“We’re superhuman, we just can’t spell.” Using the affordances of an online social network to motivate learning through literacy in dyslexic sixth-form students.

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Abstract

This is a study of the use of Facebook as an educational resource by five dyslexic students at a Sixth Form College in north-west England. Through a project in which teacher-researcher and student-participants co-constructed a Facebook group page about the students' scaffolded research into dyslexia, the study examines the educational affordances of a digitally-mediated social network. An innovative, flexible, experiential methodology combining action research and case study with an ethnographic approach was devised. This enabled the use of multiple mixed methods including participant-observation, interviews, video, dynamic screen capture and protocol analysis. This range of methods helped to capture much of the depth and complexity of the students' online and offline interactions with each other and with Facebook as they contributed to the group and co-constructed their Facebook page. The philosophy and concepts of the New Literacy Studies and multimodality (Cope & Kalantzis, 2000; Kress & van Leeuwen, 1996, Kress 2010), and rigorous qualitative analytical procedures are used to construct a substantive grounded theory (Charmaz, 2006) of the students' engagement with the social network and hence its educational potential. The study assesses the students' motivation to learn through literacy, the role of identities, and considers the pedagogical principles their use of the network evokes. It concludes that Facebook offers an affinity space which engages the students in active, critical learning about and through literacy (Gee, 2004 & 2007). Little if any research has apparently been documented on the potential of digital media to engage and motivate dyslexic students, nor to integrate models of dyslexia, radical perspectives on literacy and social models of disability (Herrington & Hunter-Carsch, 2001). This study begins to address this oversight and imbalance.

Dedication

For Loo, who made it possible

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Part One
Introducing the Thesis

Preamble

Focus of the Thesis

This thesis summarises an empirical investigation conducted by a teacher-researcher and five participants. The participants are dyslexic students at a Sixth Form College in north-west England, who habitually use Facebook in their everyday lives. The College, meanwhile, forbids the use of Facebook by students and staff on its premises and network. The College was persuaded to grant access to Facebook to the participants for the purposes of this study. Through close analysis of the participants' use of Facebook for a collaborative research project, the study examines the way Facebook motivates learning through literacy. The study also seeks to reconcile models of dyslexia, social models of disability, and radical perspectives on literacy.

The thesis attempts to answer the following questions:

Primary Research Question:

What are the affordances of an online social network for dyslexic sixth-form students?

Subsidiary Questions:

a. What does the project reveal about the students' motivation to learn through literacy?
b. What does it reveal about their sense of identity?
c. What pedagogical principles does their use of the social network evoke?

Structure of the Thesis

Part One sets the thesis in context through a tripartite review of relevant literature and background information about the research setting. Part Two sets out the study's methodology, methods of data collection and methods of data analysis. Part Three presents and analyses the data, organising it into seven themes. Part Four concludes by constructing a substantive grounded theory of the participants' use of Facebook, before returning to answer the questions set out above.

Chapter One
A Review of the Literature

1.0 Introduction

My thesis examines the intersection of dyslexia, adolescence, literacy and online social networking. In my first two years on the EdD programme, I observed and began to investigate my dyslexic students' affinity with Information Communications Technology (ICT) and their habitual use of several forms of ICT simultaneously in the classroom. I also became intrigued by the potential of 'everyday' technology to supplant the specialist intervention technology traditionally used with and by dyslexic students. Simultaneously, I began to explore the philosophy and concepts of the New Literacy Studies (Cope & Kalantzis, 2000; Kress & van Leeuwen, 1996) as a lens for understanding and interpreting my students' engagement with digital technologies. Here I present a tripartite review of relevant literature. Because my methodology necessitated consultation of a second body of literature late in the study, this review does not summarise all the literature I surveyed for this study. Rather, the review is intended to illustrate the epistemological context - and penumbra - in which the empirical investigation reported in the body of this dissertation took place.

The first section gives a brief account of the nature of dyslexia. Some recent evidence (Ehardt, 2008; Moores, 2004; Singleton, 1999; West 1997 & 2009) which helps to unsettle the dominant view of dyslexia-as-deficit (Frith, 1999 & 2002) is considered, setting the scene for an extended discussion of the relationship between dyslexia, adolescence, literacy and digital technologies. The second section looks at broad trends in digital technology use. It relates these trends to policy driven by economic and social inclusion agendas (BECTA, 2009; DfES, 2005; Grant & Villalobos, 2008; Green & Hannon, 2007; Sefton-Green, 2006; Tomlinson, 2004; Walker & Logan, 2009). It examines the role of dyslexic teenagers within these broader trends, with reference to the epistemological challenges digital technologies bring (Facer & Williamson, 2004; Lankshear & Knobel, 2003; Wegerif, 2006). The third section focuses on a particular dimension of digital technologies:

literacy. The development and philosophy of the New Literacy Studies is sketched, and the problem of locating dyslexia within this framework is considered. The concept of multimodality is outlined (Kress & van Leeuwen, 1996), and its relevance to dyslexia, literacy and learning in online environments is discussed.

1.1 The Nature of Dyslexia

> Dyslexia is a specific learning difficulty which mainly affects the development of literacy and language related skills. It is likely to be present at birth and to be lifelong in its effects. It is characterised by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities. It tends to be resistant to conventional teaching methods, but its effects can be mitigated by appropriately specific intervention, including the application of information technology and supportive counselling.
>
> (British Dyslexia Association, 2007)

Dyslexia remains a controversial topic. There is no consensus amongst experts on either a definition or exact aetiology of dyslexia (NIACE, 2004). The current British Dyslexia Association definition of dyslexia quoted above (BDA, 2007), whilst retaining the emphasis on phonological (speech-sound) processing and literacy of earlier incarnations, reflects the growing understanding of the broader cognitive effects of dyslexia by including reference to memory, information processing speed and automaticity. The fact that dyslexia is so hard to define precisely has led some people to question its usefulness as a category or concept (Elliot, 2005). However, recent technological advances, particularly MRI brain scans, have helped to confirm a biological basis for dyslexia. They have led to a more detailed and nuanced insight into the role of temporal development, hemispherical symmetry and localised functions of the brain in a wide range of learning tasks (Brunswick, *et al* 1999; Geschwind & Galaburda, 1985; Hoeft *et* al, 2007; Leppanen *et al*, 1999; Fawcett & Nicolson, 1992; Reid, 2009). They have shown that people with dyslexia tend to use different parts of their brains for specific language functions compared to non-dyslexics (Lyon, Shaywitz & Shaywitz, 2003). They have also shown that dyslexic people have symmetrical, evenly sized hemispheres whilst non-dyslexics have

asymmetrical brains with relatively small right hemispheres (Breznitz & Lebovitz, 2008; Galaburda, 1989; Larsen *et al*, 1990). These differences in brain structure have been hypothesised to derive from in-utero neuron migration (Galaburda, 2005). This brain cell migration ultimately affects cognition and produces, subject to environmental influences, a range of observable behaviours in the domain of language skills, short-term memory and temporal processing (Olson, 2002). For example, students with dyslexia typically find curricular literacy demands challenging, are 'quick forgetters' and are disorganised, in part because they tend to inaccurately estimate how long tasks will take them. These behaviours and their purported origins are discussed in more detail in the next two sections of this chapter.

Numerous researchers report that the academic difficulties associated with dyslexia are often accompanied in by a range of behavioural and social problems including stress, demotivation, low confidence and low self-esteem (Alexander-Passe, 2006 & 2007; Burden, 2005 & 2008; Daniel *et al,* 2006; Singer, 2007). These secondary affective consequences of dyslexia derive from perceptions – those of teachers and parents, as well as the individual themselves – that somebody is underachieving or underperforming in their education, relative to their apparent intellectual ability and the attainments of their peers. These perceptions themselves derive (to an extent) from deficit models of dyslexia, which tend to identify dyslexia through measurable discrepancies between levels of cognitive ability and literacy skill. These models thus reinforce in all parties the view that dyslexia equates to a deficiency.

