephorion, and his brother Cleithenes fought for Greece, against Persians. His brother died on that war. His father Euphorion was a member of Eupatriade the ancient nobility of Attica.

According to a geographer Pausanias, when Aeschylus was asleep, a good Dionysus came and whispered some powerful comment to him, to become a powerful, creative and greatest author of all times.

The danger war between Greece and Persians, and death of his brother inspired him to write tragedies and dialogs.



As a young talented man, before he turned 20 years old, he decided to write several tragedies. When he turned 26 years old, Aeschylus won a price at city Dionysia. The Persian war greatly influenced his life and caerer. 490 BC, he along and his brother Cleithenes fought to defend Athens against Darios at the battle of marathen. His oldest play was the Persians.



Jetpack



He was the first author that brought in stage the dialogue.

Aeschylus performed for the god of all gods Zeus. Zeus was happy, and impressed at the way he performed. Although, he wrote more than 80 tragedies, only seven has survived. His most famous tragedies are; a trilogy 'Oresteia', 'Persians', etc.



Conclusion

At the very end of his life, in 455 BC he had enough writing dialogues and tragedies that left during his career. After many years of life, it was time for him to die. He died in a forest place, where he was sitting among the dusty black shadowy rocks (stones), reading his work (tragedies). So that was the end of his life.

Even today, people are inspired from Aeschylus work. Many famous ancient and modern writers applause his work, and write about the greatest man of Greek tragedy, Aeschylus.

Figure 41: Katerina's work on the wiki from home during the third term of the project

There are still minor errors in the use of prepositions and tenses but the work is clearly much more idiomatic. She also spent time on the weekends editing a myth about Perseus and Medusa that she had written in class which had been published on the wiki (Figure 42). This was mainly editing and improving work, changing tenses and adding determiners (mainly 'the').

"But, I can't find **the** grey sisters, for me is so hard", cried Perseus.

"Yes you can. Use your brain. You can do it Perseus", told Athena to Perseus happily.

"Thank you so much for your help Athena", cried again Perseus. After a long conversation with Athena and Perseus, Perseus carried on walking, using his brain and trying to find Medusa.

After a long walk Perseus **find found** the old crones. When he **find found the** three grey sisters he was so proud of his self however he was a bit frighten of what is going to happened to him. In a dark shadowy cave , there lived three grey sisters. The ancient sisters, who Perseus asked them where he can find Medusa, they were sharing (taking turns) and also (arguing) for an eye to see people and a tooth to bite victims. Suddenly Perseus was pleading "please tell me where does Medusa **lives live** if you all want your eye". But the old crones where cackling to Perseus and saying no. Perseus had the eye to throw it. After a bit seconds **the** grey sisters told where does Medusa lives, also they said **to** Perseus remember look in Medusas eyes, so Perseus threw the eye and ran to find Medusa.

Perseus was a bit tired. Finally he **founded found** Medusas cave. When we was walking in the entrance he saw some frozen statues **leading his way**. Perseus herd some different noises as:

Figure 42: Katerina's myth page showing revisions made at home (in green)

In the second term of Year 5 (a term after the project ended), Katerina wrote an unsolicited recount of a family outing they had taken to the British Museum (Figure 43).

What I enjoyed about the London museum:

I liked the way that the building was massive! There were many pictures, ancient stuff etc... When I got in the building I was amazed so much! There were many different and interesting things and I didn't had a chance to see all of them, so there's something that I visited:

I saw the ancient Greek god's sculpture. Even though I knew already some of the gods and goddesses I got extra Information.

Next I visited the dinosaur's fossils. They're were big and old. The fossils were kept In a clear glass, which It keeps it safe and In the same time people can see the It.

My mom was Interested to find more Information about the old jewellery that was kept In the queens or princesses hands. All of them were shining when the lights, that were In the shelf.

After me and my family got so tired and hungry for walking In the museum. We decided to eat something. My siblings had a packed lunch and I bought a tuna sandwich and some orange juice.

After a long journey we wanted to go home. In our way going out the museum we saw ancient egyptians's sculpture, which we were empresseed! I also saw a water fountain, that people made a wish and threw a coin, I made a with too and threw a 10p coin!

We finally got out of the building and got the red bus for our way home. I had a very fun experience at Museum of London.

Figure 43: Unsolicited wiki page written by Katerina at home about a family museum visit

Katerina went on to meet the expected standard in writing at the end of Year 5 and was in the top third of the class for writing by the time she left the school.

Moderately improved outcomes: the cases of Celine and Christina

Celine was an only child who lived with her mother with whom she communicated in French and Arabic. Originally from North Africa, she had arrived at our school the previous year. At the beginning of Year 4, she was neither using cursive handwriting nor writing in full sentences. She struggled with spelling and had little writing stamina even when working under the guidance of the teacher (Figure 44).

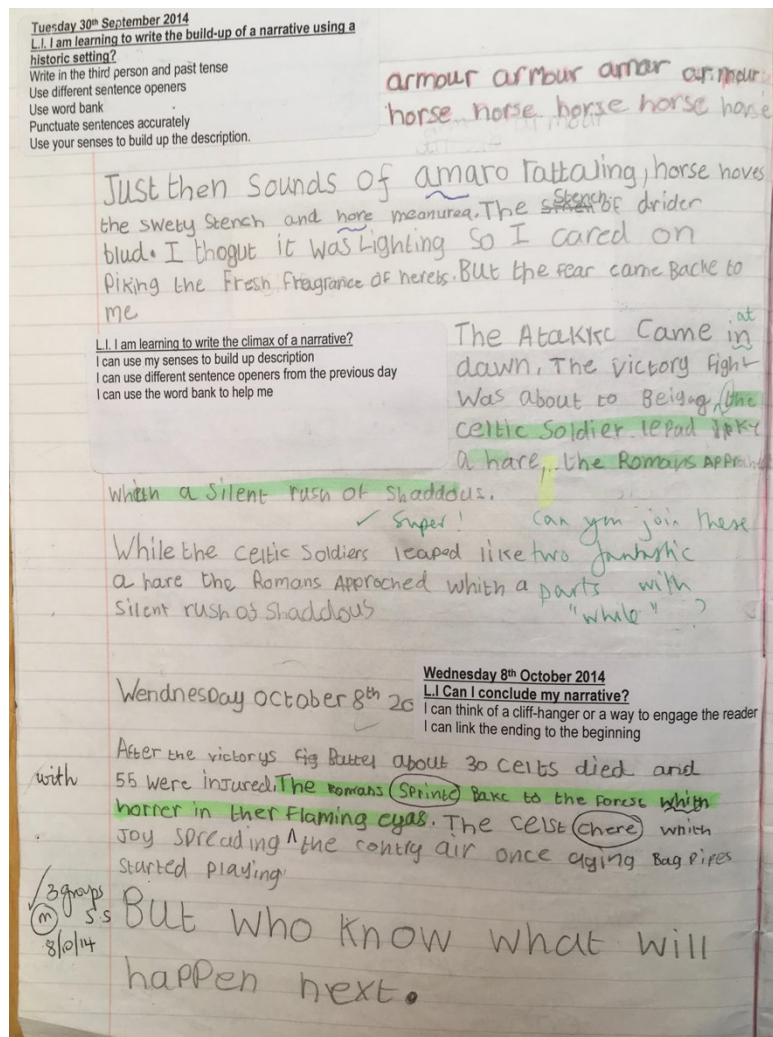


Figure 44: Celine's writing in class before the wiki project

She was immediately enthusiastic about the wiki, posting a comment on the home page (Figure 45).

Ms hawly I can finally SIGN IN TO WIKISPACE ITS SO FUN
♥♥☆☆♥♥☆☆♥♥☆☆♥♥☆☆♥♥☆☆◆◆♥♥☆☆◆◆》♥《

Figure 45: Celine's comment on the home page of the wiki

After producing a page of text with her mother about her own country, she started to produce pages about her own interests, mainly about fashion, as well as a page about her experiences of starting at the school. Her first page, about fashion (Figure 46), appeared online about a month into the project.

☆ **fashion now fashion then**

Edit 0 1 ...

Hello and welcome to my page about fashion then and fashion now well just say fashion now was very different from fashion then but fashion designers now were inspired fashion designers then so if we take Gucci then and the new Gucci now we would see a complete difference same with other brands so lets take a look at other brand's.

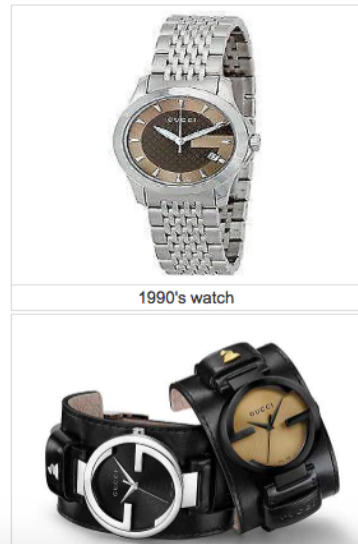


Figure 46: Page created by Celine on the wiki from home

She went on to write longer pages in an informal fashion blog style including a page on flat shoes she produced during the holidays (Figure 47).

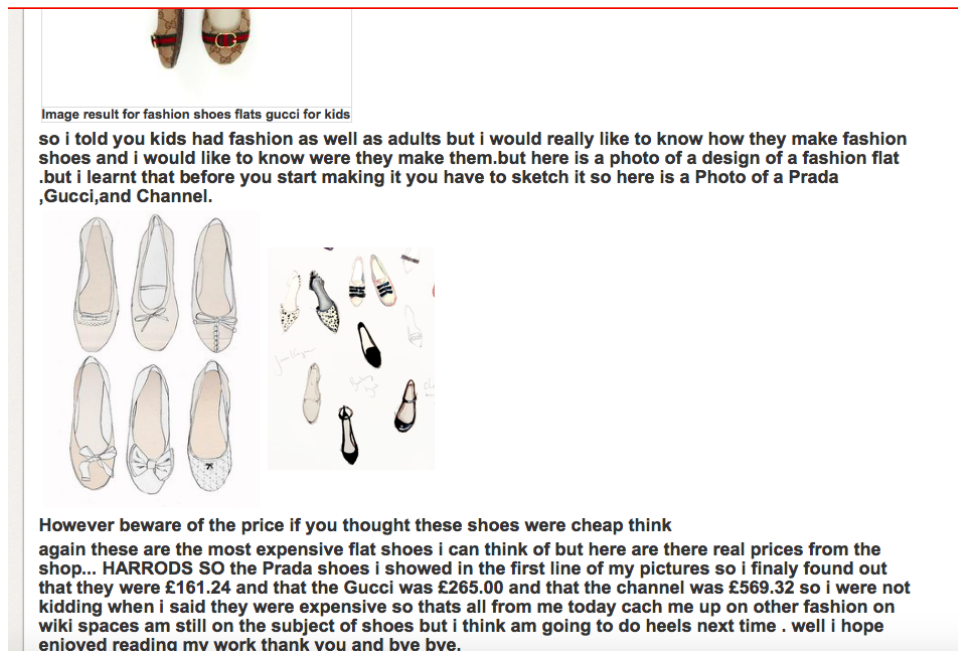


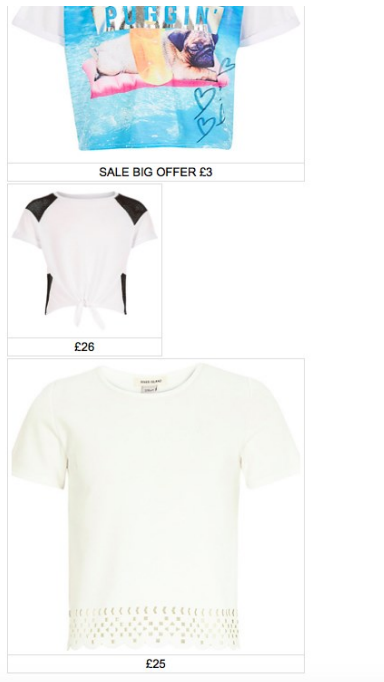
Figure 47: Page created by Celine on the wiki page from home during holidays

During half term of the second term, Celine produced two unprompted pages - an Algerian food page with pictures, describing various dishes and a page about suffixes (Figure 48).

1. my compass showed navigation.
2. I kept my plants in conservation .
3. I have a motivation to draw.
4. I had a surgical operation .
5. China have a massive population .
6. I watched a scary movie that had a lot of action
7. A genius had made a very weird invention
8. my favourite subject in maths is addition
9. last year I won a tennis competition
10. the builder had a great house construction
11. my mum had to make a extreme decision
12. I had to do maths revision for my homework
13. an erosion made a avalanche
14. I watched an animation movie
15. what a wonderful creation
16. my music made vibration
17. when I was in the bathe the water caused evaporation
18. I revised all my multiplication
19. I ate a variation of food
20. blowing a cases inflation
21. I have a promotion
22. my teacher said you to do your punctuation
23. aliens were planning to do a invasion
24. my teacher gave me a extension
25. I learnt my division sums

Figure 48: Unsolicited page on wiki by Celine made during half term

During the second half of the Summer term of the project, she made her own wiki called FashionShop to which she invited two friends. This wiki was more like an e-commerce website and featured just a series of pictures with prices and very little text, except labels or captions with prices (Figure 49).



there is only five copies of the shirts if you want buy

Figure 49: Page on Celine's own wiki: 'Fashionshop'

In the discussion section at the bottom of the page, the girls were invited to add more items. They also pretended to buy items and discussed their 'sales'.

When asked how she had gone about making it, Celine said:

"I got most of my clothes from Burberry and Monsoon. I searched good designer shops. I went on them and copied the picture. If I thought they were too pricey I would lower the price. If I thought they were too cheap and the thing was beautiful, I would higher the price."

Celine was also a regular contributor to discussion sections on the bottom of other people's pages. Many of her comments were made during the summer holidays when she read through other people's work. At the start of the

summer holidays, she was the one to express excitement about continuing with wikispaces:

“I am so excited to go on to year 5 I hope wikispaces is still with us when we go there....happy holidays....bye.”

Celine spoke about how she valued wikispaces for the way it allowed her to exert agency.

“I like wikispaces because you get to create pages.”

Repeatedly in her interview data (two sets of focus group interviews at the end of the first and second term), she linked the way it allowed her to keep in touch and communicate with her friends to her learning:

“I love it because you can chat. I like discovering. You know when you enter the wiki, there’s everyone else, you can click it.

..I decided to make pages on things I am interested in because sometimes I get so bored at home.

Q. What would you have done before when you were bored?

Doodle on some paper. But now I can send messages to my friends. They chat to me; I chat to them. I make pages.”

In particular, she valued peer feedback and the way it was phrased:

“Why I like wikispaces is because when you type your homework, people, your classmates give you their opinion but their opinion has to be positive not negative. They tell you to try harder but in a positive way.”

She was also aware of its potential to build learning through peer scaffolding:

“Why I think wikispaces helps me is people do pages about for example [x] did a page about Queen Victoria and actually I learned a lot. And for literacy, [y] wrote some amazing writing about Narnia and Miss Hawley asked us to do some homework about our countries and I learned a lot about [z’s] country.”

By the end of the year, Celine showed big progress in her offline writing in class (Figure 50) – in terms of stamina, awareness of the reader, sentence construction, handwriting and spelling .

Wednesday 10th June 2015
 I can write a traditional story from my culture
 Use knowledge of traditional tales
 Use my plan to help structure my story
 Paragraph my story
 Incorporate my own culture in the setting and characters

Far away in a little hut on the coast lived a old wrinkly woman who lived by herself and had arthritis in her both hands and crooked back with grey wavy hair and pale white skin. She was going to France because her grandfather is having a cooking competition and only her grandson has the special recipe. She knew that it was a long journey to France she packed some couscous and some cake.

As they old lady went outside of her hut she met a little rat and he said "Can I have a spoonfull of couscous" said the rat "oh you dont want to eat this junk but I am going to make a cake I will leave some" replied the old woman. As she got further to the sea shore she saw the lizard and he said "Can I have a mouthful of couscous" replied the lizard "oh you dont want to eat this junk and your going to bake a cake so I will leave you some cake" replied the old lady. The old lady got on a boat and started to sail she met a

snake he said "Can I have a spoon of couscous" the rattel snake told the old woman "oh you dont want to eat this junk I will am just going to bake a cake and I will leave you some" said the old woman. She got on the boat and started sail to France. Finally she got there and her granddaughter was waiting for her in the boat. She said "grandmother I have missed you" you said the grandson "lets go to the car it starts in 5 mins I need the cake recipe" said the granddaughter. 5 mins later the granddaughter won the cooking competition. After a while she said

after a while when they got home the old woman said the rat snake about the animals waiting for her back home. I Algeria her granddaughter said "I will get you a rocket and you could fly there and they wont see that way so they did went into the rocket and flew into space and then to her home Algeria every body was happy ever after. After she got the animals who didnt get their cake

wish you

Figure 50: Celine's written work in class at the end of the second term of the wiki project

However Celine’s mother was not keen on her using the wiki too much. In a focus group interview along with another parent at the end of the second term of the project, she said:

“It’s always fashion, fashion. I would like her to learn. I want her to go for something else. She loves this too much.”

Celine did not contribute to the wiki out of school hours during the third term of the project. Interestingly four months after the intervention ended, she added a page “How to speak fluent Algerian.”

Christina, like Zachary, struggled with spelling and neat handwriting. She was also a child who attained very low scores in reading assessments. When given books from school at her level and asked to read them at home, she never did this and was starting to fall behind the other children in the class. Yet Christina, a fortnight into the project made a page called My Lovely Poems with the full text of Rudyard Kipling’s *If* and a comment underneath (Figure 51):

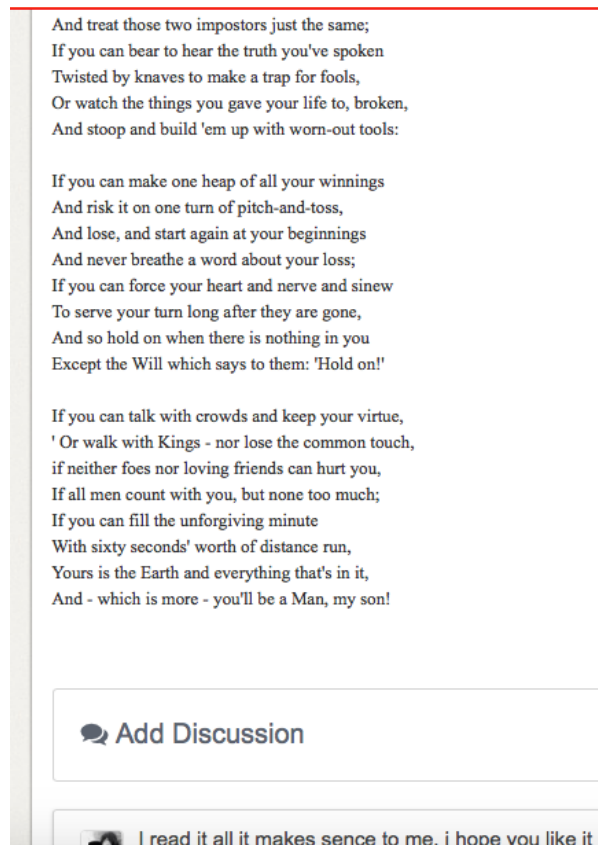


Figure 51: Part of Christina’s page with Rudyard Kipling’s ‘If’ poem

This was a real surprise for the teachers as in class she was still reading the colour banded books used in the lower part of the school, Key Stage One. Christina went on to publish a poem of her own with simple rhymes. She also produced a short unsolicited page about the history of London as well as an excellent page about her own country, with the support of a parent.

“My mum inspired me and she kind of helped me.”

For Christina, aware of her weak spelling, wikispaces helped her in two ways. First, the spellings children needed to learn in Year 4 as well as pages on spelling patterns were permanently displayed there. Christina commented in the discussion section below the page about how this was useful for her (Figure 52).

A screenshot of a comment from Christina on a spelling page. The text is displayed in a light blue background with a thin border. The text reads: "i like this page it helps me (: i think people who need help with spelling shoouldn't keep it in they should say it!!". The text is in a simple, lowercase font.

Figure 52: Christina’s post in the comment section below the teacher-produced spelling page

Christina also found the materiality of the spellchecking software important when she was producing her own texts on the wiki:

“It’s not the same as doing homework on a piece of paper, it’s a bit different. If you do it .. J-U-I-C, I don’t even know how you spell it, it does a squiggly line, so you know it’s wrong, then you perfect it. If you do it on a piece of paper on your homework, you don’t even know what to do next. It gives you some ideas – it gives you words it thinks you are trying to spell.”

When asked why she liked wikispaces, she responded alluding to the sense of agency and the ability to showcase her identity.

“Cos I can write. I like to write. It’s really good for me - I can express my imagination and what I am feeling. When I write on wikispaces other people can see what I am thinking.”

Christina was frequently absent and missed much of the Narnia writing. However during the lesson in school where children were asked to improve their own writing after looking at the work of the others on the wiki, she was able to write a sustained independent piece (Figure 54) with many fewer spelling errors than during her narrative writing (Figure 53) the previous term, the first term of Year 4.

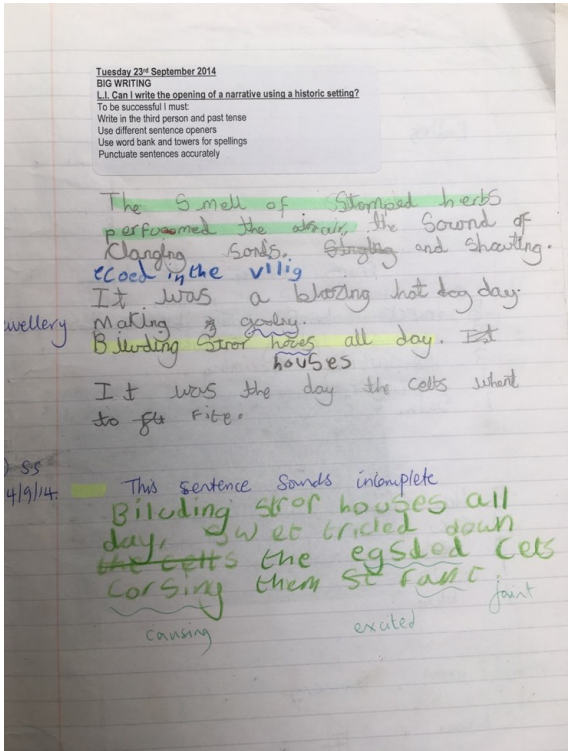


Figure 53: Christina's work in class writing book before the wiki project

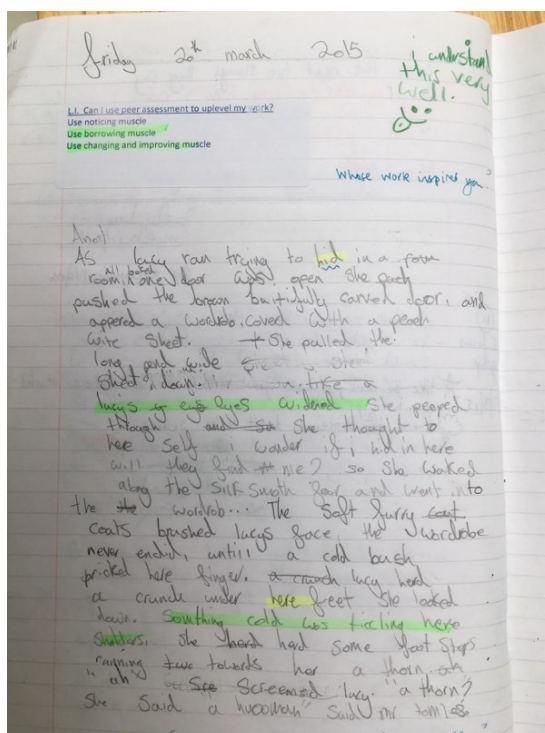


Figure 54: Christina's work in class writing book at the end of the first term of the wiki project

Christina's progress in writing during Year 4 was evident – perhaps not to the extent of Mohammed's or Celine's yet nevertheless significant. In particular, she was better able to use spelling patterns rather than phonetically plausible spelling. Her improved spelling gave her more confidence to write at length and allow her imagination to flow.

No improved outcomes – the cases of Aisha and Samara

Finally, we come to the cases of Aisha and Samara who made extensive use of the wiki without it improving their outcomes offline. Samara was like some of the boys in that (while a high achieving child in maths) she struggled with motor skills and had poor illegible handwriting that teachers often asked her to improve. For her, the materiality of the keyboard and screen and the durability of the digital text were important motivating factors:

"You know wikispaces you get your homework done quicker. When you do it on paper you feel tired, you forget to do it and when you hand it in you don't

finish your work completely.. You know how when you write it on a piece of paper, you can lose the piece of paper. In this you can just keep it. You won't lose anything."

Like the other children, she also commented during focus group interviews on the importance of peer scaffolding:

"You can read other people's work and sometimes you can take their ideas to help you with your work."

When asked during a focus group whether they thought the wiki was a way for children to improve their writing, Aisha too talked about the benefit of being able to see the work of other children:

"I think it does make writing better. Every time you look at someone else's work, for example [name of child] if you look at his work you might get ideas for your work. You might not want to copy it but write it in your own words."

She also found the opportunity to showcase her own work to friends and family motivational:

"The writing homework on the wiki is a bit more fun because what you have learned at school, you can write more and more on wikispaces and you can show other people what you have done...."

I like using wikispace – when we do work at school and copy and paste it onto wikispaces, my parents can see it."

Both Samara and Aisha spoke of feelings of agency when asked what they liked about using wikispaces:

Samara: "You get to do pages and you get to write reviews of people's pages and write what you liked and didn't like it. It's better than any others."

Aisha: "When I make a page at home it's like I'm teaching someone a new thing."

Aisha was enthusiastic about extending the project to the whole school, suggesting:

During the summer holidays two terms after the project ends, she was still communicating here (Figure 57), writing:

Im so scared to go to year 6

see you guys at school

Figure 57: Aisha's post during the summer holidays two terms after the wiki project ended

In the observer journal, I made frequent references to both girls at the outset of the project being excited and asking for help with technical aspects such as making their own pages, adding links and even making their own wikis. However the pages the girls produced were often unfinished such as Aisha's favourite author page (Figure 58), which had been a homework task.



Figure 58: Aisha's wiki page about a favourite author

or this unsolicited page (Figure 59) about our science topic in the first term of the project.



Figure 59: Unsolicited wiki page by Aisha about science topic

Other pages had limited text (often factually incorrect with mistakes in spelling and punctuation). Figure 60 is an example of a page Aisha produced unprompted during the first holidays after the project started.

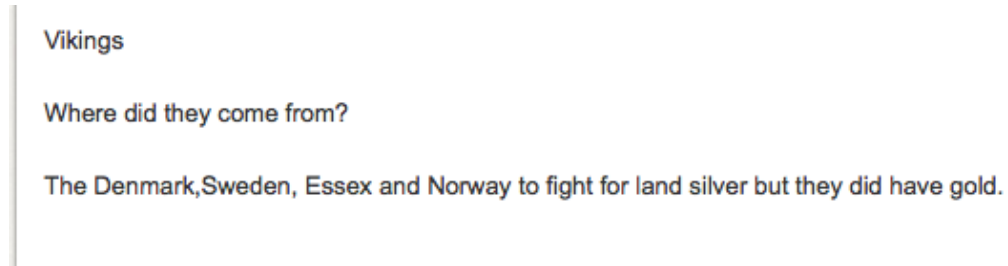


Figure 60: Unsolicited wiki page by Aisha about history topic

Even when pages were edited several times, the changes made were not improvements at sentence or text level and in Aisha's case repeated editing actually sometimes added errors rather than taking them out as Figure 61 shows.

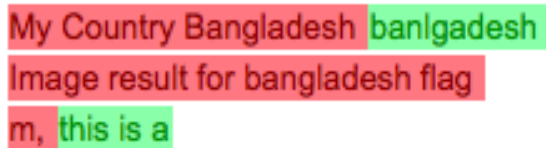


Figure 61: Editing history of Aisha's wiki page on her country (homework task - red shows words deleted and green shows those added)

Aisha's work on the wiki throughout was of much lower quality than her classwork published on the wiki such as the Narnia writing (Figure 62).

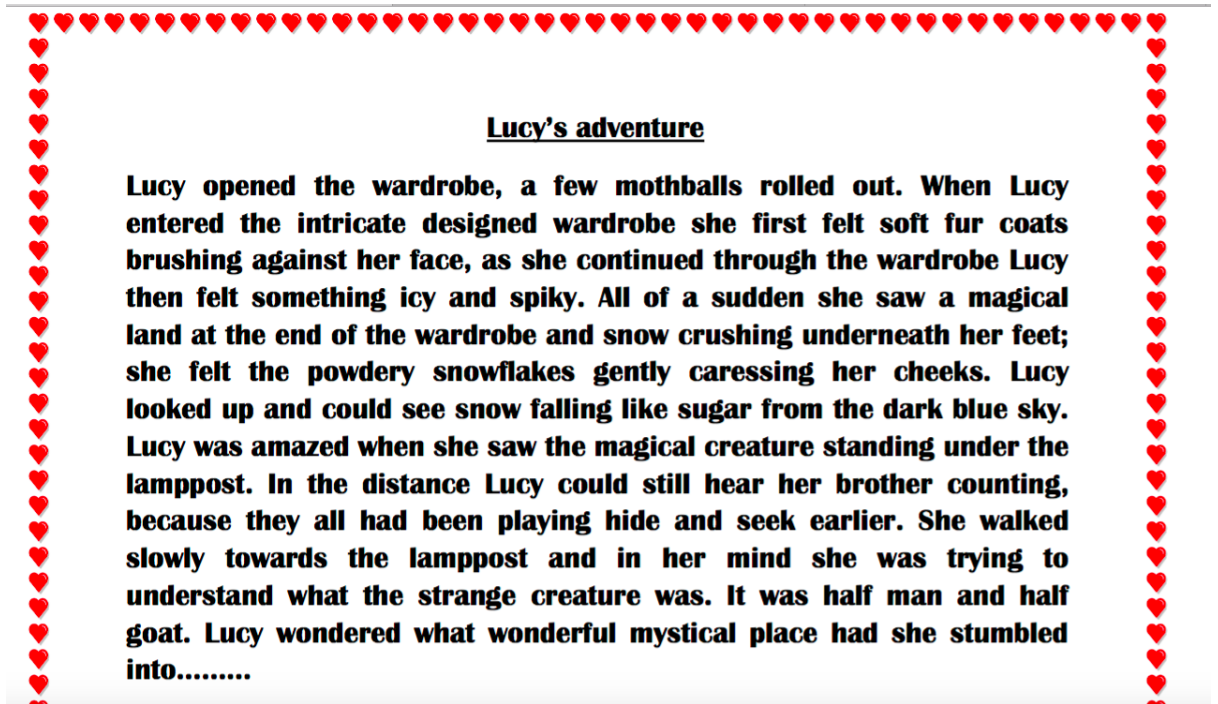


Figure 62: Aisha's class writing published on the wiki

Aisha appeared to engage with the lesson where children were encouraged to read through each other's Narnia school work which had been published on the wiki, comment and improve their own work offline (peer scaffolding). She commented below the most accomplished piece of work:

i love the story and the words are amazing i think year 6 cant even do that

Figure 63: Aisha's post beneath another child's Narnia wiki page

However, despite indicating with the self-assessment procedure of adding a green crayon mark at the top of the work that she had understood the task, the writing she went on to produce showed little improvement. On closer scrutiny, as Figure 64 shows, it transpired she had in fact repeated many of the phrases from her own earlier piece rather than editing and improving.

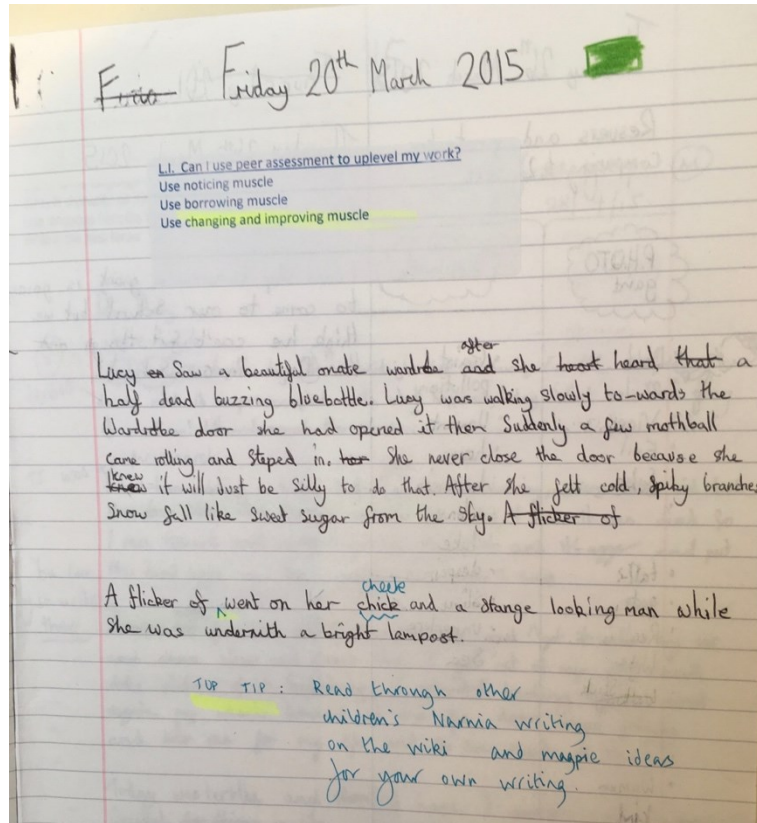


Figure 64: Aisha's offline writing after peer scaffolding task

This continued to be the pattern even into the third term of the project and beyond. Aisha's wiki pages in the Autumn and Spring term of Year 5 (when she continued to use the wiki even when it was no longer required – see Figure 66) showed limited stamina, errors of punctuation, spelling and sense and little improvement over time. Editing consisted mainly of capitalizing proper nouns rather than re-drafting sections or improving sentence structure (see Figure 65).

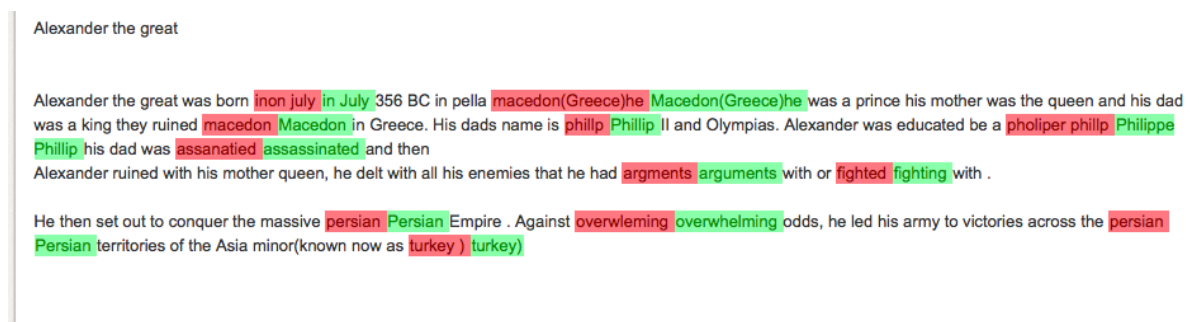


Figure 65: Aisha's work on wiki in Year 5 showing editing history (red for deleted words and green for newly-added ones)

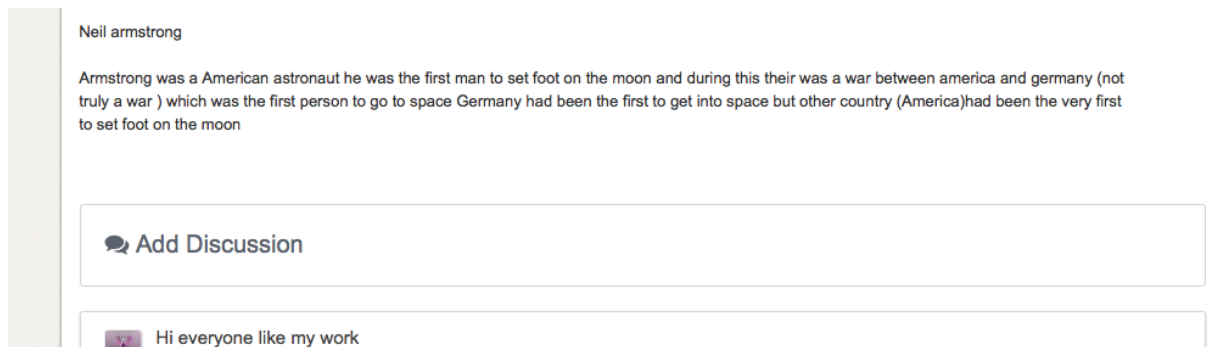
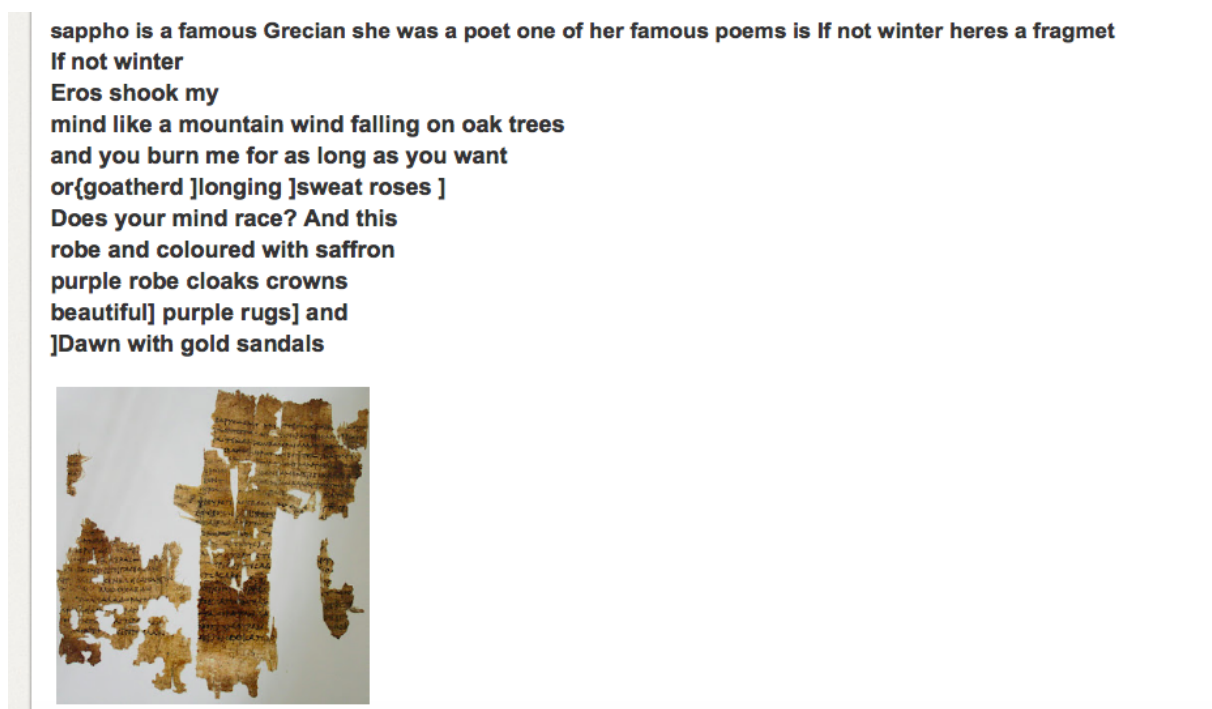


Figure 66: Aisha’s work on wiki in Year 5 (after wiki intervention officially finished)

For Samara, the story was similar. Samara was one of the highest attaining mathematicians and readers in the class. Despite being one of the first movers on the wiki and being frequently logged on, the quality of her work online and offline did not show any improvement with wiki use. She spent a considerable amount of time crafting pages about her home country. However, the content was limited and frequent revisions visible from the editing history show no signs of improving the text. Samara continued to use the wiki regularly throughout Year 5 and into Year 6 but, as Figure 67 and 68 show, spelling and punctuation errors persist and the work does not show a fluent control or command of language.



this is a very good poem but this is not, the only one she has many many more hers a photo. sappho wasn't the most famous but she was one of the famous. Sappho has 89 but i will show you 20 all of have a link so is you want you can read the page is called poem hunters and so thats why i think sappho is a great poet.