Following from this, it is argued that environmental factors such as teaching intervention may reduce perceived educational underachievement, but the persistence of dyslexia means that dyslexic schoolchildren become dyslexic adolescents (Shaywitz *et al*, 1999), and without sufficient, continuous, appropriate intervention they will not acquire abilities commensurate with either their peers or their own cognitive capabilities (Hunter-Carsch, 2001; Wadsworth *et al,* 2007). Specialist teaching is advocated to help students overcome the perceived

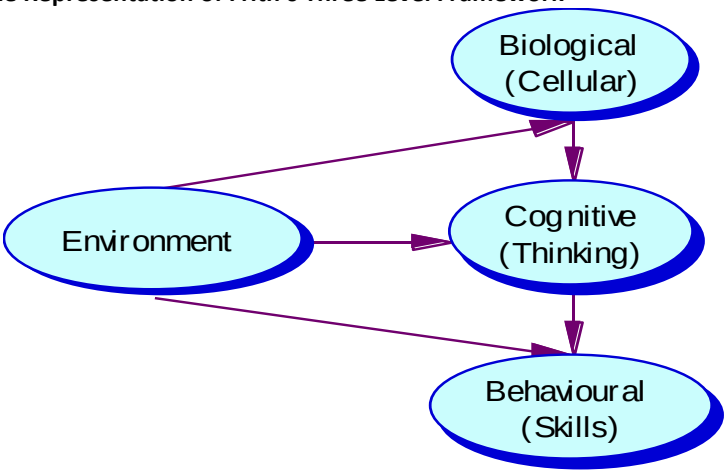
deficiencies. Later in this chapter, I argue that digital technologies have the potential to overturn - or at least perturb - the dominant view of dyslexia-as-deficit, and to motivate dyslexic students to learn through literacy. This is significant because motivating dyslexic adolescents to learn through literacy has frequently been problematic hitherto; such students are, quite reasonably, often reluctant to engage in reading and writing because they have experienced what is almost, for them, a lifetime's worth of perceived failure and genuine frustration when asked to read and write.

There is some speculation that the differences in brain structure and function outlined above also account for the widely reported yet under-researched strengths in visual thinking and creativity often associated with dyslexia (Everatt, Steffert & Smythe, 1999; Everatt, Weeks & Brooks, 2008; West, 2009; Wolff & Lundberg, 2002). These associated phenomena are explored further in section 1.1.3 of this chapter.

1.1.1 Causes and Characteristics of Dyslexia

Frith (1999, 2002) devised an influential three-level causal modelling framework to help define and explain dyslexia, later augmented by Lee (2000) (Fig. 1). The first level is the biological, the second the cognitive, the third the behavioural. At each level, the environment has influence:

Figure 1: A Simple Representation of Frith's Three Level Framework



The framework collates and summarises the work of a number of leading theorists. Structural differences at the neurological level (themselves influenced by genetics) are used to explain the origins of the deficits that define dyslexia, which manifests in different modes of thinking and skill acquisition compared with the non-dyslexic population. The deficits principally concern the cell systems which handle visual (Stein 2001; Stein & Walsh, 1997) and phonological (speech-sound) processing (Snowling, 1995 & 1998); the cerebellum, which controls language dexterity and skill automaticity (Fawcett & Nicolson, 2008); and the working memory system (Baddeley, 1986; Gathercole & Alloway, 2006; Gathercole & Baddeley, 1993).

These neurological deficits are thought to impact on language acquisition, information processing, and other cognitive skills (such as time estimation). People with dyslexia most commonly experience difficulty with phonological processing, frequently co-morbidly with specific visual and motor processing deficits. Phonological difficulties express themselves through poor or slow language skills such as grapheme/phoneme conversion (reading & spelling), retention and recall, phonological awareness and labelling. Visual and motor processing difficulties result in, for example, perceptions of print instability when reading and difficulty with the fine control needed for quick, neat handwriting.

At every level of Frith's (1999, 2002) framework the environment, through factors such as diet (Richardson, 2001), socioeconomic conditions, and stress levels (Alexander-Passe, 2007, Burden, 2005) is shown as having influence on the individual's development. Orthography, by which we mean the spelling conventions of a language, is a major environmental factor contributing to the manifestation of dyslexia. English, with its varied and often contradictory spelling patterns, has low 'transparency', meaning that the way letters match to speech sounds is often irregular and illogical. English has, for example, many homophones: words which sound the same but are spelt differently to indicate different meanings, such as 'there', 'their' and 'they're'. Homophones are one of the most common and persistent areas of spelling difficulty in dyslexia. Orthography also impacts on reading fluency: the common morpheme (letter-cluster) "-ough" has eight possible pronunciations in English[1], and thus presents a significant decoding challenge to the unskilled reader. The wealth of examples like this helps make English literacy difficult to learn; hence the high detection rates for dyslexia in Britain (Goulandris, 2002; Townend & Walker, 2000).

Further discussion of the biological and cognitive characteristics of dyslexia, and the epistemological perspective which has shaped the relevant discourse, now follows.

1.1.2 The Medical Model of Dyslexia: A discourse of deficits

Throughout its hundred-and-fifteen year history the discourse of dyslexia has been dominated by the medical model of disability. The earliest scientific investigations of what we now call "dyslexia" were carried out by the medical profession. The first appeared in the British Medical Journal (Pringle Morgan, 1896, reprinted in Miles, 1996), and pioneering work was done in the US by Dr Samuel T. Orton, a psychiatrist, pathologist and neurologist (Karnes, 1996). These investigations thus followed the 'medical model'. Ever since, the study of dyslexia has been dominated by psychologists. The overriding feature of the psychological approach is

[1] E.g. though, through, bough, rough, cough, thought, hiccough, lough

the adoption of a medical model for understanding dyslexia. In the discipline of Psychology, the medical model is a term used to describe a particular version of the pathology model, and the pathology model assumes that we are dealing with *illnesses* (Gleitman, 1981 p.644, my emphasis) that require treatment, either psychological (such as through therapy) or somatic (such as through drugs).

Following from this, another basic assumption of the medical model of disability is that 'the disabled' are a group of people with range of 'problems' which are best described as departures from what is 'normal'. Dyslexia usually manifests, at least in part, as difficulties in acquiring the skills associated with literacy; reading, writing, spelling and so on. 'Normal' people (using the medical-model sense of the word) usually have relatively little difficulty acquiring these skills as part of their early schooling. The dominant view is thus one which sees dyslexia as a disability, and a problem attributable to the individual for failing to learn appropriately (Herrington & Hunter-Carsch, 2001). This is illustrated in the way the discourse of dyslexia has always been, and still is, dominated by the psycho-medical language of 'deficits,' 'weaknesses' and 'difficulties.' Any examination of *Dyslexia, The Annals of Dyslexia,* psychology and educational textbooks, teacher-training literature and so on will quickly demonstrate this to be the case. For example, Klein (1993: 7) notes that common indicators of dyslexia include: "discrepancy between students' evident oral abilities and their written language performance, the persistence of difficulties in acquiring the skills of reading, writing and/or spelling, and other patterns of difficulty..." As such, the behaviour of individuals with dyslexia is often characterised by difficulties with a wide range of literacy and language tasks, as well as those associated with short-term memory and rapid processing of sensory data.

Although he has been criticised for relying on an oversimplified model of the brain (Mortimore, 2003; Goswami, 2004) Thomas West (West, 1997 & 2009) nevertheless proposes a compelling counter-argument to the dominant psycho-medical, biological-cognitive deficit discourse. He points to the apparent advantages of 'atypical' dyslexic brains, such as later but fuller development of the frontal lobes and less cell-death. Less cell-death in turn promotes the development of more and

longer-lasting neural connections, which are the physical basis of learning: from a neuro-anatomical perspective, learning happens when brain cells connect to make networks:

> Brain cells pass information to each other via low-voltage electrical signals, which travel from neuron to neuron….specific neural pathways and networks…become the basis of perception, attention, learning and memory…When many neurons in a network are 'firing' together, the patterns of neural activity are thought to correspond to particular mental states or mental 'representations'.
>
> (Goswami, 2008 p.xiii)

By drawing first on the history of the power of images to instantiate and communicate thought, and then speculating on plausible imminent advances in digital technology, West makes a convincing case for a significant societal shift in modes of representing and disseminating knowledge. He proposes that this shift would be led by advances in computer graphics and other digital imagery. The shift is predicted to lead away from privileging textual representations of concepts and processes, towards a much more visual approach. West argues that this visual approach would lend itself to the more visual thinking processes instinctively adopted by many people with dyslexia. If he is right, then because of the perceived power of this mode of thought, dyslexic people could find themselves at the forefront of academic thinking and research because of their 'different' (or 'abnormal') brain organisation rather than in spite of it. This has the potential to be a seismic shift in power and agency for people with dyslexia, who have been seriously disadvantaged and marginalised by both educational and wider cultures which privilege reading and writing over other forms of communication and learning. The implications of this shift for people with dyslexia, and its resonance with an alternative, social model of dyslexia, are discussed in the next two sections of this chapter. West offers a harbinger of the potential shift, noting that a disproportionate percentage of the workforce at the world-renowned Massachusetts Institute of Technology are dyslexic, to the extent where dyslexia has been dubbed "the M.I.T. disease" in its Harvard environs. This assertion is corroborated by Nicholas Negroponte, a dyslexic academic and employee of MIT (Negroponte, 1985).

Dyslexic himself, West presents evidence that more and stronger neural connections in dyslexic brains, particularly in the frontal lobes, help enhance the quality of visual mental representations and creativity in thinking. To bolster his case, West cites the frequently-used examples of Albert Einstein and Leonardo da Vinci, plus lesser-known ones including James Clerk Maxwell and Michael Faraday as, if not confirmable as dyslexic, evidence of the potential potency and profundity of visual thought:

> I insist that words are totally absent from my mind when I really think…Even after reading or hearing a question, every word disappears at the very moment I am beginning to think it over; words do not reappear in my consciousness before I have accomplished or given up the research…and I fully agree with Schopenhauer when he writes “Thoughts die the moment they are embodied by words."
>
> (Jaques Hadamard, mathematician, quoted in West, 1997 p.208)

1.1.3 Visual Thinking and Dyslexia

For both Piaget and Vygoytsky, action precedes thought and language in the developing human brain (Goswami, 2008). If we accept this premise, it follows that language is not the only or necessarily best mode through which we can generate and elaborate thought. One non-language mode of thinking is through images and what West (2009) terms visual thinking, which involves generating or recalling images of material objects or abstract concepts in the mind and then manipulating them by, for instance, rotating, resizing or joining them. It helps with skills such as "pattern recognition, complex spatial reasoning, or visual imagination" (p12).

West predicts that in the near future different modes of visual thought might well come to be considered much more valuable than they are now. This is plausible: we are all used to, and comfortable with, clicking icons and watching videos or computer simulations for explanations nowadays. If West is correct, there is a potential major threat to the dominant medical model of dyslexia. This model has

constructed dyslexia as a disability, and its power derives from our cultural dependence on the written word, a dependence which disadvantages a significant majority who happen to have brains which are not optimally 'wired' for reading and writing. A computer-led societal shift towards greater emphasis on images could undermine the construction of dyslexia as a problem and generate a societal power-shift towards those with a greater facility for dealing with images. Somewhat ironically, given the overall tenor of the contribution of cognitive- and neuro-psychology to the positioning of dyslexia, this development was anticipated in some of the pioneering work on the neuroanatomy of dyslexia carried out by Norman Geschwind in the 1980s, who postulated that the prevalence of dyslexia could be attributed to some (then unspecified) evolutionary cultural advantage linked to certain modes of high level visuo-spatial thought: this has been termed the "pathology of superiority" (West, 1997: 19). It seems, however, that this perspective has historically been met with "incredulity" (ibid) and largely ignored by the majority of academics.

1.1.4 Dyslexia and the Social Model of Disability

Recently the tide has begun to turn. The contention that dyslexia must carry some distinct evolutionary advantage to explain its prevalence and intergenerational persistence is gaining more credence. For Ehardt (2008, p.3), that advantage is linked to skills that would be valuable, and are still privileged, in pre-literate societies. These include mechanical construction, navigation in 3D environments via 3D mental-mapping or imaging, "seeing the big picture" and "making connections between different facets of life." This argument resonates with that of the social model of disability. Adherents of the social model of disability (Mason & Reiser 1990; Shakespeare & Watson, 1997) recognise and accept that human beings are diverse creations and maintain that societies create and sustain the concept of disability through structures of thought and environment. According to this view, dyslexia can only exist in cultures which privilege literacy, like ours. Dyslexia is not simply *influenced* by the environment, as per the Frith model discussed above: the sociocultural environment *creates* dyslexia through our dependence on the written

word. It is not difficult to imagine cultures where the dominant mode of communication for education is (or was) song, say, or drawings. An Ancient Egyptian who couldn't decode hieroglyphs, for example, might have been labelled as 'dyspictoric.' Such a label does not exist in our culture because alphabetic literacy is prized in education to a far greater extent than a facility for images. Our alphabet is less than 2,000 years old. Universal schooling is less than 200 years old. The social model of dyslexia thus accounts for the fact that reading and writing are (in evolutionary terms) recently invented, unnatural processes which are difficult to learn for a large minority of the population. Extrinsic cultural forces have constructed the difficulty (McDermott & Varenne, 1995), not the neurology of the individuals in the minority. This minority is labelled 'dyslexic', but the label is a product of the cultural privileging of reading and writing over a very short timespan (Kress, 2000).

1.1.5 Challenging the Deficit Discourse of Dyslexia

The construction of dyslexia as difficulty through cultural dependence on the written word has resulted in innumerable remediation programmes for dyslexic children and adults. Such programmes aim, in fairly prescriptive and predictable ways, to 'correct' or help students 'overcome' dyslexia. Much work has been done to devise, try out, and report on these programmes. Invariably, they attempt to make dyslexic learners conform to dominant models of literacy. Despite the abundance of this type of dyslexia research, very little (if any) work has apparently been done which seeks to use the visual, oral, and 3D strengths often associated with dyslexia to challenge dominant perspectives on literacy, nor to integrate models of dyslexia with either new perspectives on literacy or social models of disability (Herrington & Hunter-Carsch, 2001).

Moores (2004) points out that the deficit methodology is over-simplistic, and has focused on deficits because they are easier to detect. Whilst admitting that "it has proved difficult to find…tasks for which dyslexic performance is better than control

performance" (p.291), she implies that this is not because such tasks or skills do not exist; rather, it is because the strengths commonly associated with dyslexia – creativity, 'seeing the whole', or simultaneous visual processing of large amounts of information from multiple perspectives, for example – are more nebulous and difficult to assess than the traditional literacy problem areas like word-decoding and spelling. This type of thinking has led to calls for dyslexia to be recognised as an alternative, not inferior, mode of information processing (Singleton, 1999).