Ode To Aphrodite	
.To Anactoria, Who Has Forsaken A Once-Loved Girlfriend Of Sappho	
.To A Youth Who Wooed A Woman Older Than Himself	
.To Atthis The Inconstant	
.To A Rich Vulgarian	3/31/2010
.The Death Of Adonis	3/31/2010
The Fisherman's Tomb	3/31/2010
8. The Torments Of Love	3/31/2010
9. Yea, Thou Shalt Die	3/31/2010
10. To One False In Love	3/31/2010
11. Youth And Age	3/31/2010
12. The Dust Of Timas	3/31/2010
13. On The Tomb Of A Priestess Of Artemis	3/31/2010
14. To A Bride	3/31/2010

Figure 67: Samara's work on the wiki (Year 5)

the diary of anna frank is about a girl who is jewish girl and moves to the nerthlands from germany to escape the war years later the nazis envade nertherland so they go into hiding but get found and moved to a concentrancen camp.

Figure 68: Samara's work on the wiki (Year 6)

Outcomes for girls not selected for detailed case study analysis

For the rest of the class, two girls failed to engage with the wiki at all. Both said that they found typing really difficult and much preferred to write with pen and paper. A further seven made some contributions at the outset of the project but these tailed off. The intervention made no impact on their writing outcomes either online or offline. For two of these girls (Kim and Nita), the writing about their country was excellent and they produced work which was better than their work in class. In both cases, the girls said in focus groups that they had had help from adults:

Kim:

“My mum told me some facts and she printed some things out about Anglo-Saxons in Taunton and then she got some books and I wrote some bits in my own words.”

Nita:

“I got help from my older sibling which is my sister and I got some help from my mum and dad as well because they know a lot about Albania.”

8.10 Conclusion

Christina’s insights during a focus group are the final thing I want to mention as an endnote to this chapter. She was asked how we could take wikispaces forward and came up with this response:

“To move it forward, we could go maybe to year 3 and we could explain what wikispaces is – if they tried to write something and they weren’t that confident, we could give them some confidence to write and express their feeling.

Q – How?

Say someone in Y 3, Tristan was stuck and was trying to write a story and they had to write some more to it, if Tristan was really stuck, I would go up to him. If he was actually stuck, I would be able to help him.

Q How would you motivate him?

If he was stuck on the computer and he just wrote a couple sentences, I would go up to him and would ask if he had any ideas. I could try and talk to him and give him a bit of hints.”

At the time, I pushed her asking if it was necessary to be in the same place as him in order to help him. She replied that it might be possible to give him suggestions using the comment section below the page but didn’t sound convinced. It is only after reviewing all the findings that I see the perspicacity of her observations. The key to excellent progress on the wiki has not been through the discussion or comment section but when pupils have had support

in drafting online with a more able peer or adult sitting physically at their side. The children who have had this (Vladimir, Finlay, Mohammed, Katerina) are the ones for whom the wiki really **worked** – the social trumped the material every time in their sociomaterial practice. The results in this chapter show a remarkable lack of homogeneity – and no really *typical* case: the sociomaterial circumstances differed for every child as did the practice and the outcomes.

The chapter which follows is a discussion of these results using the methodology of critical realism to examine the empirical, the actual and the real. The discussion will be organized under two headings to match the earlier theory chapters 3 and 5: literacy in the digital age and agency/identity in the Third Space. It will also include reflexive analysis of my own involvement, pedagogy and changing viewpoint and how that tacked back and forth alongside the retroductive analysis demanded by a critical realist methodology.

Chapter 9 - Literacy in the Digital Age: Extensible Practices and Literacy Vectors

9.1 Introduction

The results in the previous chapter have been framed by looking at the texts that were produced as well as children's musings on the process of production. A conventional school assessment rubric has been used to evaluate success. This is not necessarily a bad thing. Texts which are modelled by the government as exemplars for assessment of children's writing at the end of primary school show fluency and flair in their use of language (see Appendix 7). What the current British curriculum, heavily focused as it is on decontextualized grammar teaching, fails to do is give adequate pointers to teachers on how to get there or ask them to take into account children's different starting points.

The following two chapters will discuss and analyse these results, referring back to and developing the ideas put forward in Chapter 3 on Literacy and Chapter 5 on Third Space. The stated aim of this study was to explore and describe the extent to which the integration of technology into the writing process (a wiki) affected students' writing skills, with particular reference to the way in which their literacy learning is affected by social and material factors. The principal research question asked how social and material agencies become woven over time to shape literacy practices when a wiki is integrated into a classroom of 8-9 year-olds. The previous chapter has been a description of what happened, told very much through the children's voices and that of their parents as well as my perspective of what happened when the wiki was implemented. This is what critical realists call the *empirical* – what was observed or experienced.

The next two chapters will seek to answer the subsidiary research question – whether the social and material imbrication or weave looked the same for all children and if not, why not. This will involve looking to what critical realism terms the *real* and the *actual* in order to try to pinpoint some of the

mechanisms and structures that generated the outcomes observed. Finally, Chapter 10 will also examine the second subsidiary research question: what kinds of learning and (new) literacy practices emerge from this weave?

9.2 Layer upon layer

Sociomateriality allows us to look at the confluence of relations between i) us as embodied individuals + tools/things, ii) us + each other + tools/things and iii) us + our inner selves + tools/things. The following two chapters will look in further depth at the data to see what mechanisms and processes were activated at these confluences. Texts emerge as a result of the imbrication between the social and the material. Analyses of these texts can reveal traces of previous imbrications. Practices, when subject to ethnographic analysis, also reveal sedimentation of previous sociomaterial imbrications. In schooled literacy practices, policy documents and teachers' interpretations of them form part of the sociomaterial imbrication as do the previous experiences and literacy practices which teachers bring to the workplace.

Two key themes emerge from the data and in response to other literature. First, the 'folding in' - in Latour's (1996) sense of the shepherd's pen - of the material by humans can and does extend their capacity to communicate. Emergent properties and affordances of digital devices and software used to produce texts online are materially different from emergent properties and affordances of the tools used offline. This undoubtedly creates opportunities for educators which will be examined fully in the second discussion chapter, Chapter 10. In particular, the role of affect in the sociomaterial imbrication and in the emergence of children's identities as writers will be further analysed. Second, sociomaterial literacy practices online inflect those offline and vice versa. This will look different for each child because it depends on previous sociomaterial imbrications (see Lemphane and Prinsloo, 2014, and Bulfin and Koutsogiannis, 2012, for further empirical work which makes this point). Crucially children's literacy practices depend on the emergent properties of both the material tools in their environment and the social beings involved – in

particular the children's access to sponsors at home. This creates challenges for educators and is the subject of this chapter. A realist framework is important here as it doesn't restrict our world view to the discursive order. As Margaret Archer (2000: 90) points out, 'our 'life chances' do not hinge upon our knowledge of them'. Instead we are born into a cat's cradle of pre-woven structural constraints. However, we have the opportunity to break the mould if we exercise one of the most important human properties and powers, our reflexivity.

The empirical data in the previous chapters has thrown up some things that were predictable and some that were unexpected. The question is whether there are any discernible patterns in what may appear aleatory. In line with the other studies mentioned in Chapter 2, this wiki did generate affordances that brought about new literacy practices because of the real audience, the possibility to edit and revise work, the opportunity to collaborate and build up shared as well as individual practices and the chance to develop practices using different modes. The software used in the pilot and in the main study enabled several children to produce writing beyond what would have emerged in traditional off-line school literacy practices, including written homework.

Digital software provides different opportunities from analogue writing opportunities in schooled literacy practices because it has a *form* that persists across time and space: it is accessible outside the confines of the classroom and beyond the hours of the school day. However its *function* is subject to interpretation according to context. This data (like Lemphane and Prinsloo's 2014 work with families from different households) points to the 'complex and socially variable nature of form-function relationships' and the fact that 'the same interactive multimedia screen might .. not be functionally the same across these settings when users bring their differences to this screen' (Lemphane and Prinsloo, 2014: 15). Digital devices and practices are 'placed resources' (Prinsloo, 2005) but they are encountered in very different social, cultural and economic contexts. The question then arises: what are the material conditions at home and what are the sociocultural and linguistic

conditions where we are asking these digital literacy practices initiating at school to continue? Is technology use in the home fragmenting or totalizing?

As Bulfin and Koutsogiannis (2012) show, the idealization of out-of-school digital literacies has led to certain deterministic assumptions about the power of technology, along with an under-theorizing of context both at home and school. By using dispositional, generative theories of causation to examine the interlacing of social, economic and cultural factors which underpin relations between home and school, it may be possible to identify mechanisms or what I will call *literacy vectors* that can carry across these spaces and explain continuities between online and offline literacy practices. (A dispositional theory of causation (Mumford and Anjum, 2011) looks at tendencies and potentials rather than the correlation of variables. Generative theories (Pawson, 2008) very much rely on choices made by individuals or groups for causation to occur.)

Margaret Archer posits a morphogenic society, acknowledging that the last few decades have seen unprecedented social change and seeking ways to theorise it. This thesis follows her work to suggest an emergentist theory of literacy. Although this is in explicit response to a digital intervention there may be wider lessons for the study of literacy as a whole. It relies on the following five propositions: i) using an emergentist approach to theorise the structure/agency debate may help narrow the gap between sociocultural and individual theories of learning and literacy because it can account for the varied ways in which learners respond in the same context; ii) pupils' learning emerges through the imbrication of their social conditioning and their capacities for agency; iii) this looks different for different pupils because of reflexive choices made both by the children and their parents. Social and cultural structures and the personal emergent properties of different individuals combine in different ways depending on those individuals' capacities for reflection; iv) Traditional theories of socio-economic class and habitus (Bourdieu) may not tell the whole story because social conditioning can be overcome through reflexive response to it; v) cultural capital of parents is an important determinant and continues to be a useful explanatory concept

provided it is interpreted broadly (Lareau and Weininger, 2003; Edgerton and Roberts, 2014; Khan, 2011) as adaptive and incorporating the enthusiasm for popular culture and technological advances which elites are now manifesting.

Using this emergentist lens, metaphors of fluidity and flux are replaced by something with discernible but flexible form, susceptible to transformation (morphogenesis). By seeing society and literacy as shapeshifting, we may be able to add something to notions of motion and dynamism in literacy. Text trajectories (Kell, 2015) can be complemented by idea of literacy practices which are situated but *extensible*. Leander and McKim (2003: 230) ask: ‘Are more extensible adolescents— with more flow-related practices—also those with more economic and social capital (Bourdieu, 1991)?’ In this analysis of the empirical data, we will look to describe practices rather than children as extensible and seek to identify what makes them so and what the *vectors* are that carry them between spaces and link practices across spaces.

9.3 Retroductive analysis

As suggested by Miles et al. (2014) a conceptual framework (Table 9) was drawn up, laying out the setting or context for the wiki intervention, the processes and events as it was implemented and the anticipated outcomes.

Table 9: Conceptual framework

EXTERNAL CONTEXT Global/National/local	INTERNAL CONTEXT Class	PROCESSES	OUTCOMES ANTICIPATED
<ul style="list-style-type: none"> • Perceived intransigence of schools in the face of technological change • State – new curriculum in English (more traditional and narrowly focused) • Supportive headteacher welcoming innovation 	<ul style="list-style-type: none"> • Play-based pedagogy • Links to children’s use of technology out of school • High number of EAL and FSM children • Supportive headteacher welcoming innovation 	<ul style="list-style-type: none"> • Implement innovation (wiki) • Revise and review • Changes in pupils’ perceptions and practices • Revise and review • Roll out wiki in other classes 	<ul style="list-style-type: none"> • All children will benefit and outcomes will improve • Boys may benefit more than girls • Changes in school culture

From preliminary analysis of the data, an effects matrix (see below, Table 10) was drawn up which helped refine the connecting or axial coding. The outcomes anticipated in the conceptual framework did, with hindsight, draw on a romanticized notion of the power of the digital implicit in the ‘new literacy myth’ which has been critiqued by Bulfin and Koutsogiannis (2012). This deterministic ‘happy ending’, not surprisingly, failed to materialize.

Table 10: Effects matrix

	SHORT-RUN EFFECTS	LONGER TERM CONSEQUENCES
Pupils	<ul style="list-style-type: none"> • Increased motivation • Greater focus on internet safety • Better word-processing skills • Improved ability to create multi-modal texts • Higher quality of homework (some children) 	<ul style="list-style-type: none"> • Greatly improved outcomes for small minority • Little or no improvement in outcomes for majority • Focus on collaborating around texts (some children) • Individual focus on editing and improving texts
Teacher	<ul style="list-style-type: none"> • Higher workload • Improved technical skills 	<ul style="list-style-type: none"> • Improved understanding of writing pedagogy • Better understanding of children’s out of school contexts
Parents/carers	<ul style="list-style-type: none"> • Greater engagement with children’s work (some cases) • Small minority expressing positive sentiment that their children were prioritising the wiki and creation of content (which they saw as educational) over computer games (which they saw as passive and time-wasting) 	<ul style="list-style-type: none"> • Satisfaction with the school and teacher’s pedagogy in cases of excellent progress of their child

The external and internal school contexts identified in Table 9 were the same for all pupils. Literacy was seen as unbounded in order to examine its ‘unruly ways’ (Leander and Boldt: 2013: 41). A space was created where boundaries between work and play and between home and school were deliberately blurred, where pupils could continue what they had started both in the classroom and the playground at home allowing an intermingling of ‘the serious and the frivolous’ (Merchant, 2006:102). Practices in this space were deliberately intended to be different from traditional schooled literacy practices because the texts could become ‘collaborative and multivocal, with replies, links, posted comments and borrowing’ (ibid: 102). The creation of multi-modal

texts was encouraged alongside the 'need to produce intelligible texts' (Burnett and Merchant, 2015: 272-3). Children could continue to communicate at times and places of their choosing. In this Third or liminal space in which improvisation was encouraged, traditional classrooms norms could be briefly set aside and hierarchies became more flat or 'fluid' (Potter and McDougall, 2017: 9).

However not all children responded to the intervention in the same way. 'Reading out from' the data as Kell did (2015: 88) rather than 'reading in' has necessitated a search for explanations which involve depth and the unpicking of layers. As Lemphane and Prinsloo (2014) show, digital devices and the textual forms that they spawn are highly sensitive to context. Contexts at home are vital, both in terms of the material (access to hardware and software) and the social (access to powerful forms of language). The latter will depend on previous sociomaterial imbrications which have shaped the literacy practices of children's parents. Certain feedback loops lead to morphogenesis and others to morphostasis.

Using the Context Mechanism Outcome (CMO) framework, a case matrix (Table 11) was drawn up to identify what was generating the outcomes. Mechanisms operate at the level of structure and agency anywhere on a continuum between structural constraints and opportunities to exert agency. They may either mediate between entities or reflect choice/intentionality. In other words, humans are seen as having some choice without being able to choose our choices. Is it possible with this framework to identify demi-regularities (Lawson, 1997) or patterns that might be predicted?

Table 11: Case matrix

CHILD	DEMOGRAPHIC DATA	MECHANISM/VECTOR	OUTCOME
Morphogenesis – high to moderate cases of extensibility			
VLADIMIR	EAL (English as an Additional Language) Pupil premium*	Own response to affordances/emergent properties of technology Parental reflexivity or response to affordances/emergent properties of technology	Enhanced engagement with schooled literacy Positive attainment outcomes
FINLAY	Non-EAL	Own response to emergent properties of technology Parental reflexivity or response to affordances/emergent properties of technology	Enhanced engagement with schooled literacy Positive attainment outcomes
KATERINA	EAL Pupil premium	Own response to emergent properties of technology Parental response to emergent properties of technology	Enhanced engagement with schooled literacy Positive attainment outcomes
Morphogenesis –cases of moderate extensibility			
MOHAMMED	EAL	Some home support	Improved outcomes in schooled literacy
ZACHARY	EAL	Own response to technology Very limited home support	Improved outcomes in schooled literacy
CELINE	EAL Pupil premium	Own response to emergent properties of technology Parental support around literacy	Improved outcomes in schooled literacy
CHRISTINA	EAL Pupil premium	Own response to emergent properties of technology Parental support around literacy	Improved outcomes in schooled literacy
Morphostasis – cases of limited or no extensibility			
AISHA	EAL	Lack of reflexivity or parent support	No improvement in schooled literacy outcomes
SAMARA	EAL Pupil premium	Lack of reflexivity or parent support	No improvement in schooled literacy outcomes
*Pupil Premium denotes a child who receives or has received Free School Meals during their school career – an indicator of socio-economic deprivation.			

In this thesis, an attempt has been made to look unpick some of the elements demanded by O'Mahoney (2016) and Elder Vass (2010) of critical realist researchers (see Table 12).

Table 12: Entities and their properties/powers

ENTITIES	EMERGENT PROPERTIES/POTENTIAL ACTUALIZED POWERS
PEOPLE/ Pupils Teacher Parents	Reflexivity
PARTS Wiki software Laptops or other hardware	Affordances

The entities (people and parts) are put into relation through existing sociomaterial structures (national schooling system). The pupils and the technology are also put into relation with each other in the Third Space through the reflexivity of the teacher. Here, space is co-constructed by the pupils and the teacher. Table 11 showed the mechanisms which brought about either morphogenesis or morphostasis.

The remainder of this chapter will look at the structural and cultural factors which defined and delimited the children’s scope for action as learners. The following chapter will look at their subjective response to these and the imbrication of their own concerns and intentions.

9.4 Cases of highly extensible practices

In cases of highly extensible literacy practices (such as those of Vladimir and Finlay) the unboundedness of the wiki allowed offline relationships to be taken up online in a way which was linked to learning. Children moved between their online play on Minecraft to offline discussions about this at the playground in school, back online to the wiki where the narrative was composed collaboratively back to an offline discussion with parents where they were mentored and encouraged and to offline discussions with the teacher who praised and took notice.

In this positive outcome, Burnett et al.’s (2014b: 10) identification of intensified opportunities ‘for overlaying different experiences’ was realized partly because of the ‘looser boundaries (spatial and temporal) associated with

digital texts' i.e. because of the material affordances of the software. However because this was not the universal experience in the class, we can see that in these cases, far more important were the social factors such as the link to play and the encouragement and reflexivity of the parent.

What we may be seeing is a re-run of Lareau's (2003) *natural growth* and *concerted cultivation* models of parenting, re-characterized by Gee (2015) to keep up with the times. The concerted cultivators described by Lareau invest heavily out of school in supporting their child's education. They are not deferential to the authority of the teacher, the school or even the wider education system and are confident in their ability to guide their child's learning and make up any deficits they perceive in the provision locally or nationally. In the digital age, such parents, often working themselves in technology-rich environments, 'encourage their children to develop mastery with digital tools, using things like games as a gateway, and help their children relate this mastery to literacy and knowledge development' (Gee: 2015: 73). Meanwhile those parents with less money, education or time are less likely to explicitly direct their children's computer use or attempt to align it with educational or career goals.

Katerina's mother was a good example of a concerted cultivator – keen to capitalise on her child's ease with and enjoyment of the technology to support her learning at home and seeing time spent helping her child on the wiki as an investment which would bring yields both in immediate outcomes in school and towards the longer-term goal of improving her child's future life-chances. For all these parents, the material elements of the wiki, namely its affordance of making texts visible across time and space, provided them with an insight into what was going on at school, what was required in this project and what other children were capable of producing. This allowed them to spot opportunities to use their own experiences of literacy to support their children. Both Finlay and Vladimir's mothers reflected on the uniqueness of this space to enhance communication. Vladimir's mother was delighted that it gave her child a place where he could 'apply himself, express himself' in a way that he couldn't in offline spaces. For Finlay's mother, the space was important because it

allowed communication and collaboration out of school hours. She also repeatedly referred to the way the space seemed to give free rein to her son's imagination. The following chapter will look further at the emergence of affect and imagination in online literacy practices.

What is notable in this study is that traditional sociological categories like socio-economic class and ethnicity are much less important than the reflexivity of the parents who realized that they could use games and play to align their children's goals with their own. Both Katerina and Vladimir's mothers would be classified as low SES as they were eligible for Free School Meals. Yet under Margaret Archer's (2003 and 2007) categorization of reflexivity, they like Finlay's mother, would score highest as 'autonomous reflexives', people with purpose and self-direction. In the cases of both Finlay and Vladimir's mothers, they were working parents who were able to build upon their own experiences to seize the 'teachable moment'. Finlay's mum was delighted to be invited to comment on his written work for the first time ever, full of praise for what he had achieved while not missing the chance to help him improve his work: "Me being me helped him to punctuate it!" When the emergent properties of their parenting style are brought into congruence with their sons' computer game playing, this becomes an opportunity for literacy development.

These findings chime with the work of Judith Solsken (1993: 217) who looked at different parenting styles used by mothers to encourage literacy activities by their sons at home and found that 'gender dynamics around children's literacy learning appeared to be related to whether literacy was treated as work or play by mothers. For some boys, tension around the female sponsorship of literacy was reduced when mothers treated literacy as play'. However, to see literacy as emerging most effectively from encouraging play requires a reflexivity about one's child and the digital world that relies on cultural capital. The wiki provided a space where Vladimir and Finlay could be autonomous and display competence. The material properties of the wiki (particularly the haptic element around typing which they felt more comfortable with than handwriting) allowed them to showcase their talents proudly and invite praise and commentary from their mothers. These mothers kept an eye on their sons'

games playing and computer use and intervened and encouraged them to support their literacy development.

Solsken's analysis showed that young children's (kindergarten to Grade 2) responses to a teacher's pedagogical approach resulted from literacy orientations developed at home. The data in this study seems to bear out her findings perhaps because improvising with the digital necessitates a less *visible* (Bernstein, 1975) pedagogy. With this kind of pedagogy,

control of the teacher over the child is implicit rather than explicit... The teacher arranges the context which the child is expected to rearrange and explore. The child apparently has wide powers over what he selects, over how he structures, and over the timescale of his activities. There is reduced emphasis upon the transmission and acquisition of specific skill. (Bernstein, 1975: 6)

Yet as Bernstein pointed out, invisible pedagogy tends to privilege those whose mothers can act as agents of 'cultural reproduction'. Using retroductive methods to uncover the causal mechanisms behind the emergence of extensible practices reveals the key role played by parents, in particular mothers, in these outcomes. These mothers understand and support the values of the school; their reflexivity is one of the key *vectors* in the process.

Deborah Brandt (1997: 2) suggested the notion of literacy *sponsors* who 'are any agents, local or distant, concrete or abstract, who enable, support, teach, or model, as well as recruit, regulate, suppress, or withhold literacy -- and gain advantage by it in some way'. She contrasts the sponsorship of two people born in the same year, describing both the social and the material resources available to them.

Also, while Raymond Branch, as the son of an academic, was sponsored by some of the most powerful agents of the university (its laboratories, newest technologies, and most educated personnel), Dora Lopez was being sponsored by what her parents could pull from the peripheral service systems of the university (the mail room, the bookstore, the second-hand technology market). (Brandt, 1997: 8)

By the same token, Finlay's mum, a management consultant, would have been able to call upon the newest technologies available in her own and other workplaces she knew about as well as other highly educated professionals in her business and social circles as sponsors and use this sociomaterial imbrication to shape her own ability and motivation to sponsor her son's literacy development. Katerina's mother had access to similar sponsorship resources from her time as a media professional in her own country. In a new country, like Vladimir's mother, she did not have the same economic capital as Finlay's parents but, as is evident from the experiences Katerina wrote about on the wiki (such as museum visits), she possessed cultural capital and was keen to encourage its accumulation in her children.

As part of the retroductive process, some time through the data analysis and substantially after the project finished, I was able to ask the children in the class to draw a picture or diagram of themselves and their families using technology at home. This was possible as I was still the children's teacher. The process was particularly illuminating for the cases of moderate to low extensibility. Finlay had left the school by the time the children were asked to do this task and Vladimir was away. However, the parents of Finlay, Vladimir and Katerina had been interviewed and a picture of their home computer use had been built up during these sessions. In the cases of high extensibility, the key features were parental use of the computer for work at home and parental support as their child used the computer. This was confirmed in what Katerina produced for the task (she felt more comfortable writing notes than drawing a picture).

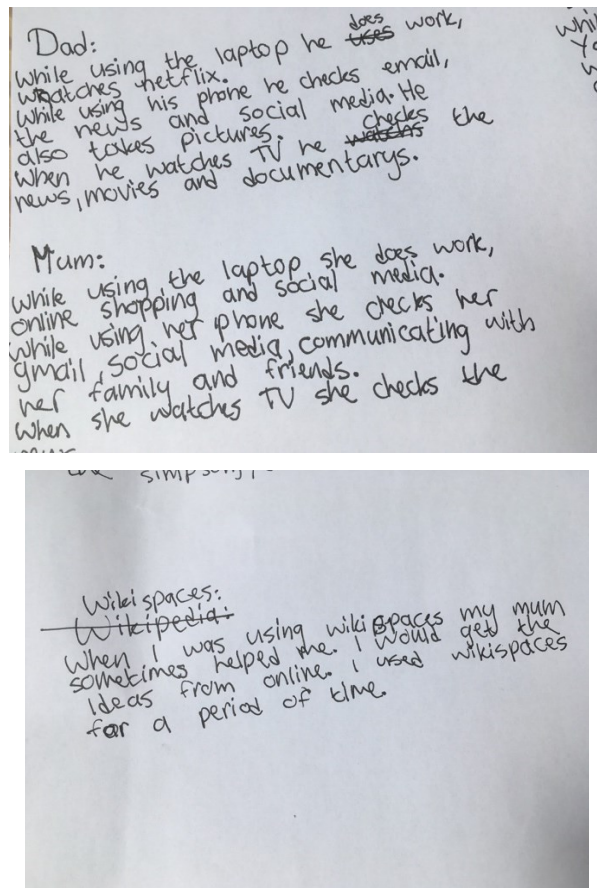


Figure 69: Katerina's notes about home computer use

The function of the digital tools in these households was very different from the function in some other homes which we will come to. The children with highly extensible practices were supported by knowledgeable, empathetic sponsors. They, like the Boltons, in Lemphane and Prinsloo's (2014) study were operating with the 'sociocultural backgrounds' and 'linguistic resources' (ibid: 29) which led to their successes. But there was also a particular flexibility on the part of their parents who allowed the children's sense of fun and enjoyment to flourish while also managing to introduce mentoring moments. This allowed the emergence of something dynamic and transformative. These are cases where morphogenesis took place: the imbrication of the social and the material and the reflexivity of the parents about the function of technology in their children's lives allowed something new to take shape and emerge – a positive feedback loop which was transferable across space and time back into the classroom. Highly extensible practices emerged and the literacy vector appears to have been parental reflexivity.

9.5 Cases of moderate extensibility

Sponsors are social beings, although their ability to support others arises from their previous imbrications with their material context. As Brandt (1997: 15) points out: 'Accumulated layers of sponsoring influences -- in families, workplaces, schools, memory -- carry forms of literacy that have been shaped out of ideological and economic struggles of the past'. In this next section, we will look at cases of moderate extensibility. In these instances, the children made some progress on the wiki and in offline literacy. From interviews with the children and their depictions of technology use at home, it was clear that they had either direct support or that the function of technology in the home was oriented towards work. However, what marks them out from the cases in the previous section is the absence of parental reflexivity about and support for online play as a gateway to learning.

Mohammed displayed moderate extensibility. Both parents were educated in this country and showed reflexivity about the value of technology to support learning, allowing the computer to be used for this function. This was evident in interviews with Mohammed, conversations with his mother and his diagram about technology use in the home. Mohammed's parents sat alongside their son as he drafted homework tasks online, discussing and supporting his ideas. If they were unable to help because of time constraints, they sought out other sponsors, such as a more knowledgeable older relative, such as a cousin, who they knew could provide guidance.

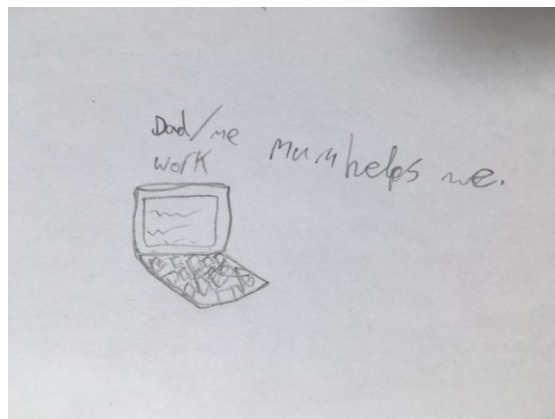


Figure 70: Mohammed's drawing of home technology use

The case of Christina was similar to that of Mohammed where an adult sat alongside her as she used technology. Another child who showed moderately extensible practices was Celine. She grew up in a household where it was clear that computers were to be used purposefully. In her diagram of technology use at home, her mother is seen ‘doing her teacher work’.

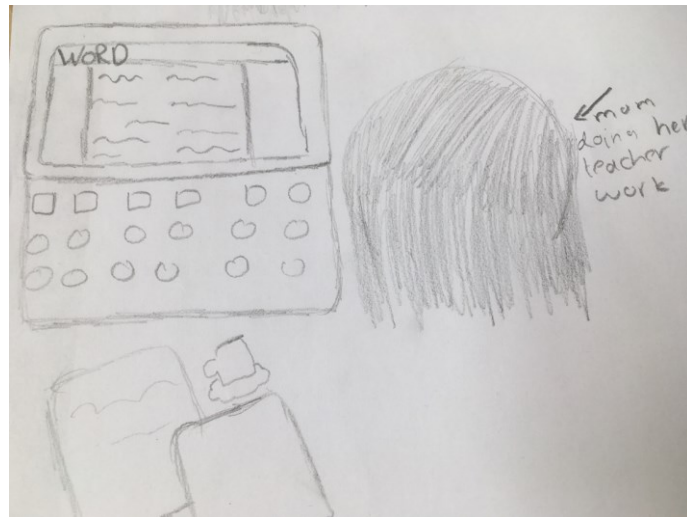


Figure 71: Celine's diagram of her home technology set-up with mum 'doing her teacher work'

Her mother may have lacked the professional networks and imbrication in technology-rich workplaces of the parents of Finlay, Vladimir and Katerina. Nevertheless, a part-time language teacher, she had a strong work ethic and enthusiasm for education which she transmitted to her daughter and, in the initial stages of the project, allowed her daughter some leeway in the use of the computer. However, because of her own sponsors – her education in another system – she did not see the value of playful use of technology as a springboard for learning. She was willing to support learning at home in spelling, handwriting and arithmetic but did not manifest the reflexivity about popular culture and digital know-how characteristic of those with ‘new’ cultural capital. For her, Celine's elaborate pages about interior design and fashion were a waste of time and distracting her from ‘real’ work, a view which she stated in front of Celine and me. Thus Celine was not being mentored or

supported at home around literacy practices involving technology that were of interest to her. This experience of sponsorship in the home limited the extensibility of Celine's practices, affecting her enthusiasm and output at school in the second half of the project when she had been discouraged or even prohibited from using the wiki at home.

At the other end of the scale in terms of parental response is the case of Zachary. Zachary was the youngest child of two professional parents – his mother worked in the software industry. His parents encouraged him to use the wiki but, as is clear from his pictorial representation of technology use in the home, other family members sat working alongside him on separate devices rather than supporting him as he worked.

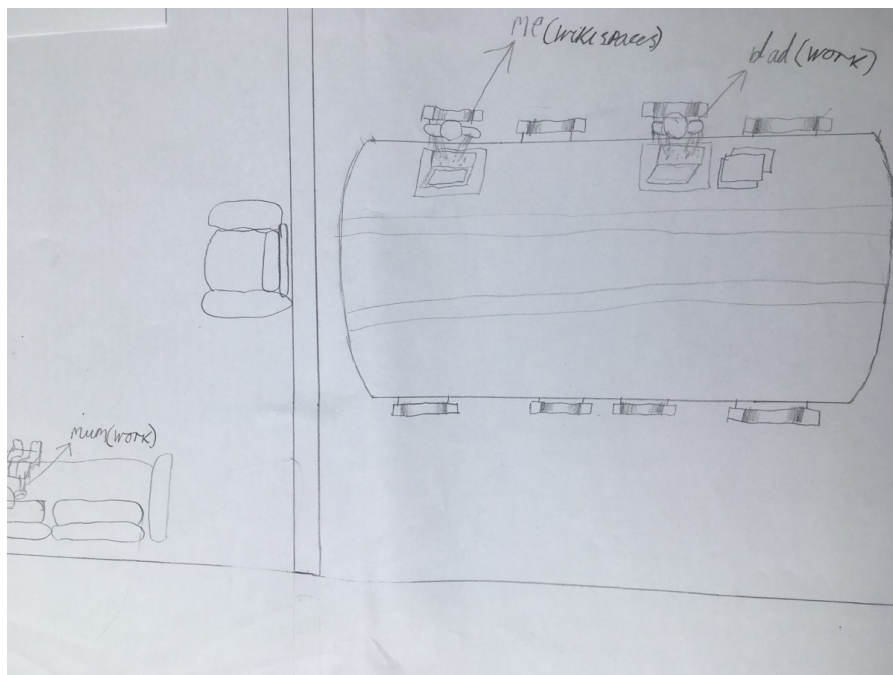


Figure 72: Zachary's drawing of home technology use

In conversations with his parents in which the teachers asked why he was not completing his homework, they replied that they had assumed he was getting on with it independently when he told them he was working on the wiki. However, it is likely that, perhaps because of deterministic assumptions about technology, they overestimated his capacity for independent work, displaying a Papertian confidence that the 'children's machine' could on its own lead to self-

directed learning. Far from hovering over him like concerted cultivators, they adopted a natural growth model of parenting, allowing him to get on with his thing while they did theirs. In both Celine and Zachary's cases, their own response to the technology was as important as the family response – the following chapter will look further at pupil agency on the wiki.

These cases show that interpretations of and response to the technology by the human actors are the key determinants in the outcomes. Reflexivity emerges because of previous sociomaterial imbrications which afford or constrain actors. Their response then leads to further sociomaterial imbrications. As Introna and Hayes (2011: 120) note, 'sociomaterial imbrications are historically and culturally situated' and are both precursor to as well as medium and outcome of 'ongoing pragmatic action' (ibid: 111). The response to technology of Celine and Zachary's parents was not the same and it was different from that of the parents in the previous section. In one household, there was skepticism and disapproval and in the other there was over-optimism about the power of technology; yet the effect was the same. These parents did not hover, intervene or attempt discussions with their children around what they were doing online. Nevertheless these children were imbricated in households where parents made clear that the function of technology was to produce work. Celine and Zachary could see how their parents were using computers and this influenced their own perception of its function. Thus there was also a positive feedback loop and morphogenesis – something dynamic and transformative did emerge although these children's practices could be characterized as less extensible than those of the children in the previous section.

9.6 Cases of low extensibility

The findings of this study resonate with Lareau's (2003) depiction of unequal *childhoods* and Lemphane and Prinsloo's (2014) analysis of the unequal *settings* in which children interact with technology in the home. In this final section, we will examine the social contexts of those children who despite extensive use of the wiki, did not appear to develop extensible practices.

Aisha and Samara used the wiki regularly. Yet as discussed in the previous chapter, this did not lead to improved writing outcomes for them. When asked to draw visual representations of how their families used technology, it was clear in both cases that its function in these homes was not the same as it was in the households discussed in the previous sections. Aisha and Samara were not limited in their access to hardware as the Mahlale children in Lemphane and Prinsloo’s study were. In fact, their homes contained multiple devices. However, adults in these settings used technology only to communicate with family and friends – the children did not see it imbricated in professional practices or networks as Celine and Zachary did. Nor did they receive the mentoring or support that Mohammad, Katerina, Vladimir or Finlay had.

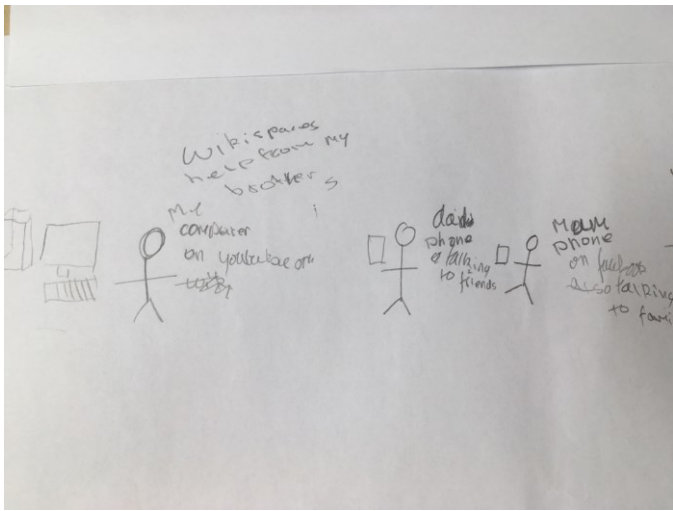


Figure 73: Samara’s picture of home technology use

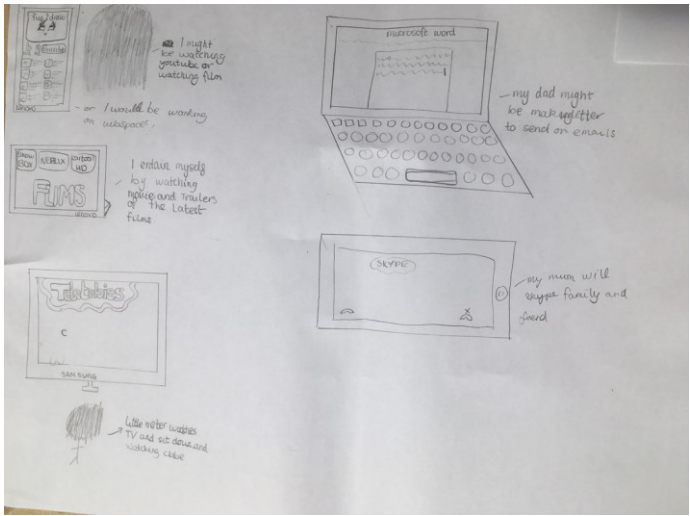


Figure 74: Aisha’s drawing of home technology use

Sponsorship in these households was complex. The mothers did not have access to expert sponsors outside their immediate social circles. In addition, fathers were the ones who usually attended parents' evenings rather than mothers. So the mothers were held back or inhibited from interaction with the school certainly where 'work' was concerned, further reducing their access to resources which could support their ability to sponsor their children. Samara had limited help from an older brother when writing about the history of her country. But this did not seem to be as structured as the guidance Mohammed had from an older cousin.

The economic conditions in the UK mean that, unlike in South Africa, even low SES families can usually afford multiple devices so that everyone in the family can be using one at once. However this raises the possibility of them being used in silos. Without communication or collaboration around the devices, their use becomes quite fragmenting. Context turns out to be vital as Charles Crook foresaw a quarter of a century ago:

Pupils should encounter computers as mediational resources incorporated within suitably rich settings of activity; that is settings with authentic goals and purposes for those pupils, and settings that are explicitly integrated with other experiences of knowing and understanding as they are organised at other times (Crook, 1994: 43).

There are homes in which this is achieved through the reflexivity of the parents but it is a far from universal experience.

Lareau in her 2003 ethnographic work across different neighbourhoods suggests two categories of parents, the middle class *concerted cultivators* and those working class 'parents and guardians [who] facilitate the *accomplishment of natural growth*' (Lareau, 2003: 3). Yet those working in inner city schools often come across parents who do not have the time, space, money, confidence or experience to *facilitate* anything - parents for whom the ground is so rocky or thorny that they can't be gardeners at all.

This chapter has looked at the cases of those who worked on the wiki to examine the extensibility of their literacy practices. For those children who

did not engage with the wiki, a brief analysis of their home depictions of technology gives an insight into why they did not and could not have made progress on the wiki. One child in particular, Sam, a white boy eligible for Free School Meals, had access to technology at home. He draws himself apparently immersed in a rich digital world. Despite his low SES background, he does have access to the material resources. However what is entirely missing is any sponsorship, any social interaction that could imbricate with the material and foster the emergence of new literacy practices.