A further challenge to the perspective of dyslexia as disorder is the large body of anecdotal evidence claiming that people with dyslexia in post-industrial societies possess similar talents to those that Ehardt (2008) identified as important in pre-literate ones. Carson (2005) reports that a high proportion of designers, illustrators, photographers and film directors claim to have pursued their chosen field - visual communication - because of their dyslexia. A similar case is made for engineers, architects and computer scientists. She also reports that the Royal College of Art, the London College of Communication and Central Saint Martin's have all appointed dyslexia co-ordinators to meet the needs of their intake: in 2002/03, of approximately 400 first years in the Royal College of Art, 123 were assessed as dyslexic and/or dyspraxic. Wolff & Lundberg (2002) observed a similar effect in prestigious Swedish HE art schools. Admissions policies at both sets of institutions are so stringent that it is reasonable to draw the conclusion that the students offered places were genuinely artistically talented and "that their choice of training did not reflect a compensation for failure in conventional academic fields" (Wolff & Lundberg, 2002, p.34).

However, the extent to which such talents are innate or are nurtured and exploited as a response to early-childhood struggles with alphabetic literacy remains an open question. Similarly, researchers have yet to generate a substantial body of strong empirical evidence for a link between dyslexia and visual-spatial talents (Winner, von Karolyi & Malinsky, 2000). Von Karolyi *et al* (2003) did find an association

between dyslexia and global (or holistic) visual-spatial information processing ability: dyslexics were just as accurate but quicker than controls at recognising impossible 3D figures. Recently, Attree *et al* (2009) discovered evidence of superior visuospatial abilities in dyslexic adolescents compared to controls when completing problem-solving tasks in a virtual reality environment. The dyslexics performed worse than the controls when analogous tasks were given on pen and paper. Everatt, Weeks and Brooks (2008) found that dyslexics were as good or better at controls at creativity (assessed via drawing) as well as non-verbal reasoning, listening comprehension and spatial memory.

Increasingly, ICT calls for and permits the exploitation of the visuospatial talents many people with dyslexia seem likely to posses. Students with dyslexia are frequently encouraged to use visuospatial thinking and learning techniques like mindmaps, but it seems no-one has yet made the connection between what are known as 'multisensory strategies' in dyslexia circles (Fawcett & Nicolson, 2008 2008; Moats & Farrell, 1991; Mousavi, Low & Sweller, 1995; Reid 2005, 2009) and 'multimodal texts' in the New Literacy Studies. Multimodality is explored further in section 1.4 below, but essentially concerns texts which combine writing, image and other representational forms. The spatial arrangement of the various elements is often a defining feature of multimodal texts (Kress, 2003). 'Multisensory instruction' (Moats & Farrell, 1991) follows long-established principles (Orton, 1928; Fernald, 1943; Gillingham & Stillman, 1960; Hinshelwood, 1917) of engaging two or more sensory modalities, typically including the tactile-kinaesthetic as well as the more conventional auditory and visual channels. The premise is that simultaneous use of several sensory pathways by seeing, hearing and feeling or doing all at once reinforces weak memory patterns caused by perceptual deficits. The concepts of 'multisensory' and 'multimodality' can thus be seen to overlap, with both potentially using multiple sensory channels to communicate and reinforce meaning in texts, and hence improve learning. This overlap has the potential to be exploited by and for dyslexic students. This is discussed further in the final sections of this

chapter, after a more general discussion about the role of technology in education for young people with dyslexia.

1.2 Digital Technologies, Adolescence & Dyslexia

Technology has long been seen as a solution for many of the problems associated with dyslexia. Microcassette dictaphones, then pocket spellcheckers, digital scanners, dictation and proof-reading software, reading pens and a whole host of others have all found followers. These technologies have in common a compensatory nature, at least in the way that students with dyslexia are expected to use them. Often they are seen as 'special' solutions to a specific problem; this is reflected in the way ICT is referred to in the BDA definition of dyslexia with which I opened this literature review. The traditional view tends to see ICT as a way for people with dyslexia to overcome obstacles (Smythe, 2010), rather than providing opportunities for them to play to their cognitive strengths. Commercial interests have also played their part in promoting ICT as a sort of 'silver bullet' for dyslexia. Now though, much 'everyday', rather than 'special', digital technology is sophisticated enough to offer ample opportunity for students to circumvent many of the learning and literacy problems associated with dyslexia. It has been argued, for example, that college students reporting low satisfaction and low self esteem, a group likely to include those with dyslexia (Pollak, 2005), gain more social capital from intensive Facebook use than their non-dyslexic peers (Ellison, Steinfeld & Lampe, 2007).

We can readily imagine a teenage student sitting in her bedroom, logged into a social networking site, chatting with friends about the best way to complete her homework, whilst at the same time making plans to meet up when it's done. The student is dyslexic, but this isn't important because evry1 use txtspk & spllngs dnt mata. Her wordprocessor will help 'correct' her spelling so that the assignment is acceptable to her teacher. A naturally visual thinker, she is adept at the visual semantics and grammar the digital environment demands, and if necessary, for her

work say, she can text[2], Instant Message, phone or even Skype videocall a friend (Lankshear & Knobel, 2003, p.79). She can consult YouTube or her institution's Virtual Learning Environment for audiovisual presentations of the current topic. All of this is commonplace, everyday, routine technology use. Later I speculate that digital technologies could well play to the strengths of people with dyslexia, rather than merely compensating for the difficulties. For now, I attempt to locate these digital literacy practices among broader trends.

1.2.1 Digital Technologies in Young People's Lives

"Dyslexic" is one label the imaginary student above will have thrust upon her. Like others in the overlapping age ranges of 'children' and 'young people', dyslexic adolescents now find themselves categorised as part of a larger group with labels that focus on perceived generational characteristics. "Screenagers"; "Google generation"(e.g. CIBER, 2008); "digital natives" (Prensky, 2001a; Hulme, 2009); "beta generation" (Childnet International, 2008) - all these labels have been applied. The terms are problematic (Hypergogue, 2011; Wheeler, 2011a) - they imply, for instance, a large degree of homogeneity and thus mask wide individual and socio-economic-cultural differences - but their application reflects the fact that today's adolescents find themselves in an increasingly digital world. Students currently in formal education are the first to grow up with ICT as ubiquitous and unremarkable (Herring, 2004). In their UK national survey of 4-16 year-olds, Green & Hannon (2007, p.10) commented that:

> the use of digital technology has been completely normalised by this generation, and it is now fully integrated into their daily lives…Almost all are now also involved in creative production, from uploading and editing photos to building and maintaining websites.

Teenagers now are not now characterised merely as *users* of digital technologies: they are seen to be *immersed* in digital technologies, living 'always on', 'hybrid lives'

[2] A recent study suggested that children with dyslexia are just as fond of abbreviated 'textisms' as non-dyslexics, although the core phonological deficit made them less likely to use phonetic abbreviations than their counterparts (Veater, Plester & Wood, 2011)

which combine the physical and the virtual in creating complex 'tapestries' of communication and connectivity (Hulme, 2009 p.4). Hulme (2009) found that 95% of 16-24 year olds self-reported often using a number of technologies at the same time. 75% said they 'couldn't live without' the internet. As such, it is difficult and perhaps even negligent for educators to ignore the appeal to this group of learners of audio-visual, multimodal technologies. We need to also take account of their habitual simultaneous use of multiple forms of ICT. Such patterns of skilful cross-domain work are similar to the way many adults work, but are usually proscribed in the classroom (Davies & Pahl, 2007). Recent and current developments in both policy and digital technology use prompt reconsideration of such embargoes.