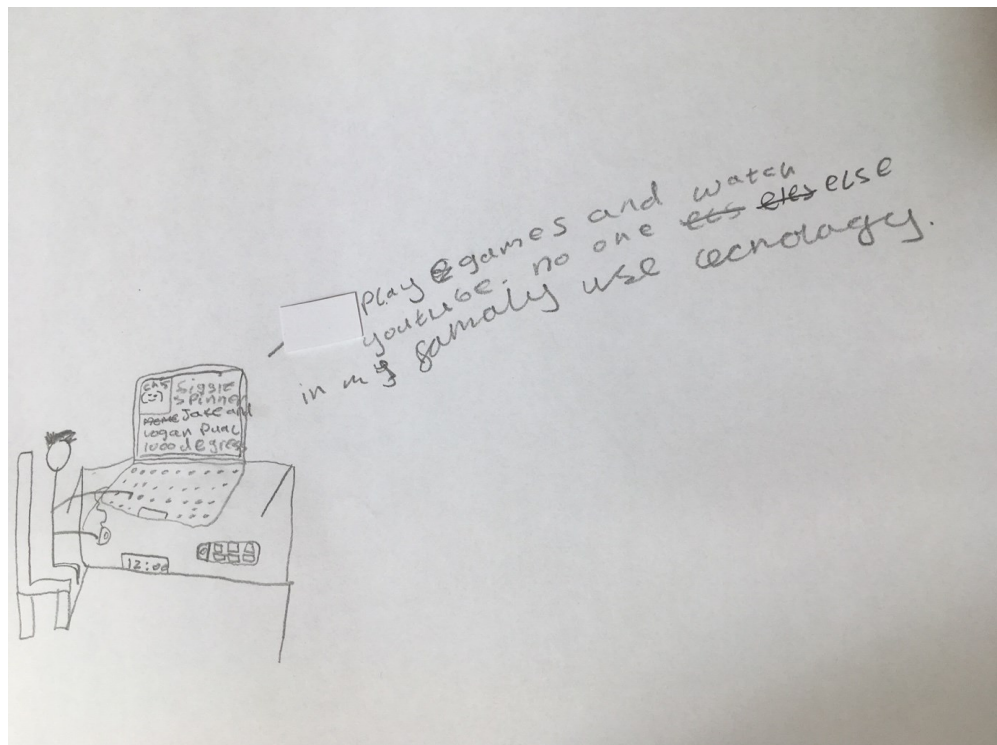


Figure 75: Sam's drawing of home technology use

Without any role models or indeed anyone in his family using technology at all, his active participation in the project, it is now clear, was doomed from the start.

Another white boy eligible for Free School Meals, shows a family picture richer in technology-use. Mum and little sister are busy on tablets and laptops.

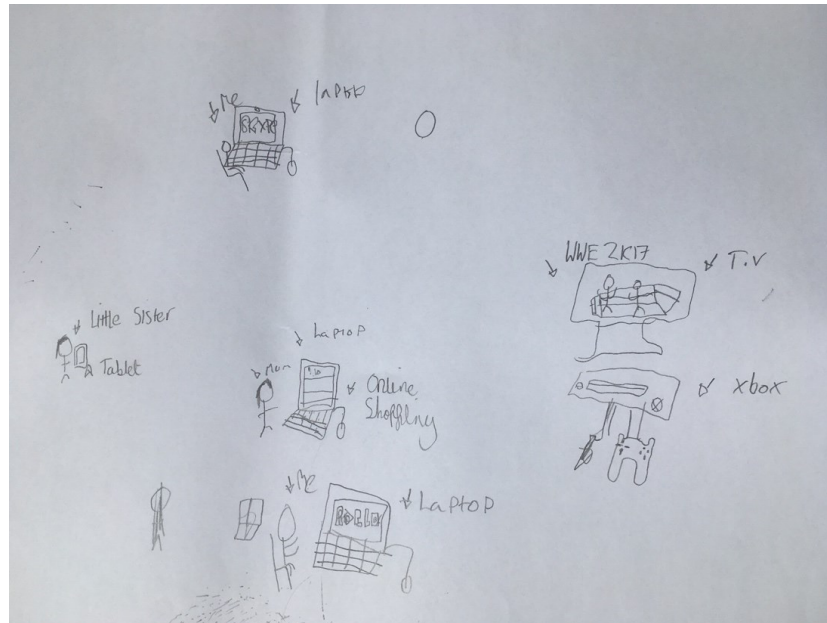


Figure 76: Joe's drawing of home technology use

This child, Joe, has access to multiple devices yet the function of technology in this household is restricted to games playing and online shopping. The mother's use of technology does not hinge around communication or literacy practices. A single mother who is not working, she has no access to professional networks— her own imbrications with sponsors who could support literacy development are limited. In these two cases, the presence of technology in the home and the children's immersion in online gaming did not lead to any trajectories of literacy practices between home and school.

The results of this study chime with those of earlier (more statistical) studies, in particular those of Neuman and Celano (2006) and Attewell and Battle (1999) which found that, even when computers were available to different social groups, the outcomes were far from even. The 'social envelope' – that is the behaviour and beliefs around computer use in the home – seems to be just as important now as when Giacquinta et al. (1993) coined the term quarter of a century ago before internet use was wide-spread. Attewell and Battle call this the 'Sesame Street Effect' after the well-known children's TV programme which, far from fulfilling its promise to reduce educational gaps, actually ended up widening them, as middle-class parents 'embraced this educational opportunity' (1999: 9) to improve their children's basic numeracy and literacy skills.

Many arguments about digital divides have focused on lack of access to hardware in the home. However, Attewell and Battle (1999: 1) raised the issue of hidden barriers.

Even if they gained access to home computing, children from poorer homes may not gain as much from using home computing as more affluent children do. Girls may not benefit as much... as boys, and minorities may not gain as much as whites.

Similarly, in Neuman and Celano's (2006) study of computer use in libraries, the introduction of digital media was shown to exacerbate rather than alleviate inequality, widening the 'Knowledge Gap'. They found that middle class children were accompanied to the library by parents who mentored them and exposed them to new language as they interacted with the computers.

Meanwhile, the poorer children tended to operate without supervision, accessing material below their age level and concentrating only for short bursts rather than sustained periods. The practices which built up around the technology, particularly the mentoring, were far more important than the technology itself. This may be an inconvenient truth but it is one that needs to be universally acknowledged. And for those children who are not getting the mentoring, we need the 'social will' (Gee, 2015: 105) to give them access to it if digital technology is to fulfil its potential in education.

9.7 Conclusion

To change children from bricks in the wall by empowering them through holes in the wall is something that has been advocated by proponents of Minimally Invasive Education (MIE) such as Sugata Mitra. In photos of Mitra's radical experiment, initially carried out two decades ago in a slum in New Delhi, children are seen crowding around a single computer where they apparently drive their own education without adult intervention. Mitra's claims have struck a chord with many who grew up listening to Pink Floyd - he has been widely feted, garnering the prestigious TED prize in 2013. His ideas have been endorsed and taken further by Nicolas Negroponte who advocated one laptop per child and set up an eponymous non-profit organization (OLPC) with the goal of transforming education around the world.

However on reflection, several questions arise about Mitra's initial experiment. Did every child in the slum take part and benefit? Were there those who did not as well as those who did? Critics such as Arora (2010) and Warschauer (2003) have found holes in the Hole in the Wall hypothesis. Bruyckere, Kirschner and Hulshof (2015) note that access to the computer tended to be dominated by certain children (mainly larger boys). A crucial question suggested by the findings in this research is: did learning around the hole in the wall occur mainly because of the *talk* around the device? Is it better perhaps to have fewer devices and more collaborative discussion around them rather than giving one to every child?

The benefit of being in a classroom and being responsible for the progress of all the children is that it brings into focus not only the dids but the did-nots. The children and parents' stories and pictures of their home internet use discussed in this chapter suggest that it was the communication as computers were used that brought about transformation. The technology on its own, particularly when it was used in isolation by users who were each glued to their own devices, did not lead to morphogenesis.

Extensible practices did emerge for some children but not for all. Those children who were mentored by experienced sponsors were able to build on their literacy practices at home and extend them through this online Third Space between home and school back into the school environment where they made progress in offline tasks too. This chapter has highlighted the importance of adult reflexivity as a vector in the emergence of extensible practices, in particular their perceptions of the function of technology. Mitra, in his recent proposals for a School in the Cloud, suggests that adults are needed to guide and inspire. The following chapter will look in more detail at the reflexivity of the children as well as their agency and identity development in this Third Space.

9.8 Reflexive aside

Our reflexivity as we undertake research is not just a one-off moment as we write the ethics section but is something that tacks back and forth alongside our analysis. Our positionality as participant observers offers moments of connect and moments of disconnect with our research subjects. Even if we are ostensibly embedded in a situation, we may or may not necessarily stand within the category we are studying. I think at the outset I thought I had more affinity with the research participants and their families than it turned out that I actually had. The relationship between knower and object can cover over and/or enable an understanding of real social powers and mechanisms. Knowledge, constructed within a social location and historical context, is always partial and embodied, and some social locations – when politically activated – enable a fuller view of reality. My imbrications with literacy – my observation of my own son, my immersion in academic and dominant literacy, my lesser familiarity with vernacular literacies were an obstacle to understanding. As Lareau (2011: 3) noted, children from the natural growth model and their parents ‘interact with central institutions in the society, such as schools, which firmly and decisively promote strategies of concerted cultivation in child rearing’. Reflexivity and retroductive methods helped me uncover these barriers.

Academic research allows us to own up to our motives in pursuing study – mine were to try to replicate in a school setting what I had seen with my own son at home. On reflection I can now see why it worked for him but might not for others. The opportunity to develop these insights is a huge privilege and gives us the chance to challenge our assumptions. People from backgrounds like mine often ask why technology is not transforming education in the way it has other parts of society. People with backgrounds like mine make policy and project their own imbrications into the ongoing promulgation of the autonomous version of literacy. I wish they could all have the window into the classroom, online and offline that I have been so lucky to have.

Chapter 10 - Agency, Identity and the Third Space

'In play a child always behaves beyond his average age, above his daily behaviour; in play it is as though he were a head taller than himself' (Vygotsky, 1978: 102).

10.1 Introduction

The last chapter ended on a negative note, highlighting the structural constraints to the emergence of extensible literacy practices. Yet this study did have positive findings – in particular the way in which Vladimir was transformed from a vehement opponent of school 'literacy' lessons to the class's highest achiever. What were the morphogenetic factors in play? What were the mechanisms or vectors that gave him opportunities for action?

Barbara Comber et al. (2002) in a longitudinal study over four years in Australian upper primary schools (children 8-12) found that although it was important to take into account children's home lives and literacy practices, there were factors in school that could also make a difference, cutting the Gordian knot of educational disadvantage. As well as having the right resources and a high quality curriculum in place, other important elements were the children's belief that they could do it (the recognition factor), the quality of teacher-student relationships (the pedagogical factor) and 'the extent to which children can make and assemble repertoires of practice which they can use in new situations' (the translation factor) (Comber et al., 2002: 21). In this final chapter, we will look at the role of affect in the emergence of literate practices, in particular the importance of pedagogy in fostering children's identity development and sense that they can act and make a difference. Identity development is seen here not as something that is evidenced in texts but emergent from activity in and negotiation with the real world and real 'stuff'.

Jim Cummins (2015: 243) and others have advocated the creation by educators of 'interactional spaces that affirm students' identities in association with literacy'. Manyak (2004) describes the way in which teachers are able to develop spaces which allow 'identities of competence' to grow. The pedagogy

which underpinned the intervention in this thesis was in keeping with many of the principles in Burnett and Merchant's (2015: 272-3) Charter for Literacy Education. An online space was built where it was possible to:

1. recognize and build on students' repertoires of textual practices...
2. acknowledge the role of multimodality in meaning making...
3. encourage improvisation and experimentation as well as the need to produce intelligible texts..
4. recognize the affective, embodied and material dimensions of meaning making..
5. promote collaboration around and through texts in negotiating meaning ...
8. ensure opportunities for producing and consuming texts in safe and supportive contexts

This Third Space had both social and material elements that were different from the physical, bounded locale of the classroom and was both medium for and product of different kinds of sociomaterial imbrications. Third Spaces are often described as places where bridges are built (Moje et al., 2004), where connections are made which allow crossing points for transfer of discourse and practices. In an online Third Space such as the wiki, this is true not just in a figurative sense but literally as the technology opens up possibilities for texts to be created, shared, edited and commented on beyond the confines of the classroom.

One of the key advantages of sociomaterial (and immaterial) analyses is their ability to account for the role of affect in the development of literacy practices. These non-representational approaches, instead of using the text as sole unit of analysis, look instead at the activity which goes on to make meaning, activity which, as Leander and Boldt (2013: 26) point out, is 'saturated with affect and emotions; it creates and is fed by an ongoing series of affective intensities that are different from the rational control of meanings and forms'. Vass (2007), Maybin (2013) and Burnett and Bailey (2014) all argue that emotional engagement is crucial for children to effectively write and respond to texts.

However, if we are going to use terms like affect, we need to ask tough questions about what their ontological status is. Social realists are as suspicious of Cartesian mind claims as post-modernists. However, they contend that the self must be more than an ontological chimera. It needs to have some substance which allows us to be more than the product of society's conversation.

Recent developments in neuro-science have gone a long way to resolve the Cartesian cleavage between mind and body. They are starting to show, as Elder Vass (2007) explains, links between our embodied experiences and mental states. The development of our neural networks and synapses from which in turn our mental states emerge is contingent on our experiences. As John Searle (1992: 13) argues, 'the *mental* state of consciousness is just an ordinary biological, that is *physical*, feature of the brain'.

Social realism holds that our analysis of the world cannot privilege either structure or agency or make either an epiphenomenon of the other. We as humans have properties that emerge from our biological make-up. Agency, just like society, is stratified as Margaret Archer (2000: 87) explains: 'Mind is emergent from neurological matter, consciousness from mind, selfhood from consciousness, personal identity from selfhood and social agency from personal identity'. For Archer, our affective response to our interactions with the practical and discursive orders plays a key role in the emergence of personal identity because of the 'inner conversation' we have with ourselves (our reflexivity) as we process our emotions.

So how did affect emerge in this Third Space and what role did it play in the development of extensible practices? What is the link between the development of literacy practices and the development of personal identity ('Who am I?') and social identity ('What role do I play in the world?'). The rest of this chapter will develop the following three findings which emerged from the data: first that affect emerges from the interaction of the embodied individual with their material context. An increase in our sense of performative

accomplishment is the starting point for the development of our *personal identity*. This was made possible in the Third Space. Affect is the 'glue' that allows *traversals* (Lemke, 2013) or *translation* (Comber, 2002) from one context to another, from online to offline to online again. Previous sociomaterial imbrications between children's embodied selves and their digital devices as they play games produced affect. Children brought this imbrication to their literacy practices in the Third Space and then transferred that positive experience offline into schooled literacy. Secondly, affect emerges from the interaction of embodied individuals in their material context with each other (whether this is with peers, teachers or parents). The liminality of the Third Space opens the door to a more negotiated pedagogy than is possible in the regular classroom as well as providing children with opportunities to collaborate with each other. This is about *personal identity* too because it offers the possibility of boosting children's self-esteem. However, it is also about the relationship between structure and agency - widening children's role array and increasing their opportunities for action. Finally, reflexivity mediates between the world and our embodied concerns (and between structure and agency), carving a path between our *interests* (what we care about and are excited by) and what is *in our interests* (what is advantageous or beneficial to us). This is about uptake of available roles and the development of *social identity*. In some cases, such as that of Vladimir, activity in the Third Space was a turning point in the development of a reflexive attitude about his role as a learner and writer. This reflexivity was a key vector in cases of high extensibility.

10.2 Performative accomplishment and the development of personal identity

As Marsh (2005) describes, literacy practices and identities appear to be involved in a recursive, mutually constitutive relationship. Literacy practices produce identities just as identities produce literacy practices. However, if both are seen as engagement at the interface of our embroilment in the real world, this means something very different than if they are conceived of as produced in and through discourse. If ourselves are reflexively made through our

sociomaterial imbrications in the world, this gives rise to emotions and concerns and the possibility of us having 'goal-orientated' identities rather than the more constraining and constrained 'means-orientated' (Dowdall, 2009: 80) ones which Bourdieu (1991) and Bauman's (2004) accounts leave us with. It also means that we need to take a good look at the contexts and spaces in which literacy practices and identities are built.

Identity development is activity dependent but it also involves a 'referential reflexivity in which we ponder upon the world and about what our place is, and should be, within it' (Archer, 2000: 315) because of our 'inner conversation', the PEP (personal emergent property) that allows us to change our role rather than accepting the position that we have been involuntarily assigned to. Our inner conversation is what gives us intentions, based on our concerns. Archer holds that this inner conversation takes place throughout our lives as we react both with physical and material objects and with each other:

Our identity emerges through our 'concerns in the natural order (about physical well-being), in the practical order (about performative competence) and in the social order (about self-worth). Each concern entails intentionality; it is about features of the world. Since it is the prioritising of our ultimate concerns, and the accommodation of other concerns to them, which gives us our unique personal identities, then who we are subjectively depends upon our involvement with the objective world (Archer, 2000: 312-3).

This has profound implications in the classroom. Children like Vladimir are 'interpellated into a system in which they misrecognise themselves as learners' (Potter and McDougall, 2017: 18) not just because of narrow curricula or traditional pedagogy but because of their imbrications with the tools and spaces of the traditional classrooms. For Vladimir and Finlay, their early experiences of classroom literacy were overwhelmingly negative. Their interactions with the material objects (pencils etc.) made literacy into something to hate. To observe Vladimir in a traditional literacy lesson in Year 4 was to see someone involved in a struggle. So for Vladimir (and Finlay to some extent), repeated interaction with pencil and paper had left them so

frustrated that they had every intention of avoiding it when they could. For Vladimir this involved absenting himself from class when he was required to be wielding them.

This work was inspired by Gutiérrez's (2008: 148) ambitious project to develop a Third Space 'in which students begin to reconceive who they are and what they might be able to accomplish academically and beyond'. However even in Gutiérrez's own work, Third Space has different meanings – from a place to reconcile teacher's script and students' counterscript (Gutiérrez et al., 1995) in the classroom to a bespoke space where students from marginalized communities are taken out of traditional classroom settings and given a dose of sociocritical literacy in order to empower them. However, in both these conceptions and in the work of Bhabha (1984), Third Space is largely something metaphorical and related to discourse rather than relating to the physical or material elements of lived space. Digital technology has brought about the possibility of materially different spaces, a realization, as Marsh (2005) notes, of the importance of material artefacts, including digital devices, in the development of children's identities and literacy practices. This then is what was of interest – the possibility to link with children's out of school practices which involved technology, enhanced authoring and publishing possibilities and the option of incorporating multi-modal elements, thereby tapping into students' 'repertoire of practices' (Gutiérrez, 2008: 149), particularly when we know from pupils and their parents how much time they spend engaged in screen-based practices.

On this reading, Third Space is still a place where power balances can potentially be disrupted. But since it becomes something more than the relationship between people and their discourses, analysis must involve the entanglement of bodies and identities with things. The participants in the wiki revealed repeatedly in focus group interviews the importance of haptic and sensory paths to their writing praxis just as the participants in Merchant's (2014) study of iPad use with young children did in multi-modal analysis of their reading praxis. The children referred to the ease of pressing the keys and 'touch' editing with the backspace key which generated less physical

discomfort and avoided the 'ache' which often came with handwriting. Thus the 'handiness' of the objects (Verbeek, 2005) the children were interacting with was important in shaping not just their sensory perceptions at the time but their subsequent interpretation of this experience as positive. This interpretation had an affective dimension, with Finlay talking about feeling more 'attached' to typing than writing.

For Archer (2000: 289), our feelings of performative accomplishment come from our interaction with objects, with 'competence reinforcing further practice and the frustrations of incompetence ..leading to abandonment'. As children of both gender in both the pilot and the main study repeatedly said, their imbrication with pen and paper often led to feelings of frustration, incompetence, fatigue and ultimately boredom as they had "*to write it out so many times just to make it make sense*". By contrast, when typing, they were able to generate something that "*looks like a text*" much more quickly, without feeling exhausted by the effort. And this sense of accomplishment and pride was achieved with much less struggle, without a 'trial of strength' (Law, 1989), giving them a greater sense of control.

Other material elements of the software rather than the hardware were important in increasing children's feelings of mastery. The squiggly line to denote a spelling or grammatical mistake was widely seen as positive in that it allowed children to take action on mistakes without the intervention of an adult. In addition, the persistence of the digital text in matter and form afforded them the opportunity to see each other's work. This gave them the opportunity, again without direction, to improve their work and feel a sense of proficiency.

Children repeatedly spoke about fun and enjoyment and their sense that whilst on the wiki they did not feel it was work. One child said: "*It doesn't feel like work – it feels like I'm just talking to my friends online.*" In this Third Space, because of the lack of time pressure and because children were left more to their own devices than in the traditional classroom, they spoke of feeling the same affective sensation as when they were playing. There were also material cues which reinforced this and linked to online game play such as the need to

login with their own username and the opportunity to change the icons which represented them.