1.2.2 Social and Economic Drivers for Digital Technologies

There is currently governmental, institutional and individual emphasis on ICT both inside and outside the classroom (e.g. BECTA, 2009; Sefton-Green, 2006). Government policy is thus one driver helping digital technologies proliferate in education. The impact of policy can be illustrated by the fact that, in 2007 for example, UK secondary schools spent £91 per pupil on ICT, with the Government promising to increase investment in the future (Green & Hannon, 2007 p.24). This, despite the fact that the evidence for its impact on teaching and learning, including literacy learning, is fragmentary and equivocal (Condie & Munro, 2007; Ofsted, 2009; Torgerson & Zhu, 2004).

Governmental privileging of digital technologies is driven in part by the economic rhetoric of competitiveness, and also by the drive for social inclusion and social justice (Grant & Villalobos, 2008; Walker & Logan, 2009). In the case of the former, both the Tomlinson Report (Tomlinson, 2004), and the Government's response - the 14-19 Education and Skills White Paper (DfES, 2005) - highlighted the necessity of better equipping 14-19 year olds for the workplace by emphasising competence in skills such as analysis and problem-solving alongside more traditional considerations of literacy and numeracy. There is persistent concern that the current curriculum is not doing well enough to equip the million or-so 16-18 year olds in for the world of work they are about to enter (Davies, Hayward & Lukman,

2006). Concerns stem from increasing recognition that the nature of workplace is changing radically, with emphasis on new kinds of knowledge and higher-order knowledge skills, often involving collaboration and co-construction (Facer & Williamson, 2004). Wegerif (2006 p.3) argues that:

> workers in the new economic climate require transferable thinking skills more than content knowledge or task-specific skills...They particularly require an ability to learn how to learn new things since accelerating technological change is making old skills (and knowledge) redundant and generating needs for new skills (and knowledge).

Skills on which he proposes there should be increased focus include information-processing, reasoning, enquiry, creative thinking and evaluation. They also include awareness of a range of apparently disparate things such as strategies, habits, attitudes, emotions, motivations, aspects of character or self-identity, and how to engage in dialogue and in a community of enquiry. Though they may well be adept in the first, some components of the latter set of skills represent a particular challenge to dyslexic students, who have been shown to be poor at spontaneously developing metacognitive awareness of their learning strategies (McLoughlin, Leather & Stringer, 2002; Reid, 2008). Pedagogy has a part to play here, but so do responses to the second area of concern referred to above: that learning is most effective when learners build shared understanding by working creatively together (Facer & Williams, 2004; Loveless, 2002) Yet opportunities for doing so are often restricted in formal educational environments. By offering more opportunities for co-operative learning, collaborative problem-solving and personalisation, digital technologies can have a role outside and yet supplementary to the economic imperative (Walker & Logan, 2009). They can drastically change the way we think about inclusion in education, because they can change the way we think about thinking. Changes in thinking caused and demanded by digital technologies are now discussed.

1.2.3. The Epistemological Challenges Digital Technologies Present

The demands on and of teenagers and the "cultural airlock" (Sanger, 2001, p.10; also Lankshear, 2003) between school and non-school uses of IT create an epistemological challenge. For young people there is a self-determined emphasis on procedural knowledge and critical, collaborative knowledge-making superceding that on declarative knowledge (Lankshear & Knobel, 2003; LeCourt, 2001; Loveless *et al*, 2001). Arguing from a neuro-cognitive perspective, Goswami (2008) contends that new technologies require the cognitive system to adapt in novel ways, with the ability to adapt constrained by biological and cognitive factors. Biological factors include characteristics of the relevant neural networks, as described above. Cognitive factors include prior experiences and knowledge, motivation and self-belief. From this it follows that today's adolescents, if they are immersed in digital technologies, will be both motivated and skilled at learning with these technologies, because their brains are well adapted and adaptive to them.

Prensky, (2001a; 2001b) argues that our brains' inherent plasticity, combined with lifelong immersion in multiple digital technologies, is leading to children now having different brain morphology - and hence cognitive processes - than the adults who teach them. He contends that they learn in parallel, rather than linear ways, and value alternative sorts of knowledge. This is reflected in Lankshear and Knobel's (2003, p.173) call for the development of a new 'digital epistemology', rethinking epistemology as:

> practices of knowing that reflect a range of strategies for assembling, editing, processing, receiving, sending and working on information and data to transform resources of 'digitalia' into 'things that work.'

Within this digital epistemology, ICT permits representation of the fluid character of knowledge through its facility for revising and representing experiences in multiple modes, incorporating sound and image as easily as text (Loveless, DeVoogd & Bohlin, 2001 p.74). Prensky (2001b) goes on to argue that the thinking skills enhanced by repeated exposure to digital media include "reading visual images as

representations of three-dimensional space...multidimensional visual-spatial skills, mental maps...mental paper folding...inductive discovery..." The parallels to the talents Ehardt (2008) identified as important in pre-literate societies and the strengths commonly associated with dyslexia in the first section of this review are striking. They are illustrated in Table 1, below:

Table 1: Synergies between digital media and dyslexia

Thinking skills enhanced by digital media (Prensky, 2001b)	**Cognitive styles/strengths associated with dyslexia** (Ehardt, 2008)
Reading visual images as representations of three-dimensional space	3D mental mapping
Multi-dimensional visual-spatial skills	Creative visual/3D thinking
Mental maps	Navigating 3D environments
Mental paper folding	Visual problem-solving; mechanical construction
Parallel thought processing	Seeing the big picture; making connections

In addition to the potential for digital technologies to permit dyslexic students to work to their strengths, there is tentative, emerging evidence that, contrary to mass-media alarmism about the deleterious impact of digital technologies on the language, the motivated wordplay and increased exposure to language concomitant with high levels of SMS 'txting' may actually enhance traditional literacies (Plester & Wood, 2009). More significant is the challenge that digital technologies pose to traditional, dominant views of literacy, and to the power, position and agency of dyslexic students in education.

The frameworks and concepts of the New Literacy Studies and multimodality can be used to gain an appreciation of the challenge. The final part of my tripartite literature review explores these issues.

1.3 The New Literacy Studies & Multimodality

My thinking has been influenced by work in the New Literacy Studies (NLS) and multimodality. Both are relatively new fields of academic enquiry, developed over the last twenty years, the concepts of which researchers are beginning to synthesise (Pahl & Roswell, 2006). NLS recognises that (i) texts are multimodal and that (ii) changes in technology are helping many texts become more multimodal than their historic counterparts. The endeavour to synthesise the two fields follows the realisation that there are complementarities between, on the one hand, the idea of literacy as social rather than individualistic practice, and on the other, the idea that meaning can be made through multiple modes, rather than just the written or spoken word – through image, gesture and sound, for example. One identifiable complementarity is the perceived challenge to the dominance of the written word, often through the incorporation of images, still or moving, into texts (Kress, 2003; Jewitt, 2005). Protagonists from both fields agree that it is not possible to fully understand contemporary texts without an appreciation of multimodality.