Play is a contested term (Sutton Smith, 1997; Marsh, 2009) and this chapter will not attempt to define it except to say that it involves embodied interaction with the world in a way which encompasses improvisation, trial and error. It is activity or practice without sustained adult direction or rigid time pressure. In play children are generally allowed to make choice of the tools and companions they want to be with and in this way it is often 'a domain where the child is in charge' (Bearne and Wolstencroft, 2006: 73). As Haas Dyson and Dewayani (2013: 261) note, 'through ...play, children assume control over what can be a confusing world; they examine the workings of the world around them, assuming roles, appropriating the language of those roles, negotiating actions, and facing the consequences of their actions...'. Play is also about control over the material world and the objects they are interacting with which, in almost all cases in this class, were digital devices.

The physical classroom has temporal and spatial constraints that limit performative accomplishment – in particular the tools and the tyranny of the timetable. The bounded - what Law and Mol (2001) call 'regional' - space of the classroom demands 'docile bodies' (Foucault, 1979) to conform in terms of gesture, 'body-object articulation' and effective use of limited time. There is a correct way to sit and use tools such as handwriting pens and pencils and never any time to waste. Digital technology disrupts such disciplinary control. Andrew Barry (2001: 148) notes, 'a degree of play and flexibility between the interactive device and the user's body. Above all, the use of interactives is not intended to regiment the body, but to turn it into a source of pleasure and experiment'. In grammatical terms the offer of the digital invites a different modal verb: "*You may*" instead of "*You must*", an invitation rather than a command. In sociomaterial terms, our imbrication with the digital often evokes emotions very different from our imbrication in institutional spaces.

The sociomaterial positioning of bodies in the traditional classroom space, with many hands up vying for the teacher's attention, is replaced by a freer, looser,

more 'fluid' (Law and Mol, 2001) organization of space and time in the digital arena where pupils had the possibility of showing what they are capable of which the conventional classroom shuts down. The unbounded space for text creation allowed them to "*be themselves*" as two girls in the pilot put it - to write texts of their own choice and put across their points of view rather than relying on the teacher to choose them in class. The technology in this study afforded pupils the opportunity to work at their own pace (this was important for all students but particularly for Zachary), in their own home space where there are potentially fewer distractions and the opportunity to take up more comfortable postures. (As Vladimir mentioned, he could slouch while working.) The greater control over use of time and space which the software afforded them, combined with their sense of 'less pain, more gain' as they used the keyboard, created a virtuous circle. Thus the affective dimensions were two-fold: firstly, they were about physical well-being, our somatic reaction to the environment we encounter. As the children's bodies came into contact with the surface of objects, feelings were registered 'viscerally' (Archer, 2000: 198) as children experienced pleasure rather than pain. The second affective dimension was in the practical order. Children developed feelings of competence as they achieved mastery and this led, for some of them, to a willingness to participate further.

10.3 Third Space and pedagogy - scripts and counterscripts

If the Third Space of the wiki involved altering the physical spaces in which literacy practices took place, it also involved a revisionary pedagogical approach, potentially altering the relationships not just between teacher and pupils but between the children themselves. This approach was emergent from my own imbrication in sociomaterial contexts and political structures. It arose both from my reflexivity about the literacy curriculum which, rather than keeping up with the times, appeared to be reverting more and more to its origins in the Victorian era as well as from my experience with my own children at home.

The idea was not to replace but to complement the schooled standardized

literacy curriculum, adding a more horizontal, lateral dimension to the vertical model framed by ladders and levels. Inspired by metaphors of rhizomes (Deleuze and Guatarri, 1987; Leander and Rowe, 2006), it involved invoking a pedagogy that stepped outside the cognitivist paradigm which frames the literacy curriculum and taking a more holistic, rounded approach. The idea was to have a less arboreal pedagogical approach which might be more inclusive and *productive*, in the sense of facilitating ‘social justice...to ensure learner agency, relevance and challenge’ (Marsh, 2009: 203). Getting away from standardization did not (and could not) mean ditching standards. What it did mean though was taking a nod to children’s interests and the identities that they bring with them to the classroom, acknowledging that they have already developed a sense of self in conjunction with material artefacts they play with at home, in particular computer games.

The new space, while potentially disruptive, was not intended to be particularly polemical but rather to be a place for ‘unscripted improvisation’ (Gutiérrez et al., 1995: 153). It was not about developing ‘sociocritical literacy’ like Gutiérrez’s 2008 Third Space because it did not explicitly privilege children’s critical autobiographies. Her pedagogy focused ‘on how individuals and their communities influence and are influenced by social, political, and cultural discourses and practices in historically specific times and locations’ (Gutiérrez, 2008: 150). The pedagogy used here was more reactive rather than directive, allowing a negotiated space to emerge that was driven by children’s interests. It was, like the signature pedagogies described by Thompson et al. (2012), about foregrounding the *doing* and *being* implicit in building up knowledge, (the *connaitre* rather than the *savoir* of knowledge) and capturing and fostering ‘tacit knowledge’ (Polanyi, 1958) alongside the building up of explicit knowledge in a more linear, hierarchical way in the classroom.

One of the key motives for creating a Third Space is that as Moje (2013), Gutiérrez et al. (1995) and Soja (1996) note, it can be a space for reconciliation between oppositional elements, discourses or practices. Third Space in this study seemed to have particular salience as a release valve for

those such as Vladimir who displayed agential resistance. Gender is relevant here because, as several studies have shown, boys, particularly in the middle years of primary school, start to show more defiance towards authority as impressing their peer group becomes a priority. As early as year 3, boys begin to develop a notion of cool which Gilbert and Gilbert (1998: 130) describe as 'studied nonchalance and a disdain for anyone who chooses or needs to exert themselves'. Adler et al. (1992: 177) found that 'by the second half of elementary school, the environment provided more of a social than an educational function for' boys and the 'impact of academic performance on boys' popularity changed over the course of their elementary years from a positive influence to a potentially degrading stigma' (ibid: 176). Masculinity, as Gilbert and Gilbert (1998: 180) point out, is about a 'struggle' for power both 'among boys' and 'over girls'. Skelton (2001: 105) in her study of masculinity in primary school, found that 'for the boys the main concern was to establish their masculine identity and place in the male hierarchy'. Consequently, boy pupils start to perform a masculinity that is at odds with the culture of the school and with the aspirations of their teachers for their work and behaviour. Adler et al. (1992: 173) found that 'boys who exhibited an air of nonchalance in the face of teacher..or disciplinary measures' were able to boost their standing in the peer group. Nevertheless, as Rowan et al. (2002) describe, incorporating technology, along with a rhizomatic pedagogy, has the potential to disrupt this trend, at least with older boys. In work with Year 9 children, they found that where boys were encouraged to build websites around subjects they were interested in (such as computer games and motorbikes), they were able to reconcile being 'cool' with accomplishment in literacy.

The findings in this study track a similar trend. As Gutiérrez et al. describe:

those who do not comply with the teacher's rules for participation form their own *counterscript*. In this context, members of the classroom community hold varied expertise in the form of local knowledge, but the inscribed knowledge of the teacher and classroom regularly displaces the local and culturally varied knowledge of the students. This displacement of student knowledge creates the space for student counterscript to develop (Gutiérrez et al., 1995: 447).

The Third Space in this study allowed the expression and normalization in a safe space of the counterscript and the potentially subversive behaviours which demonstrate resistance to the institution – what Goffman (1962) called the institution’s ‘underlife’. One of the first things that happened was that the digital made the counterscript materialize. It was there in black and white and this provided opportunities for dialogue and guidance around internet safety and etiquette. For instance, Vladimir made his own wiki about trolling, with a positive or at least morally neutral stance towards it – describing and advocating. Through negotiation, I had gained access to the children’s own wikis, indeed they wanted me to see them. Because the space had been opened up for dialogue, I was able to pull a child aside to discuss their counterscript rather than using the public platform of the class to reprimand, as would be the case in the physical space of the classroom. In this classroom version of Habermas’s (1989) *Offentlichkeit* (a public sphere), the possibility of debate was opened up. Just as in the Habermasian public realm, people were able to gain autonomy by escaping their subject position, here in the Third Space pupils could exchange views and ideas away from the direct physical presence and authority of the teacher, as well as being able to interact with the teacher ‘at eye-level so to speak’ (Sørensen, 2009: 164).

In this negotiated space, children also saw the possibility of being the ones to deliver the *script* rather than the *counterscript*. For example, one child wrote on the bottom of another’s Narnia page in the discussion section: “*I like the language you used. I know the teacher normally says that but it’s true*”. This acknowledgement that sounding like the teacher could be perceived as lame soon gave way to children delivering teacher-like scripts without batting an eyelid. Vladimir felt confident about suggesting that people ask him for help if stuck (see Figure 77).

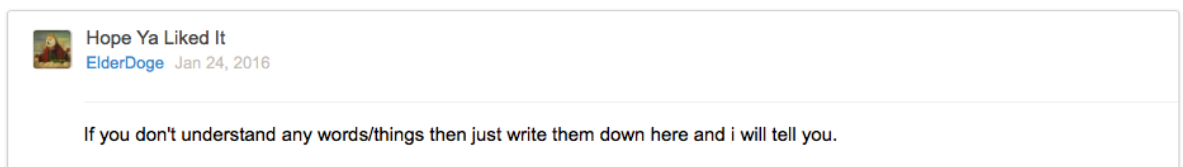


Figure 77: Vladimir’s teacher-like script on wiki

Thus practice in this Third Space altered the power balance between what De Certeau (1984) calls the 'strategies' of institutions and the 'tactics' used by those subjugated in the institutions to navigate their way through the structures of power.

The space was similarly useful for those girls who were demonstrating resistance to authority, the 'cool' Year 5 girls in the pilot. They too, after an initial expression of the counterscript, gradually became more aligned with the values of school. One of the 'cool' girls in the pilot posted these musings as she continued to use the Third Space in Year 6: *"People take learning and school as a joke. They think it's all about being popular and pretty. But it's really not. Learning is about having a mind of your own and positive attitude. If you believe that learning is good for you, go to my forum called what learning means to you"*.

For Archer (2000), our *social identity* is what emerges at the interface of structure and agency and is about our voluntary uptake of roles presented to us. In the traditional classroom, often the only role available for uptake is that of passive individual learner. For those who don't want to take up that role, opposition emerges. The Third Space both because of the technology and the pedagogical approach, allowed for an opening up of the choice of roles: from learner for whom chatting with friends is encouraged, to writer for whom *intermezzo*, or being in the middle of something, (Deleuze and Guattari, 1987) is valued as much as polished performance, to someone who may have something to teach adults and peers. In this way it was possible to go some way towards reconciling learning with what was 'cool'. This morphogenetic scenario emerged both from teacher reflexivity about the role of structure and agency in the microcosm of the classroom and from pupil reflexivity in responding to the available role array – and as we know from the previous chapter, not every pupil wanted to or was able to take up the new roles. However for those who did, there was also a positive development in their self-esteem (for Archer, a fundamental component of our personal identity). For her, our sense of self-worth comes through our interactions with

other people. In the social order, emotions emerge from three things: 'our subject status in society, the receipt of moral evaluations from the social order, and the conjunction between our personal concerns and the nature of society's norms' (Archer, 2000: 215). As children adopted new roles less conditioned by the traditional hierarchy, they revealed (in interviews and texts produced) a positive emotional response as their subject status changed, and their concerns became more aligned with those of the teacher. The pedagogy in the Third Space was not one which let anything go but it allowed discourses to emerge which may remain hidden in class and, through negotiation, transformed them from something antagonistic to something more aligned with the norms and values of the classroom. Once again, a virtuous circle was produced. Children's self-esteem was boosted both as they seized the opportunity to contribute what they deemed 'more important views' and then by the praise and affirmation from adults and peers they received for their contributions.

For Moje et al. (2004: 43), Third Space is 'a way to build bridges from knowledges and Discourses often marginalized in school settings to the learning of conventional academic knowledges and Discourses'. However, it is also a place where new forms of knowledge and new literacy practices can emerge. This did happen – the emergence of the collaborative narrative was a different practice from any that the children were engaged in either at school or at home. The reflexivity generated in the space was critical for its emergence and this is what the next section will examine.

10.4 The importance of reflexivity

A focus on reflexivity is nothing new – through the work of Archer (2000, 2003) and Giddens (1991), it has become a part of the conceptual package of sociological theory in recent years in its own right. It has, for many years, been a *sine qua non* for researchers, particularly in the qualitative tradition, to be reflexive about their own role in the research process, something encouraged by Bourdieu in his advocacy of a 'reflexive sociology' (2000: 29). However as Elder Vass point outs, the work of Archer is very different because

it foregrounds the role of 'conscious deliberation in everyday life' (2007: 332) rather than assuming that reflexive powers are only the preserve of academics.

For Archer, our reflexivity plays a crucial role, when we are presented with new roles and the opportunity to take them on, because we will ask ourselves, "how much of myself am I prepared to invest in it?" This is the moment of synthesis between personal and social identity' (Archer, 2000: 293). This moment of truth was not explained or scaffolded for the children. Those who took up new roles as active learners did it because of their own inner conversation about the desirability of new roles both in the microcosm of the classroom and further afield. They said to themselves and me: "*It's worth putting the effort in because it will affect how my peers think of me.*" Or, "*It's worth taking up these roles because they will make me more like those I admire who have ownership and control*" (as Finlay said when he compared his role on the wiki to the role of Youtubers). Still others decided it was worth investing their time in these interventions because it might open up roles in the future. When children in the pilot were asked what the benefit might be of publishing their work beyond the classroom, they again drew on experiences from outside school and previous imbrications:

"If the public could see your work, someone who had a good job, who owned the company they might want you to work for them because they know you're smart so in the future they might get you to work for them."

So if transformation in the Third Space relies on reflexivity, is it necessary to scaffold and provide opportunities for reflexivity in and about these spaces for some children? Reflexivity is not just about how to respond to the here and now but also about one's place in society. If we want the Third Space to be a place where Bakhtinian social heteroglossia, i.e. real dialogue, might be possible, we certainly need a 'dialogic' rather than 'monologic' (teacher script) pedagogy. But opening up a space for dialogue alone is not enough. As Gutiérrez et al. (1995: 453) pointed out, 'dialogic pedagogy can only be transformative if dialogue means **more than** [my emphasis].... "giving students voice"'. It has to incorporate children's own narratives and involve critique of

existing power relations. Gutiérrez's (2008) syncretic testimonio was a lesson in reflexivity. In her work with Mexican heritage students, the texts produced were 'a hybrid form of critical autobiography and testimonio ... situated in the subjective particularity and global and historical reality in which people co-construct their understanding of the social world and of themselves' (ibid: 149). Students were taught to recognize and seek ways to overcome 'obstacles' and 'barriers' – the 'social structures and a societal system that impede progress' (ibid:159), to understand the structural constraints on action that they may have experienced.

The piece that Elizabeth in the pilot study wrote about the educator Mary Bethune (see Figure 11) was the closest this Third Space came to Gutiérrez's (2008) sociocritical literacy. Someone (at home) had inspired her to make connections, think about her own situation as an agent in society and be reflexive about potential for action for people like her to overcome structural barriers. Encouraging this sort of reflexivity takes a knowledgeable and politically aware adult. The pupil had left the school by the time I started analysing this piece of data so it was not possible to ask her about it. I did ask her teacher at the time she wrote it who expressed amazement and said it was not linked to anything done in class.

Where this Third Space fell down was in not encouraging reflexivity and a 'testimonial culture' (Hamilton, 2015: 514). Instead it relied on the reflexivity children brought with them to the class as a result of previous imbrications. Children in primary school may be too young to develop the full autobiographical syncretic testimonio that Gutiérrez's college-age participants did. But they can and should find examples of role models from their own backgrounds to research and write about as inspiration.

10.5 Beyond Archer's reflexivity: the importance of intersubjectivity

This chapter has drawn heavily from Archer's theoretical exposition of our inner conversation, the importance of a first-person perspective and the conversations we have with *ourselves* about our concerns. However various

critiques have been levelled at Archer, in particular her failure to account for the role of conversations we have with *each other* on our reflexive deliberations. Several scholars have argued that her position could be strengthened if it could be developed as complementary rather than oppositional to Bourdieu's theory of habitus. They argue (Caetano, 2015; Elder-Vass, 2007, 2010; Mutch, 2004; Sayer, 2009, 2010; Vandenberghe, 2005) that although her account leaves open the possibility that not everyone will become fully reflexive, she does not fully allow for 'the role of dispositions on our beliefs and behaviours' (Elder Vass, 2007: 345). Perhaps the pendulum-swing away from social construction exemplified in theories which foreground *interobjectivity*, the relationality between people and objects (Latour, 1996), may have gone too far in 'excommunicating intersubjectivity' (Vandenberghe, 2005: 234). Even as we look for theories which take us beyond 'communities of practices', our relationships among each other are still important - embedded, imbricated or assembled as we must be seen to be within our material contexts. While not discounting the importance of the 'internal conversation', theories of identity do need to take account of the 'external conversations whereby expectations, goals and projects are contextually negotiated in the presence of and with the participation of other subjects' (Caetano, 2015:67).

As discussed in 5.4, Archer (2000) is vehement in rejecting the Meadian 'me' because of the way it is defined as a response to others. In other words, for her it is **too** social. However, while trying to tie the empirical work in this thesis to the theory, it became clear that Archer's theory did not account for the importance of peer-to peer imbrications in the success of the wiki project. Vladimir and Finlay made progress not just because of the more positive experiences they had with the haptic interaction with the keyboard, the sense of performative accomplishment they felt using the hardware and software and their reflexive response to my pedagogy. Their reflexive interactions with each other both online and offline in a Vygotskian Zone of Proximal Development were also vital. They built up expertise among themselves without the support of the teacher. They had affective encounters in the Third Space without the presence of the teacher. They inspired and goaded each other to do *better* –

the very opposite of their behaviour often in class. But this was more than a community of practice because it was about their socio-material imbrication with the technology both individually and collectively.

10.6 Conclusion

This chapter has dealt with the way that the development of writing – the writing self - goes hand-in-hand with the development of identity, both personal and social. The positive sensations children reported when typing as opposed to writing with pen and paper and the sense of achievement and mastery they felt using the software helped build up their self-esteem in ways that are absent from traditional classroom practice. A pedagogy which opened up a less adversarial space between teacher and pupil also helped them expand their possibilities for action and views of what constitutes a learner. However those who most successfully translated (Comber, 2002) practices across spaces were those who were reflexive about the opportunities on offer. Thus we can see reflexivity as a vector, not in the geometrical sense as a line between participants as it is used in the study of multi-modality (Jewitt and Oyama, 2004) but in the biological sense as something which actually carries across spaces and creates something morphogenetic.

Critical realism gives us the analytical tools to separate out the properties and powers of people from those of their environment. Using critical realist theory and the retroductive analysis detailed in the last chapter (section 9.3) helped me sort out the *empirical* (what was experienced by the participants), the *actual* (what actually happened - often different from what was experienced) and the *real*, (the generative mechanisms that underpin events) – see Figure 13 in Chapter 7. Figure 78 shows how the *actual*, both (i) the imbrication of people and parts and ii) the transformative, extensible and morphogenetic practices which followed as well as the morphostatic practices where things didn't change is only part of the bigger picture of the *real* which includes the personal emergent properties of the participants, the emergent properties of the wiki and the structural constraints which produced the outcomes.