A shift towards valuing multimodal texts has enormous potential consequences for students with dyslexia. Many of these students have traditionally been marginalised by dominant school literacy. Many instinctively think and work in visual ways (West, 1997), or are articulate and eloquent speakers who struggle to translate their ideas into conventional writing. Despite the apparent complementarity between a shift towards the multimodal and the problems monomodal texts present for dyslexic students, there does not as yet seem to be any research which addresses the interface of the New Literacy Studies and adolescent dyslexia. Ten years after the original observation, it is still true to say that "there does not appear to be a broad-based attempt to integrate models of dyslexia with either radical perspectives of literacy or social models of disability" (Herrington & Hunter-Carsch, 2001 p.114). This may be for the following two reasons:

1. ‘New’ means new: NLS is a relatively young discipline, having evolved from the meetings of The New London Group in 1994, which introduced the concept of “multiliteracies” (Cope & Kalantzis, 2000 p.5). Opportunities for such research have therefore been relatively few. Much of the work in the NLS is rooted in the anthropologically-based work of Brian Street, who challenged the dominant view of literacy, whereby a single meaning is fixed in the text (Street, 1984). In this view, any text is held to be "autonomous" and independent of the reader, giving rise to Street’s label of the "Autonomous Model" of literacy. In this volume, Street reports the use of the terms "Savage" and "Modern" to describe people in anthropological accounts of the time. "Savage" would now most likely be perceived as a racist term, helping disprove the idea of a single, fixed, independent textual meaning. Such trenchant criticisms help Street to argue forcefully that

> what the particular practices and concepts are for a given society depends upon the context; that they are embedded in an ideology and cannot be isolated or treated as ‘neutral’ or merely technical
>
> (op.cit, p.1).

Thus he establishes the basis of the ‘Ideological’ model of literacy, diametrically opposed to the ‘Autonomous’ model. The Ideological model focuses on literacy events and practices in different contexts and cultures (often those of minority groups), rather than privileging dominant notions of literacy proficiencies and deficiencies in the individual (Gee, 1996; Maybin, 2007). Questions of identity are fundamental to this model of literacy and learning, not merely because identity shapes our interactions with texts (McCarthy & Moje, 2002), but also because identity work enables students to explore new values and ways of feeling and thinking (Gee, 2007). To my knowledge, no-one has yet turned this Ideological 'lens' on people with dyslexia, as a counter to the abundance of research on their perceived literacy deficiencies.

In 1984, Street (op cit. p.7) noted that ethnolinguists were realising that ‘official’ or dominant grammars were inadequate for describing the variety within languages.

Twelve years later Gunther Kress, subsequently a member of the New London Group, co-authored "*Reading Images. The Grammar of Visual Design"* (Kress & van Leeuwen, 1996). This book employed the term "new literacy" (p.33) in calling for analysis of texts to attend to their integrated visual and textual components in order to fully appreciate meanings. It also borrowed the term "modality" from linguistics to mean the truth value or creditability of statements about the world (p.160). In much NLS work, 'multimodality' appears to refer more simply to there being multiple modes of communication being employed in the production and reception of any text. However, in Kress and van Leewen's definition, "any text whose meanings are realised in more than one semiotic code is multimodal" (p.183). "Semiotic code" refers to the system of signs used in meaning making, and recognises that these signs are determined by historical and social convention as well as the affordances of the medium through which they are transmitted. As in Street's work, a reliable understanding of a text thus relies on knowledge of the broader context, as well analysis of its content.

2. The difficulty of incorporating the concept of dyslexia into the NLS framework.

   Dyslexia would seem to belong to the 'autonomous' model of literacy, rejected in the 'ideological' model espoused by the NLS. There is therefore implicit rejection of the notion of dyslexia in the NLS, though the term has been used in work by leaders in the NLS field (Lankshear & Knobel, 2003). However, the NLS takes a social, context-sensitive perspective on literacy and, in parallel with the social model of disability, would recognise that dyslexia can only be a problem in societies that depend on autonomous, alphabetic literacy. The potential for a societal shift away from the historically dominant, monolithic, autonomous model of literacy is explored further below.

When considering new literacies, multimodality is a principal concern of Kress (2003). He argues that the digitised dominance of the mode of image and medium of screen "will have profound effects on human… engagement with the world, and on the forms and shapes of knowledge. *The world told* is different to *the world*

shown" (p.1, original italics). Researchers at the US National Centre for Supercomputing Applications have, for instance, developed 3D graphic models of complex thunderstorm systems which permit more immediate and intuitive understanding than 2D diagrams, prose explanations or mathematical formulae (SIGGRAPH, 2005; see also Oblinger, 2008). The models were developed six years ago. Given the rate of technological advance it is inevitable that this degree of image sophistication will become commonplace in the near future.

A societal shift towards a 'post-typographic' paradigm has some conceivably seismic consequences for students with dyslexia, who have traditionally struggled with, and been excluded by, school literacies. Cyberspace is fundamentally inclusive, and learning "can be peer-aided, can find its way around faulty spelling, can lean heavily on the use of icons, sound/audio, graphics and so on" (Lankshear & Knobel, 2003, p.71). This shift is illustrated by, for example, the way the BBC now presents its news online. In many leading stories, the webpage is dominated by a video clip, placed centrally at the top of the page. The main body of the text - the written news story is placed *below* the invitation to view the video clip. It may be invisible unless the user scrolls down. Text is subordinate to sound and graphics.

A shift away from textual representations of concepts and processes towards a much more visual approach would lend itself to the visual thinking processes instinctively adopted by many people with dyslexia. As a result this group of people could find themselves at the forefront of academic thinking and research because of their dyslexia rather than in spite of it (West, 1997). Of course this is speculation, but the scenario whereby in the near future different modes of non-alphabetic thought and expression become increasingly privileged is realistic; 3D television and cinema are now commonplace and handheld 3D videogames consoles have been launched onto the mass-market. Attree *et al's* (2009) evidence of enhanced problem solving in 3D virtual environments suggests that dyslexic students have much to gain from the trend towards creating and learning in these settings. Such a scenario - where students can learn via the models like the 3D ones of thunderstorms mentioned above - could overturn the construction of dyslexia as a

problem by a word-literate academic elite and generate a societal power-shift towards those with a greater facility for dealing with images, spatial arrangements and multimodality: if this, or something like it, is to be the case, educationalists may have much to learn from ICT users with dyslexia.

Currently, much ICT practice simply transposes offline activities online – reading a single Wikipedia entry is not substantially different to consulting *Encyclopaedia Britannica*. It is therefore not surprising that students with dyslexia continue to struggle in virtual environments like chat rooms and discussions that require them to work read and write in much the same way as they would be expected to with pen and paper (Woodfine *et al*, 2005; Williams, Jamali & Nicholas, 2006; Hughes, 2007). However, as bandwidth and processing speed rise, sound, image and writing are increasingly being combined in multimodal artefacts, which may have spatial arrangement as a defining compositional characteristic. Multimodal artefacts and virtual environments thus have the potential to play to the reported strengths of many people with dyslexia. In addition to this, ICT has been shown to increase student motivation towards research, writing and editing and presentation of work – precisely the areas many students with dyslexia and other literacy disabilities struggle in (Passey & Rogers, 2004; Faux, 2005). In their national survey, Passey and Rogers (2004) found that the greatest improvements in attainments as a result of improved pupil motivation occurred in the secondary design and technology curriculum – precisely where we would expect to find a high incidence of dyslexia. Much of the discourse around dyslexia and ICT has focused on specialist intervention programmes and tools, but we may need to start thinking more about how it can open the doors for a group traditionally marginalised by institutionally-constructed literacies (LeCourt, 2001): about liberation rather than conformity and intervention.

1.4 Chapter Summary

In this chapter I have outlined characteristics of dyslexia, and noted how the relevant discourse has been dominated by talk of individual deficits. I have argued that by adopting a perspective on dyslexia which takes account of social models of disability; Street's (1984) ideological model of literacy; and multimodality, it is possible to challenge the dominant discourse. I have also made the case that that digital media have the potential to play to the purported cognitive strengths of many people with dyslexia, adding further weight to this challenge. In conceiving and undertaking the empirical investigation reported in the remainder of this dissertation, I hoped to establish the extent to which this challenge is reasonable and significant. I developed the ambition of locating dyslexia within the framework of the New Literacy Studies and the logic of multimodality, whilst also responding to the criticism that there has been little "attempt to integrate models of dyslexia with either radical perspectives of literacy or social models of disability" (Herrington & Hunter-Carsch, 2001, p.114).