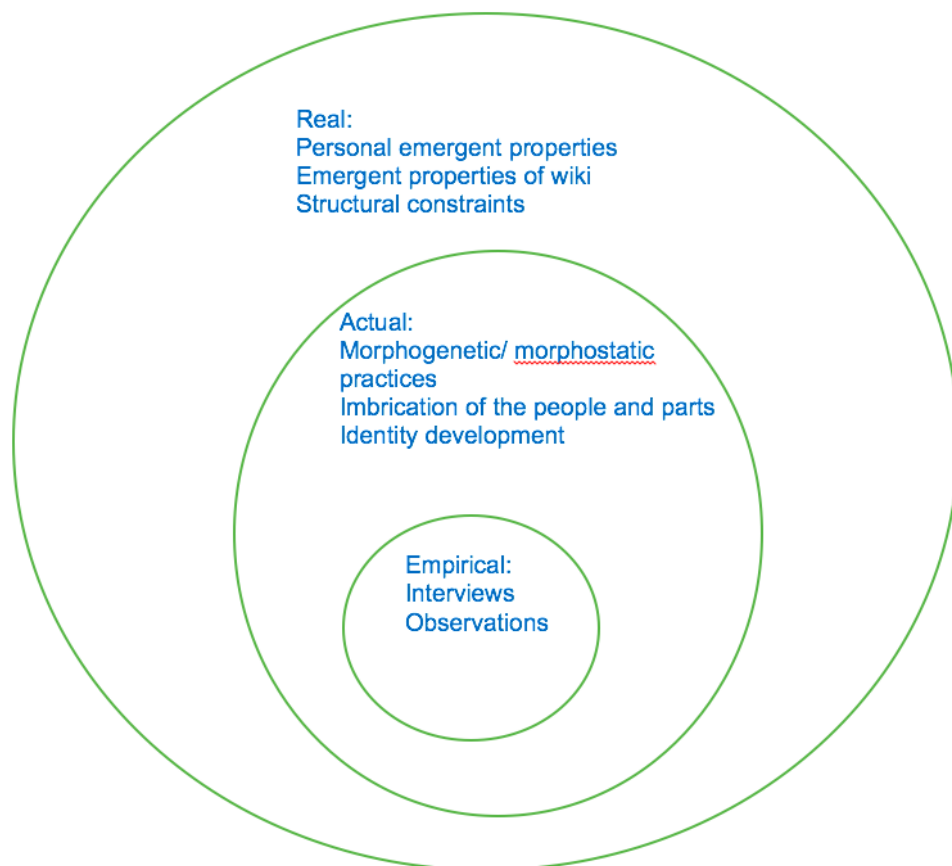


Figure 78: Examples of the real, the actual and the empirical

Archer (2000: 18), follows Merleau Ponty in insisting that our sense of self derives from our embodied encounters, our engagement with the ‘natural and practical orders of reality’. This engagement and the identity development which follows is part of the domain of the *actual* too. Practice is pivotal for Archer as for the NLS movement. Her work follows in the pragmatist tradition of C.S. Peirce and John Dewey developed by Jurgen Habermas. Habermas and Archer critique post-modernism for failing to account for praxis. This thesis has been rooted in praxis and in this chapter has sought to unpick the importance of reflexivity (our most important personal emergent property or PEP) in determining how actors respond to situations and take up the roles available to them. Reflexivity is important because it is what brings the affordances (or emergent properties) of the technology into play: it exists in the domain of the *real*. Reflexivity is a generative mechanism and a vital

vector in extending literacy practices across contexts.

The assumption that opening up spaces which allow children to draw on their digital practices at home will benefit everyone is flawed because of the structural constraints in the domain of the *real*. As we saw in the previous chapter, there is no one-size-fits-all model of technology use outside school – as (Prinsloo, 2005) rightly points out, devices are ‘placed resources’ and where they are placed is very important. The reality of ‘children’s digital “habitus”’ (Marsh, 2009: 216) is likely to vary considerably among different pupils and be dependent on gender as well as socio-economic status. In imbrications, as in assemblages, objects ‘do’ different things, depending on the emergent properties of the people or structures they are assembled with. As the sociologist Bernard Lahire (1993) has shown in his study of writing in French primary school pupils, those children for whom language is seen as an autonomous object in the home, something that can be studied of and for itself, stand a better chance when they encounter this view of it in school.

The academic study of literacy over the past decades has gone through various paradigms. The cognitive paradigm of the 70s was followed by the social paradigm of the 80s and beyond. Now it could be argued, a new paradigm – the sociomaterial paradigm is taking hold. The most interesting thing about this paradigm, whatever the ontological underpinnings – be they assemblage theory or social realism, is about the *potentials* for emergence. These potentials are not always realized but give us grounds for optimism if we care about social justice because we know they are there. We just need to figure out how to activate them in and across different contexts. We are working in rapidly shifting sands. A technological magic bullet in education seems to be a mirage. There is no oasis but there are drops that it might be worth cultivating with. These drops however need reflexive cultivators if there is any hope of bearing fruit.

Chapter 11 - Conclusion

11.1 Theoretical underpinnings

This thesis has conducted empirical research underpinned by the following theoretical constructs:

- i) The study of literacy in the digital age is characterized by intersecting and parallel foci: on social practice as well as on the material and sociomaterial. A renewed interest in materiality is a result of our fascination with the way in which digital objects are materially different from analogue ones in that they have a form which persists across time and space. However, as we have seen, this does not mean that their *function* is the same across contexts since it relies on previous sociomaterial imbrications that alter how it is perceived and used in different contexts.
- ii) Structure and agency and the social and material are always seen in relational terms. However, if they are considered analytically distinct, we can go beyond looking at practice to analyse why things don't happen, as well as why they do. This has allowed us to look at the boundaries between the social and the material and see what 'vectors' or mechanisms allow crossings and lead to *extensible practices*.
- iii) Society, like the natural world, is made up of emergent entities with properties or potentials. These may or may not be actualized depending what or whom they are in concert with. By far the most important of our human emergent properties (PEPs) is our reflexivity as we conduct a Peircian 'inner conversation' to make sense of our emotional response to the natural, artifactual and social environment we find ourselves in.
- iv) This reflexivity is what allows people to take action and move beyond their Bourdieusian habitus. However that habitus must be taken as the starting point. Structural constraints are real, as we have seen, and overcoming them is no easy task. Constructing new spaces which alter structural balances of power is a good place to start. In

such Third Spaces, the social and material can come into concert in a different way and offer opportunities for action and different identities to emerge.

- v) In the digital age, cultural capital must take account of both the social and material elements which give people access to hardware and software and an understanding of the potential of digital technology in knowledge building

These theoretical underpinnings, influenced by two sociological giants of recent years – Margaret Archer and Pierre Bourdieu, bring the work closer to what is increasingly been known as ‘digital sociology’ than was initially envisaged. Ignatow and Robinson (2017: 951) note that Bourdieu’s concepts of field, habitus and capital and his idea that action takes place in social space have allowed his theory to have traction in the digital age ‘under social circumstances which he could not possibly have anticipated when he was devising [it]’. They also point to the way the ‘ontological and epistemological positions ...he established prefigured a number of contemporary philosophy of social science approaches such as ‘neo-materialism, post-positivist realism, critical realism, and critical sociomaterialism,’ (Pitts-Taylor, 2014)’ (ibid: 951). Using critical realism, sociomateriality and the sociological concepts developed by Archer and Bourdieu has been valuable in charting a course away from the determinism and false promise permeating much of the ed tech literature. In particular, it has allowed for some noise around what Selwyn (2013b: 137) calls the ‘notable silences within the commonsensical orthodoxy of education and technology’ namely ‘issues of inequality, injustice and unfairness’ which are muted by widespread assumptions that digital technology is ‘more neutral, more democratic and simply ‘fairer’ than traditional educational arrangements’. The findings of this thesis are in keeping with Selwyn’s view that valorizing the digital in education has potentially ‘hegemonic effects’ (ibid: 138). In celebrating the control technology gives to individuals, what is often forgotten is that the choice to take that control is restricted.

11.2 Key findings

'The siren call of mutual constitution' (Archer, 1998: 357) of the social and the material which Actor Network Theory requires was resisted in this thesis. The ability to unpick the social and material and analyse their properties separately has been invaluable in helping to draw the main conclusions of this work, namely that inequality was a factor in the non-emergence of extensible practices. It has also pointed up intersectionality, as those achieving the least in the study were disadvantaged in multiple ways, with social stratification caused by class, gender and race all contributing to the outcomes. However cultural capital, or what's sometimes called 'technological capital' (Selwyn, 2013b), or 'digital' capital, was the key vector in cases which were transformative, with those already possessing it able to extend and enhance it through their navigations online.

These findings chime with those of a recent study by Micheli (2016) which examined how children from different backgrounds used SNSs (social networking sites). Those from more 'elite' homes used them to search out information and 'as a useful tool for increasing knowledge' (Micheli, 2016: 573), activities more in tune with the values promoted in school while those from less elite backgrounds were more likely to use them for finding and maintaining friendships, activities less likely to enhance their cultural capital. And as Gee points out, we must beware the 'Mathew effect' of accumulated advantage and the potential that technology might amplify disadvantage so that, just as in the parable of the talents, the 'rich get richer' (Gee, 2015: 106). Gee notes that: 'Literacy learning and digital learning are both affected by the Mathew Effect and for the same reason ..learning is based on well-designed, well-mentored experiences in the world' (ibid: 107).

Schools are under pressure from the UK inspection body, OFSTED, to narrow the gap between disadvantaged and more privileged pupils. And rightly so. A report by the National Literacy Trust (Gilbert et al., 2018) shows a 26-year gap in life expectancy between those born in communities with the most serious literacy challenges compared to those born in communities with the fewest.

While official data correlates disadvantage with eligibility for Free School Meals, the findings of this thesis are, in line with those of Bernstein (1975) and Solsken (1993), that socioeconomic deprivation is not as important an indicator as the main carer's (in this case the mother's) educational and professional background. As Fenwick et al. (2011: 157) note, 'cyberspaces may intensify and highlight the ways in which learning is not confined either to the classroom or to educational institutions. However, whether such spaces and the practices associated with them are necessarily more open and egalitarian is another matter'.

Gee (2015: 108) advises that 'just as with traditional literacy, we must study digital literacies within practices, not isolated from them'. When we do so, we realize the importance of antecedent conditions, in particular the amount of interactive talk which has gone on in the home. We also find out how important ongoing imbrications around technology in the home are in preparing children for schooled digital literacy practices: children will come to school with a sense of the function of technology that they have built up from watching it used at home.

Deborah Brandt's (1997) notion of literacy 'sponsors' has proved critical in the findings. Technology will not take us very far in the development of literacy without an adequate base of language. And as Gee notes, this language development goes hand in hand with the way we build up experiences in the company of sponsors:

For us humans, experience and language boot-strap each other.

Something or someone has to help us to see how language applies to experience so that we can both gain situated meanings from experience and use language to regiment experience in certain ways. Something or someone has to say things like "pay attention to this here," say words at the right time and place ("just in time") and help us see a specific variety of language as an emerging "theory" of one way of looking at and cutting up the world.

We need parents, teachers, more advanced peers, and social groups and institutions that supply, mentor, monitor and assess the ways in

which learners marry language and experience...We don't go it alone; we can't. (Gee, 2015: 81).

As the French sociologist, Bernard Lahire discovered in his (1993) study of writing in primary school, those children who achieve most success at school will have learned from home a reflexivity about language that enables them to see it in the same way as school systems and policy makers do – as an autonomous object that can be studied. Highly reflexive parents in this study also understood the value of play in supporting their children's learning at home. This was particularly important (as it was in Solsken's (1993) study) for boys. 'When mothers treated literacy as adult-regulated work, their over assertion of authority made tensions around separation more salient.When mothers treated literacy as children's self-regulated play, there was less reason for tensions around separation' (Solsken, 1993: 151). Finlay and Vladimir's mothers, like the mothers in Solsken's study, by acknowledging and celebrating the ludic dimension 'were supporting their sons' autonomy (even dominance) and assuming their competence' (ibid:151).

People have emergent properties – pupils have emergent properties. 'Human powers only exist *in potential* and which of them do develop depends upon the contingent intervention of the world of things' (Archer, 2000: 160). Classrooms can stifle these but when these come into contact with the emergent properties or affordances of certain technologies, morphogenetic literacy practices can develop. Interest is key in both senses of the term – by tapping into the first sense (what children care about and are excited by), it may be possible to ignite a spark of realization about what is *in their interests* (i.e. what is advantageous or beneficial to them). However these sparks will not always be lit if the right generative mechanisms are not also present. On reflection should I have seen what was coming? Did I have too blind a faith in technology's transformative powers? Yes, but we too are emergent entities, reliant on previous sociomaterial imbricative experiences to be who we are and act as we do. Our pedagogy is emergent too all the time.

Without a doubt at the outset, I was swayed by popular discourses as well as those in the ed tech debate which cast technology as agentive. We are invited on a daily basis to view new technological developments with a sense of awe and wonder. Only recently, a news report on a reputable British broadcaster talked of a new super computer that would **solve** problem of climate change. Of course new technology on its own doesn't 'solve' anything. It is only in and from its sociomaterial imbrications that transformation takes place.

The recurrent theme in popular discourse that technology can and will replace teachers is misguided. As Suchman (2007: 44) observed: 'Face-to-face instruction brings that context-sensitivity to bear on problems of skill acquisition. The gifted coach, for example, draws on powers of language and observation and uses the situation of instruction, to specialize instruction for the individual student'. The robot teacher will be unlikely to develop the power of 'accountable talk' (Resnick, 1999), talk that is appropriate to the subject in hand or the power of 'orchestration' and 'improvisation' necessary for 'successful dialogic teaching' (Littleton and Mercer, 2013: 295).

Most importantly what they will lack is the affective component essential in pedagogy. A skilled practitioner in a classroom creates a space with an 'affective kernel' (Lefebvre, 1991: 42), often using a pedagogy of humour to reach out and engage. In a digital space, the affect comes not just from the social but also from our interaction with the material – the haptic, the positive feelings engendered by memories of previous imbrications with technology and for some children, the sense of purpose with which they have seen technology used in the home. Thus we can be said to be dealing with Type 2 technologies which 'enable *new* forms of activity that were previously impracticable or inconceivable' (Golding, 2000:171). Technology, as we found in Chapter 9, can be fragmenting or totalizing.

However what technology cannot teach is reflexivity, something which was one of the most encouraging findings of the study. The importance of reflexivity in overcoming and challenging conditioned roles and dispositions is a key factor in education. Tara Westover in her heart-rending memoir (*Educated*) of her

journey from an Idaho survivalist home which forbade conventional education to the University of Cambridge where she was awarded both a Masters and a Phd describes that moment when reflexivity about one's situation starts to emerge: 'My life was narrated for me by others. Their voices were forceful, emphatic and absolute. It had never occurred to me that my voice might be as strong as theirs' (Westover, 2018: 229). She identifies key moments in the development of her reflexivity such as a lecture at Cambridge where she is introduced to Isaiah Berlin's notion of positive liberty, "self-mastery – the rule of the self, by the self' (ibid: 296). Her sponsors were crucial in supporting her to make these discoveries about her capacity for action.

11.3 Limitations of the study and recommendations

This study was carried out in one particular context, with a particular cohort of children and inevitably has limitations. The cohort included a large proportion (as many as three quarters) who were eligible for, or had previously been eligible, for Free School Meals (classified by the UK Department for Education as 'disadvantaged'). The outcomes would most likely have been very different with more privileged children. The study could benefit from being replicated in similar as well as different educational contexts to further examine the role of gender, class and ethnicity. Unfortunately, wikispaces closed down at the beginning of 2019, citing cost issues. However, as the pilot study in this thesis showed, any software which allows children access from home will work.

Teachers of writing are stuck between

the competing aims of building writers' voice and agency while at the same time arming students with expertise that is valued in academic settings. For students in culturally and linguistically diverse settings, the aim of making textual knowledge explicit has been critiqued for devaluing the voice and therefore power available to these writers. Similarly, a focus on voice and creativity may devalue the power of explicitly building textual knowledge. (Jesson et al., 2013: 223)

This is not a new conundrum. It was the critique of Bereiter and Scardamalia's (1987) process-oriented approach to writing instruction as favouring elites that spawned the genre theory approach that still dominates.

The 'let-them-loose and they'll thrive' approaches in digital literacy can be seen in the findings of this thesis to have the same flaws as Bereiter and Scardamalia's approach to traditional writing. Disadvantaged children will need scaffolds in these digital genres too. As Mark Warschauer (1998) observed, the 'active learning paradigm' is easier for middle class children to succeed in. While relaxing the boundaries between home and school has apparent potential for working class families, in practice, as Bernstein (1975) observed, this invisible pedagogy does not always enable this potential to be realized. What *is* important however is to value and understand in school what happens at home. This acknowledgement and appreciation of children's 'experience beyond school' makes them less likely 'to find themselves positioned in the narrowest terms of success and failure' (Potter and McDougall, 2017: 18). This does not mean neglecting the canon or the rigour of spelling and grammar but rather supplementing it and making it relevant with a new version of the 3Rs that works in the digital age.

11.4 Conclusion

Solsken (1993: 6) defines literacy learning as 'the negotiation of one's orientation toward written language and thus one's position within multiple relations of power and status'. In other words, it is about both personal and social identity. Maybe the terms illiteracy and ipedagogy discussed in Chapter 1 (1.7) are important after all – to stress the importance of the reflexive and the social self.

Literacy and identity go hand in hand from the day we pick up a pencil. Young children write about things they are interested in. My son's first writing was a football league table. Literacy emerges as we interact with the natural, material and social environments we find ourselves in. Thus it is also about

spaces. It is about the way we interact with material and social elements around us.

In addition, literacy is about performative accomplishment as we build up our sense of who we are. As we build up mastery of the tools that produce writing, we feel good about ourselves. If we struggle with handwriting as many boys in primary school do, we will become deeply disaffected as Vladimir did. His early experiences of classroom literacy were profoundly negative. These imbrications with the material objects (pencils etc.) made literacy into something to hate. We need a recognition that engagement with print literacy in the digital age needs skills that are currently not accounted for in the curriculum. As is seen in many of the interviews for this study, the ability to type is beneficial. The haptic component produces positive affective engagement.

To teach literacy is to teach navigation – the ability to move between different spaces and thrive because successful traversals are taking place. It is to empower people so that everyone steers their own courses and potentially navigates away from their pre-allocated roles in society. I would like to suggest a **STEERS** model of literacy highlighting the importance of sponsors, tools, emotions, experiences, reflexivity and syncretism.

Literacy is about

- **S**ponsors who guide and teach us. Schools will need to identify the sponsorship children have in the home and provide them if they are not there already. Those children who do not have them at home will need extra support in school.
- **T**ools that we can build up mastery of. These may differ for different children.
- **E**motions as we react to the sponsors and materials we encounter.
- **E**xperiences. The richer our experiences the more we have to talk and write about. Again schools may need to step in here to

supplement what is happening at home and empower parents to provide richer experiences

- **R**eflexivity about our position both locally and globally. Through reflexivity we can become empowered and have more capacity for action
- **S**yncretism – ways of reconciling different systems so that we can accommodate and celebrate what we bring into the class from outside.

What people say about themselves is not always true as Khan (2011) showed so well in his ethnography of a US private school, 'Privilege'. Discourse analysis is one way to look at this. Another is critical realism with its distinction between the empirical, the actual and the real. Context is key to uncovering the real as is a theory of causality that doesn't look for linear variables but nested ones such as that suggested by Mumford and Anjum's (2011) *Getting Causes from Powers*.

This thesis has distanced itself from Actor Network Theory's 'metaphysics of presence' (Muller and Schurr, 2016: 219) to put forward, like assemblage theory does, a 'metaphysics of potentialities'. One important effect of foregrounding tendencies and capacities is that, as Muller and Schurr note for assemblages: 'this means that entities in relations are not fully determined by these relations, but always exhibit a surplus, something that is outside relations, and enables them to plug into other assemblages' (ibid: 220). So it is for realist social theory too – what emerges through imbrications is always greater than the sum of the parts and this is what makes transformation possible.

What also distinguishes assemblage theory and critical realism from ANT are their ability to account for emotions or affect. For critical realism, the affective dimension is related to the imbrication of embodied action and the material environment. Reflexivity mediates between the world and our embodied concerns (between structure and agency). When using technology, affect

emerges from the imbrication between our embodied selves and the materiality of the devices which increases our sense of performative accomplishment and develops our personal identity. The use of keyboard and screen creates a new liminality between our embodied action and the materialization of texts. This is different from when we use pencil and paper – since less physical effort is needed to generate a text, a more positive affective dimension emerges. Affect is the ‘glue’ that allows ‘traversal’ (Lemke, 2013) from one context to another, from online to offline to online again. Previous imbrications between children’s embodied selves and their digital devices to play games produced affect. Children bring this imbrication to digital literacy practices in school.

This analysis of affect is not the same as the aleatory emergence of affect in Deleuze and Guattari (1987) and Leander and Boldt’s (2013) accounts. In school we cannot marvel at the unpredictability of encounters with new technology, disrupting and unsettling notions of literacy but instead must look for stable ways forward that can harness and maximize potentials. The intention has been not to look at disruption but for continuity. This thesis has sought a way of accounting for affect and emergence armed with the microscope of critical realism rather than the kaleidoscope of assemblage theory.

Social theory makes much of the weaving metaphor. For me the relationship between warp and weft is a powerful image of the relationship between the social and the material. The material (the warp) is relatively static.