Chapter Two

Research Site & Context

2.0 Research Site

2.1.1. The College

The research site is a Sixth Form College. The purpose-built College opened in 1993 in one of the post-industrial towns of Lancashire. It has been repeatedly recognised as “Outstanding” by Ofsted, most recently in June 2008. It holds Learning and Skills Beacon status, and has an excellent and deserved reputation for achieving very good academic results and personal-development gains with ethnically diverse students, often from economically and educationally deprived wards in a wide catchment area. It enrols just over 2000 students annually, almost exclusively aged 16-18 and studying on a wide range of mostly Advanced Level programmes. The College is proud of its ‘inclusive’ admissions policy. In recent years, A-Level pass and higher-grade rates have consistently exceeded both national averages and local competitors’ across almost all curriculum areas.

Students with dyslexia and other Specific Learning Differences typically have a weekly, 90-minute small-group study skills ‘workshop’ added to their timetable as part of a more comprehensive Additional Support Plan. In 2010/11 there were 64 such students. Students are encouraged to set their own study skills priorities and targets for workshops, in negotiation with subject and specialist tutors, and work towards those targets. Study support for dyslexic students is successful: year on year, around 90% meet or exceed their minimum expected grades. The College's most recent Ofsted report (Ofsted, 2008 p.9) commented that "Support for learners with dyslexia and other additional and specific learning needs is excellent, these learners also make exceptional progress."

There is a strong ICT focus and the organisation is well-resourced in this regard. There are 596 student PCs (i.e. more than one per four students), wireless network and internet access, and virtually every teaching room has an interactive

whiteboard. A wide range of software is provided, including subject-specific and bespoke programmes created in-house. Students with dyslexia have the option of borrowing equipment including laptops, digital dictaphones and pocket electronic spellcheckers. They can access specialist software including TextHelp, Dragon Dictate and Audio Notetaker. Last year the College implemented a Virtual Learning Environment (VLE) known in the College as Ozone.

In addition to this imposed e-learning channel, many students have access to informal ones, such as mobile phones and instant messaging. These are usually restricted or prohibited on College premises. However, my casual observations of students in my classroom suggested that, left to their own devices, many of them will use combinations of these ICT tools, together with classroom peer and teacher interactions, in the process of completing their work. There appeared to be instinctive adoption of multisensory learning, grasp of which information sources are likely to be the most fruitful, and of the capabilities and limitations of the technologies and approaches used. Sadly, the learning potential of these "unofficial" channels is being ignored. Along with many others (e.g. Lankshear, 2003; Lankshear & Bigum ,1999; Puttnam, 2007), I wanted to begin to explore how educators might bridge the gap between students' home-school, institutional-independent practices. The broader aim of such work is to harness students' technological and learning expertise to improve pedagogy, without of course killing their passion for using technology and for learning.

In my preliminary survey of students in dyslexia workshops (Barden, 2009b) , the students claimed to use a range of technologies on a daily basis, both in support of their studies and for other interests and activities. The survey showed that, in line with wider trends, ICT for this group is routine to the extent that they find using a wide range of ICT simultaneously unremarkable and desirable, whether this is for scholarly, social or leisure activity, or some combination of these. When engaged in scholarly activity, ICT is valued because it provides quick access to information and helps the students produce a better standard of work more efficiently. The higher standards are partly a product of the ways everyday technology permits students

with dyslexia to circumvent or surmount the literacy difficulties usually associated with dyslexia.

ICT was also valued by the respondents for rapid communication with friends, peers and teachers. As well as e-mail, which they are expected to use in College, a large proportion of the students claim to be communicating in support of their work using social networking sites, mobile phone calls, texting and Instant Messaging. The students are motivated to engage with multimodal ICT, with Facebook and YouTube being particularly popular.

The College and others like it (Childnet International, 2008) have good grounds for reconsidering its current policies on informal learning channels. Beside the student voice, incentives to reconsider come from government policies seeking to increase use of the internet in education (Wallace, 2008). Such policy has resulted in the town which hosts the College being chosen as one of only two local authorities to trial Becta's 'Home Access' scheme, which will award up to 4000 low-income families and young people in the area grants to buy computer equipment and internet access packages (O [anonymised] Council, 2009). Any changes to College policy would of course have to weigh the potential benefits against considerations of exposure to unacceptable or inappropriate content and practices, and the resource demands on the institution and teachers. By assessing the impact of a currently banned activity like social networking, or of the associated phenomena of Instant Messaging and texting, my proposed investigation could inform just such a policy decision.

It does appear that, in line with UK national surveys (Green & Hannon, 2007; CIBER, 2008), these students are frequent users of a range of ICT, both to support their studies and for other activities, including socialising. The group are comfortable operating several forms of ICT at once and the majority appear to prefer to work this way. Unfortunately, it is not possible to know precisely how they are using the technologies identified, or gauge the impact on their learning. The students are not just passive information consumers, however. The popularity of social networking

sites, particularly Facebook, indicates that, as Green and Hannon (2007) observed, most of these young people are actively producing digital content, uploading photographs, writing text and building web pages. Within this broader trend a small number of innovators are doing things like making movies and creating more sophisticated Flash-based websites. When studying, the group appears to prize rapid access to information, although several claim to be sceptical of what they find. This is as it should be: the evaluation of internet evidence is part of the ICT National Curriculum and has also been taught to many of the survey respondents during their SpLD workshops.

The equal emphasis on improving spelling, presentation and speed of working suggests that at least some of these students fit the picture painted by Lankshear and Knobel (2003): they are using everyday technology to circumvent problems of literacy, which for them are a product of dyslexia. Although a small minority use dictaphones, most do not feel the need to resort to specialist assistive hardware or software, even though they have been taught how to use the resources the College has to offer. The pattern challenges the perception that specialist technological solutions are necessary or desirable, at least for this sort of academically-orientated adolescent learner.

Being academically orientated, however, the students are conscious of the necessity of spelling well in their work, and are trying to do so. The fact that almost a fifth of respondents spontaneously cited the difficulty of interpreting text-speak as a drawback of that mode of communication, shows that texting has not liberated them from the vagaries of reading and writing. These findings parallel that of Lewis and Fabos (2005), who noted, with apparent surprise, the importance of spelling to the group of American 14-17 year-olds whose Instant Messaging practices they studied. Similarly, the criticisms of the frustrating and confusing College Ozone environment suggests that there is some way to go before students with dyslexia can feel comfortably at home in this sort of text-rich VLE (Woodfine *et al,* 2005, Williams, Jamali & Nicholas, 2006; Hughes 2007).

On the other hand, ICT can be seen to motivate a high proportion of respondents towards engaging in practices which demand and encourage literacy, despite being members of a group which has traditionally been marginalised by school literacies (LeCourt, 2001; Ofsted, 2009; Passey & Rogers, 2004). Instant messaging demands encoding, decoding, interpreting and analysing text, often whilst simultaneously 'dealing with' several ongoing conversations (Lewis & Fabos, 2005). Building a Facebook page and communicating with peers through it requires similar skills, in addition to a facility for images and icons. It also requires a degree of procedural knowledge – to *"learn all the links and what's where and such"* (Barden, 2009 p.18) - to create digital artefacts that work to support social knowledge construction and hence learning (Lankshear & Knobel, 2003), and to reinforce extended friendship networks (Green & Hannon, 2007; Ellison, Steinfeld & Lampe, 2007).