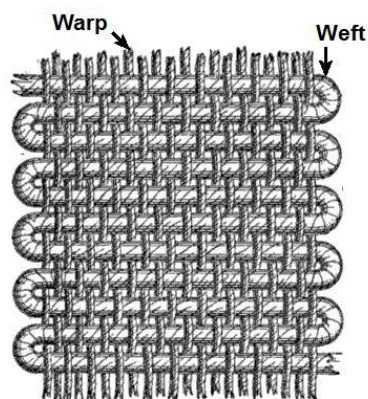


Figure 79: Diagram showing relationship between the warp and weft

But it is the weft of our continuous feelings, desires, reactions and reflections as we interact with the material world and each other that produces life's rich tapestry. And if we introduce technology into the classroom without paying sufficient attention to the social, we are in danger of weaving nothing more than the Emperor's New Clothes.

But if literacy is seen as a treasured garment or textile, full of family and cultural traditions and evoking strong feelings and memories, it is something we all have a stake and a part in, a multi-voiced patchwork that all can add to, a fabric montage of all that is important to us. And teachers may not be able to spin Rumpelstiltskian gold out of straw or weave multi-coloured dreamcoats, but we can empower them with an old-style paper sewing pattern, a rubric on reflexivity - a guide as they grapple with the sociomateriality of literacy.

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APPENDIX ONE



Leading education
and social research
Institute of Education
University of London

Ethics Application Form: Research Degree Students

All student research that use research methods to collect data from human participants is required to gain ethical approval before starting. Please answer all relevant questions. Your form may be returned if incomplete. Please write your responses in terms that can be understood by a lay person.

For further support and guidance please see Ethics Review Procedures for Student Research <http://www.ioe.ac.uk/about/policiesProcedures/42253.html>, contact your supervisor or researchethics@ioe.ac.uk.

Section 1 Project details		
a.	Project title	Multimodality and mimesis – a study of identity, technology and literacy development in the primary classroom
b.	Student name	Sara Hawley
c.	Supervisor	John Potter/Andrew Burn
d.	Advisory committee members	John Potter, Andrew Burn, Myrrh Domingo, Jeff Bezemer, Diane Carr
e.	Department	CCM
f.	Faculty	FCL
g.	Intended research start date	Spring 2014
h.	Intended research end date	Spring 2016
i.	Funder (if applicable)	n/a
j.	Funding confirmed?	
k.	Country fieldwork will be conducted in <i>If research to be conducted abroad please check www.fco.gov.uk If the FCO advice against travel a full travel risk assessment form should also be completed and submitted: http://intranet.ioead/ioe/cms/get.asp?cid=14460&14460_0=22640</i>	UK
l.	All research projects at the Institute of Education are required to specify a professional code of ethics	

	according to which the research will be conducted. Which organisation's research code will be used?	
m.	<i>If your research is based in another institution then you may be required to submit your research to that institution's ethics review process. If your research involves patients recruited through the NHS then you will need to apply for ethics approval through an NHS Local Research Ethics Committee. In either of these cases, you don't need ethics approval from the Institute of Education.</i>	
	Has this project been considered by another (external) Research Ethics Committee?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> ⇒ go to Section 2
	<i>If so, please insert the name of the committee, the date on which the project was considered, and attach the approval letter in either hard or electronic format with this form.</i>	
	External Committee Name:	Date of Approval:
⇒ <i>If your project has been externally approved please go to Section 8 Attachments.</i>		

Section 2 Research Summary

Please provide an overview of your research. This can include some or all of the following: purpose of the research, aims, main research questions, research design, participants, sampling, data collection, reporting and dissemination. *It is expected that this will take approximately 200-300 words, and you may write more if you feel it is necessary.*

The research question that I hope to address is :

What is the impact on motivation, results and behaviour of introducing multi- modal authoring tools (iLiteracy) into a primary classroom? The subsidiary questions to be addressed are:

- a) Is there a difference in the ways in which boys and girls react to this sort of intervention?
- b) What sort of multimodal texts do they produce and what do these texts signify?
- c) How do their authored multimodal texts relate to the construction of their identity and performance of gender?
- d) How important in the development of young writers is the development of a community of practice, the collaboration and peer scaffolding and the freedom to draft and re-draft texts?
- e) What is the impact of multimodality on the learning and learning environment?

My aim is to use a mixed methods approach that encompasses both ethnography and multimodal analysis as well as a quantitative study. This latter would take the form of a questionnaire of primary schools which are using some sort of blogging, wiki or MLE work linked to the literacy curriculum. The ethnographic research will be a piece of action research, with me as the teacher researcher managing and analysing a series of interventions which demand children use the internet to extend their writing outside the class. Some of these may involve the whole class; some smaller groups. I would expect to collect qualitative data such as observations, interviews with teacher, pupils and parents and use grounded theory to analyse this. I would like to gather video data in some cases of the children working at home. In addition I would conduct multimodal analysis of the texts produced.

Section 3 Research participants Tick all that apply

- | | |
|---|---|
| <input type="checkbox"/> Early years/pre-school | <input type="checkbox"/> Unknown |
| <input type="checkbox"/> Primary School age 5-11 | <input type="checkbox"/> Advisory/consultation groups |
| <input type="checkbox"/> Secondary School age 12-16 | <input type="checkbox"/> No participants |
| <input type="checkbox"/> Young people aged 17-18 | <input type="checkbox"/> Adults <i>please specify below</i> |

Section 4 Research methods Tick all that apply

- | | |
|--|---|
| <input type="checkbox"/> Interviews | <input type="checkbox"/> Controlled trial/other intervention study |
| <input type="checkbox"/> Focus groups | <input type="checkbox"/> Use of personal records |
| <input type="checkbox"/> Questionnaire | <input type="checkbox"/> Systematic review |
| <input type="checkbox"/> Action research | <input type="checkbox"/> Secondary data analysis |
| <input type="checkbox"/> Observation | <input type="checkbox"/> Other, give details: <i>analysis of webpages</i> |
| <input type="checkbox"/> Literature review | |

Section 5 Systematic reviews Only complete if systematic reviews will be used

a.	Will you be collecting any new data from participants?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
b.	Will you be analysing any secondary data?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Section 6 Secondary data analysis Only complete if secondary data analysis will be used

a.	Name of dataset/s	
b.	Owner of dataset/s	
c.	Are the data in the public domain?	Yes <input type="checkbox"/> No <input type="checkbox"/>
		<i>If no, do you have the owner's permission/license?</i> Yes <input type="checkbox"/> No* <input type="checkbox"/>
d.	Are the data anonymised?	Yes <input type="checkbox"/> No <input type="checkbox"/>
		<i>Do you plan to anonymise the data?</i> Yes <input type="checkbox"/> No* <input type="checkbox"/>
		<i>Do you plan to use individual level data?</i> Yes* <input type="checkbox"/> No <input type="checkbox"/>
e.	Are the data sensitive (DPA definition)?	Yes* <input type="checkbox"/> No <input type="checkbox"/>
		Yes* <input type="checkbox"/> No* <input type="checkbox"/>
f.	Will you be conducting analysis within the remit it was originally collected for?	<i>Was consent gained from participants for subsequent/future analysis?</i> Yes <input type="checkbox"/> No* <input type="checkbox"/>
		<i>Was data collected prior to ethics approval process?</i> Yes <input type="checkbox"/> No* <input type="checkbox"/>

⇒ *If you have ticked any asterisked responses, this indicates possible increased ethical issues for your research please give further details in **Section 7 Ethical Issues***

Section 7 Ethical issues

What are the ethical issues which may arise in the course of this research, and how will they be addressed? Please consider / address ALL issues that may apply. *It is expected that this will take approximately 200-300 words, and you may write more if you feel it is necessary.*

<ul style="list-style-type: none"> • Potentially vulnerable participants • Safeguarding/child protection • Risks to participants and/or researchers • International research • Sensitive topics • Sampling • Gatekeepers 	<ul style="list-style-type: none"> • Informed consent • Assent • Methods • Confidentiality • Anonymity • Data storage/security • Data transfer/transmission 	<ul style="list-style-type: none"> • Data sharing/encryption • Data documentation • Data management plan • Data protection • Reporting • Dissemination and use of findings
---	--	--

In consideration of ethical issues concerning the effect of the research on others, I will draw up letters to gain voluntary informed consent, in order 'to ensure that all participants in the research understand the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported' in line with British Educational Research Association guidelines (2004: 6). Potential risks to participants include cyber bullying and exposure to inappropriate information. I will monitor the contributions of the children to ensure there is nothing in the process (that could 'cause emotional or other harm' (ibid: 8). I will also obtain approval from the school's head-teacher as well as from the local authority to ensure it complied with guidelines for safe internet use.

Children's parents have already been sent a letter by the school about safe and appropriate internet use when using the MLE, Fronter. Their consent will be sought again if this project ends up using another internet platform such as wikis. Parents will be asked to sign a further opt-in letter to allow their children to take part in focus group interviews and to ensure they are happy with me using their children's webpage contributions as data. A few children's parents may be asked if they are happy to video their children working on these webpages at home. A further opt-in letter will be given to these parents.

In order to ensure confidentiality and anonymity, I will change the names of the children. In order to ensure the security of the data, I will keep my computer and its backed up contents safe at all times.

Section 8 Attachments Please attach the following items to this form, or explain if not attached

a.	Information sheet and other materials to be used to inform potential participants about the research.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
b.	Consent form	Yes <input type="checkbox"/>	No <input type="checkbox"/>

c.	The proposal for the project, if applicable	Yes <input type="checkbox"/>	No <input type="checkbox"/>
d.	Approval letter from external Research Ethics Committee, if applicable	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Section 9 Declaration

I confirm that to the best of my knowledge this is a full description of the ethics issues that may arise in the course of this project

Name	Sara Hawley
Date	27 February 2013

Please submit your completed ethics forms to your supervisor/course administrator.

Departmental use

If a project raises particularly challenging ethics issues, or a more detailed review would be appropriate, you may refer the application to the Research Ethics Coordinator (via researchethics@ioe.ac.uk) so that it can be submitted to the Faculty Research Ethics Committee (FREC) for consideration. FREC Chairs, FREC representatives in your department and the research ethics coordinator can advise you, either to support your review process, or help decide whether an application should be referred to the FREC.

Also see 'when to pass a student ethics review up to Faculty level committee':
<http://intranet.ioead/ioe/cms/get.asp?cid=13449>

Reviewer 1

Supervisor name	John Potter
Supervisor comments	
Supervisor signature	[By email]

Reviewer 2

Advisory committee member name	Andrew Burn
Advisory committee member comments	
Advisory committee member signature	[By email]

Decision

Date decision was made	16/7/13
Decision	Approved and reported to FREC <input type="checkbox"/>
	Referred back to applicant and supervisor <input type="checkbox"/>
	Referred to FREC for review <input type="checkbox"/>
Recording	Recorded in the student information system <input type="checkbox"/>

Once completed and approved, please send this form and associated documents to the faculty research administrator to record on the student information system and to securely store.

Further guidance on ethical issues can be found on the IOE website at <http://www.ioe.ac.uk/about/policiesProcedures/41899.html> and www.ethicsguidebook.ac.uk

Further guidance on recording ethics applications in the student information system can be found on the intranet <http://intranet.ioead/ioe/cms/get.asp?cid=13449>

APPENDIX TWO

7 January 2015

Dear Parent/Carer

To help our learning, we are building a class wiki with information and games about history and geography. We also hope to showcase our writing on it. A wiki is a sort of website which is very easy to edit and update. Our wiki is private and can only be accessed with a username and password. This is the same as your child's Fronter login and password. It's very important that you don't share this or let the children share this with anyone else. To log in, your child should go to wikispaces.com.

I would like to use the children's work on the wiki as data for my research into the relationship between technology and literacy development, for a PhD at the UCL Institute of Education. Any data collected will be used strictly for academic purposes and all names will be changed. Please sign below to confirm that you are willing for your child to take part.

Many thanks and best wishes

Sara Hawley
Year 4 Class teacher

I am happy for my child to work on the wiki and for their work to be used for academic research purposes

I agree to supervise my child's work on the wiki, making sure that it is appropriate, accurate and respectful.

Child's name _____

Signed: _____

Date: _____

APPENDIX THREE

4 March 2015

Dear Parent/Carer

Wikis PhD project

As you know, I am conducting a research project for an PhD at the Institute of Education on the use of wikis in schools. I would like to interview a few Year 4 pupils as part of the research. The children will be interviewed in a small group. Some will be asked to complete a simple questionnaire.

Any data collected will be used strictly for academic purposes and all names will be changed. Only voices will be recorded, and no photographs or videos will be taken.

I would be very grateful if you and your child could sign the bottom of this form if you/they are happy to take part. Please do ask me if you have any further questions. You are free to withdraw your consent from the project at any time.

Sara Hawley

I give permission for my son/daughter to participate in the research project with Ms Hawley

parent/carer signature

date

I'm happy to have Ms Hawley ask me questions and record conversations (as long as I know when I'm being recorded).

child signature

date

APPENDIX FOUR

17 July 2013

Research project for the Institute of Education, University of London

As you may know, I am conducting some research for a PhD at the Institute of Education on the use of technology in schools, in particular the way in which it affects children’s literacy development. I may need to interview some pupils as part of the research. The children will be interviewed in a small group. Some will be asked to complete a simple questionnaire. I would also like to include my observations of your child’s use of Fronter and its effect on them as learners and analysis of the web pages they have produced.

Any data collected will be used strictly for academic purposes and all names will be changed.

I would be very grateful if you and your child could sign the bottom of this form if you/they are happy to take part. Please do ask me if you have any further questions. You are free to withdraw your consent from the project at any time.

Sara Hawley

+++++

I give permission for my son/daughter to participate in the research project with Miss Hawley

parent/carer signature

date

I’m happy to have Miss Hawley ask me questions and record conversations (as long as I know when I’m being recorded).

pupil’s signature

date

APPENDIX 5:
INTERNET USAGE QUESTIONNAIRE

1. Can you access the internet at home/out of school?
2. What kind of device do you use to access the internet at home/out of school?
3. What sort of things do you like doing when you are online? (name any games or software that you use regularly)

Name of platform/software/game (You can write as many as you like)	How often? (choose one and write it for each game/platform) <ul style="list-style-type: none">• <i>every day</i>• <i>several times a week</i>• <i>once a week</i>• <i>once every two weeks</i>• <i>once a month</i>• <i>less often</i>

APPENDIX 6
PILOT STUDY
INTERVIEW SCHEDULE FOR FOCUS GROUPS (BOYS AND GIRLS)

Themes/Areas of questioning	Questions:
Enjoyment and play	<p>Did you enjoy using this space and if so, why?</p> <p>Why were you so enthusiastic?</p> <p>Why does it feel fun?</p> <p>How does it link to online games you play?</p> <p>Why does it feel like play?</p>
Learning and development as a writer	<p>How do you think you are learning on it?</p> <p>How does it help you as a writer?</p> <p>Do you like the way you can edit your work?</p> <p>How does it help you get better as a writer?</p> <p>Do you think it improves your writing offline?</p>
Identity	<p>Does it affect how confident you feel as a person?</p> <p>Does it make you feel more in control?</p> <p>Does it make you feel more grown-up?</p> <p>How does what you write link to what sort of person you are?</p>
Role of technology/affordances	<p>What part does the technology play in your development as a writer?</p> <p>How is writing different on a computer?</p>
Role of peers/community of practice	<p>What's it like when others respond to your contributions?</p>
Role of audience	<p>Do you like the fact that other people can see your work?</p> <p>Would you feel any differently if we were to publish it to the public?</p>
Motivation, engagement, agency	<p>Why do you think you try harder with this than with conventional homework?</p> <p>Why do you write about things which we haven't covered in class?</p>

MAIN STUDY: INTERVIEW SCHEDULE FOR FOCUS GROUPS (BOYS AND GIRLS)

Themes/Areas of questioning	Questions:
Enjoyment and affect	<p>Did you enjoy using wikispaces and if so, why?</p> <p>Why do you spend more time on it than you would do on traditional homework?</p> <p>Why does it feel fun?</p> <p>Why do you talk of a greater 'attachment' to typing than writing?</p>
Agency	<p>What do you think about being allowed to choose what to write about?</p> <p>How do you develop your ideas?</p>
Learning and development as a writer	<p>Does the wiki help us to learn?</p> <p>How does it help you develop as a writer?</p> <p>Is it significant that you can revise your work on the wiki, that you can change and improve it?</p>
Support from parents/relatives	<p>Did anyone at home help you?</p>
Materiality/haptic nature of keyboard	<p>When you are writing on the wiki, how is it different or similar to writing in your blue books at school?</p> <p>What's the difference between books and computers?</p>
Emergence	<p>How did your ideas and your writing develop?</p>
Collaboration/Role of peers	<p>How did you work together on your writing?</p>
Time/Space	<p>Tell me about the times you use the wiki. Why did you use it at that time but not another?</p> <p>Do we need to be in the same place as someone we are trying to help on wikispaces?</p> <p>What would you have been doing if you had not had this online space?</p>
Register	<p>When I see your writing, I notice a difference in register. On the pages you write, you are writing in a different style from in the chat. How do you know what to put where – informal or formal?</p>
Identity	<p>How does being on the wiki link to being a Youtuber?</p>
Children's voice	<p>Do you have any ideas on how we can take wikispaces forward?</p> <p>How would we do it?</p>

Selected questions from this interview schedule were also used for the individual interviews with children.

MAIN STUDY - INTERVIEW SCHEDULE FOR PARENTS

Themes/Areas of questioning	Questions:
Motivation, engagement	How has your child engaged with wikispaces? What do you notice about your child's engagement with wikispaces? How often does your child use the wiki? How enthusiastic is (s)he at home? Why do you think your child is so motivated to use it?
Learning and development as a writer	How does it help him/her learn? How is it different from conventional homework?
Agency	Is there a link to issues of control, agency and self-confidence?
Role of technology/affordances	What part does the technology play in your development as a writer? How is writing different on a computer?
Role of peers/community of practice	What do you think about the role of peers on the wiki?
Support from parent	Did you help your child? What was your involvement?
Parental perspective of usefulness	Is it a useful tool to add to our repertoire? Should we roll it out in other classes and if so from what age? Why is it good from a parents perspective?

MAIN STUDY - INTERVIEW SCHEDULE FOR TEACHERS

Themes/Areas of questioning	Questions:
Impact	Have you noticed any difference – in anything (outcomes/motivation in writing/behavior) since you had the wikispaces class?
Quality of work	Do you think the work online is similar quality to that offline?
Participation	Who has contributed the most and least? Why do you think that is?

APPENDIX SEVEN

UK government writing exemplar for a child working at Greater Depth within the standard at the end of Key Stage 2 (Age 11).

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Piece A: Short story	Key
<p>Prior to writing a short story set during World War 1, pupils wrote these short pieces to practise their skills in developing suspense and building tension in a familiar, everyday situation.</p>	<p>[C] composition [GP] grammar and punctuation [T] transcription</p>

<p>These 2 short pieces describe a midnight fridge-raid from contrasting third and first person perspectives, demonstrating confident control over language, sentence structures that are carefully chosen for effect and precise vocabulary choice.</p> <p>A tense atmosphere is created across both paragraphs through the use of short sentences and phrases, and apt vocabulary choices (<i>darted, grabbed, bolted</i>). This is lightened by juxtaposing humour with tension (<i>distant snoring; his heart raced</i>) and the succinct integration of dialogue ("<i>Ewan!</i>") as the climax to the first paragraph.</p> <p>A range of cohesive devices links ideas within and across the 2</p>	<p>Opening the Fridge</p> <p>Slowly, Ewan peeped through the crack in his door. All was black. He took a step out. He could hear distant snoring as he creeped crept across the landing.</p> <p>As his heart raced he stared into the darkness; he could hear the fridge urging him on – willing him to move.</p> <p>Now the stairs. The tricky bit. Suddenly a THUD!... He raced down the creaking stairs – even the seventh one that makes an earsplitting noise creak. He could see the re white rectangle straight ahead of him. Then he opened it.</p>	<p>A series of short phrases in quick succession creates a sense of urgency and excitement, echoing Ewan's thoughts as he sneaks downstairs. The structure of the scene and the language employed mirror that from scenes in adventure or ghost narratives, applied here to a more humorous context. [GP]</p> <p>The selection of verb forms – past and present tense – distinguish between the past tense narrative and the current state of the seventh stair, placing the reader at the heart of the action. [GP]</p>
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