The College's prohibition of Facebook (and other social network sites), is probably the norm, and it has justifiable concerns about misuse and access to inappropriate content. Nevertheless, Facebook and other popular websites like YouTube have undeniable educational potential, and so the challenge for schools and colleges is to find a way of harnessing them which utilises students' strengths and preferences in visual and auditory learning. One option is to continue to rely on teachers to provide enough appropriate material. Perhaps preferable is to exploit the characteristics of ICT that students appear to value, and the expert 'insider' technological knowledge they possess. One way of doing so which has been successfully tried elsewhere (e.g. Lankshear & Bigum, 1999) is by asking them to collaborate in producing educational resources that combine research, video, audio and text which reflect the multimodal nature of both the online environment and learning itself. In doing so they could be communicating with peers and friends in various on- and offline ways, and developing literacy skills alongside technology skills, both of which are important cultural capital in education. The research reported here takes just such an approach.

2.1.2 The Classroom Setting

Figure 2 shows the physical setting in which the empirical investigation took place. It is the classroom in the College devoted to dyslexia workshops. It is large enough to accommodate groups of up to six students and a teacher comfortably. Tables and chairs can be moved to create flexible working arrangements. Student work and posters promoting positive messages about learning and dyslexia are displayed on the walls. Out of shot on the right hand side, underneath a large window looking out onto the outskirts of the town and the moorland beyond, are five networked desktop PCs. One of these is linked to an interactive whiteboard. A range of print and physical resources and for study skills and literacy development are also available in the room.

Figure 2: The classroom setting

2.1.3 The Participants

I here sketch brief pen portraits of the five participants to help contextualise the study. In accordance with the applicable ethics procedure, I informed them of my intention to anonymise their contributions. Several times over the duration of the project I asked them to give pseudonyms for me to use in this dissertation and in my conference presentations. The participants were unanimous and consistent in

wanting me to use their real names. I have respected that wish. I use only first names and the College remains anonymous.

Josh

Josh had some seniority within the group and emerged as something of a leader. He was the eldest, being one of the minority of students to study for three years at the College. This was necessitated by disappointing exam results one year. He projected an 'alternative' image, wearing lip and ear piercings, band t-shirts, skater shorts and retro oversize trainers. Funny, perceptive and articulate, he often dominated discussions and other members of the group tended to look to him for inspiration and ideas.

Charlotte

Charlotte was also outwardly 'alternative', with a wardrobe dominated by black and frequent changes of hair colour. Charlotte was chatty and friendly, and a conscientious student despite her apparently laid-back attitude. As a Graphic Art and Photography student, she was the most visually creative of the group and took the lead in designing and creating the group's final video. She was an enthusiastic Facebook and Blackberry user.

Danny

Danny was amiable but often quite quiet. He liked to make out that he was "stupid" but was actually very intelligent, though his historical problems with literacy made it difficult for him to think of himself as such. He could also be very funny when he wanted to be.

Chloe

Chloe was a diligent student. She had been confirmed as dyslexic shortly after arriving at the College, one year prior to the project beginning. Although she had long suspected she might be, her school had failed to act. Like the others, she engaged enthusiastically with the project. Like Charlotte, she was a prolific Facebook user.

Mohammed

Mohammed was only confirmed as dyslexic and recruited to the workshop group just as the project began. This made him something of an outsider even with this small group; the others had known about their dyslexia for much longer, and been together as a group for a few weeks prior to his arrival. He was still very much adjusting to the idea of being dyslexic. Although he willingly engaged with the project, dyslexia had a very poor reputation at the school he had arrived from, and this was reflected in his initially hostile response to being told he was dyslexic, and later in his generally reserved demeanour in project sessions.

2.1.4 Facebook

Facebook is an online social network. It is immensely popular, with over 687 million users worldwide. Despite some signs that its popularity is beginning to wane in early-adopter countries, the United Kingdom has the second largest number of users worldwide, after the United States, at 29.8 million, or 58% of the 54.1million people online (Arthur, 2011). Social network sites enable users to construct profiles based on personal information they are prepared to share with others and link with other users. They generally help users maintain existing networks, though can help strangers to meet through shared interests and perhaps joining groups. Their unique feature is not that they enable strangers to meet, but that they make visible social networks that would otherwise be invisible (boyd & Ellison, 2007). The use of social network sites is one of the most popular everyday activities on the world wide web (Stirling, 2011).

Facebook has been associated with students and student life since its inception by Harvard University students in 2003 (Kirkpatrick, 2011). Facebook enables users to post "status updates", short statements of current thoughts or activities. They can also upload various types of file including photographs, videos, and written documents. Hyperlinks to other websites can also be shared. Users can also send e-mail-like messages to each other, publicly or privately, and chat in real time. The

average user has around 130 Facebook "friends" and spends almost an hour a day on the site (Kirkpatrick, 2011). U.S College students spend on average over one hundred minutes a day on Facebook (Kessler, 2011). It thus has a significant presence in the day-to-day lives of many students, including my participants.

Part Two
Collecting and Analysing the Data

Chapter Three
Methodology of the Study

3.1 Introduction

In this chapter I set out and justify the approach I took to answering my research questions. Initially, the nature of 'education' and 'good' educational research are sketched to provide a backdrop for the discussion which follows. This discussion begins by considering an epistemological dilemma that researching online environments with teenagers currently poses. The nature of this dilemma and of the project itself are then used to justify both an overall design and a flexible and reflexive mixed-methods approach to data collection. Merits and limitations of each data collection method, and the advantages of combining data collected via different methods, are considered. The chapter closes with consideration of positionality, and sampling and ethical issues.

3.2 Philosophical and Epistemological Basis of the Methodology

There are a great many definitions of "educational research", and embedded in each are the criteria that denote "good" research. Typical adjectives employed include "systematic", "critical", "reflective" investigation or enquiry, aimed at contributing to the sum or advancement of knowledge. This knowledge must be of a particular sort: as part of his pragmatic educational research philosophy, Richard Pring (2000 p2) reminds us that the purpose of research is to "build up sufficient, well-tested bodies of knowledge to serve as guidelines for professional practice" in teaching. He goes on (p.13) to define "education", the subject of "educational research", as a stable process involving activities that bring about learning that is valued, worthwhile and that contributes to the development of the person, with the intervention of a teacher.

This last criterion involves a new and specific challenge when researching online environments. Lankshear and Knobel (2003 p52) declare that digitisation invites and "challenges us to develop new conceptual, belief and knowledge orientations

and approaches to our everyday worlds." The challenge and invitation arise because of the newness of the technologies involved, but *newness* is not the key factor here. Traditional views of education have tended to position the teacher as the expert, but we now have a "beta generation" of teens (Childnet International, 2008; also boyd, 2008a) for whom ICT is no more exotic than the telephone is to the generation of researchers studying them (Herring, 2004). This is the key factor. The traditional expert/learner or insider/outsider hierarchy has in many cases been unsettled, and so one task facing researchers is to investigate and develop understanding of the educative practices employed by "insiders" when they use ICT. Through understanding practices, the researcher should be to deduce the *principles* by which the students learn, as Gee (2007) has done with videogames. Teachers can then determine how to apply the principles pedagogically. Moreover, an emphasis on principles helps avoid the potential hazard of invoking traditional power dynamics via the co-optation of minority practices, which is likely to alienate the very people we are seeking to educate (Lankshear, 2003). Much educational research has been criticised for, amongst a host of other charges, being irrelevant and too context-specific (Oancea, 2005), but a principle-based approach has the potential to produce valuable, generalisable contributions to teaching knowledge and practice, and thus meet the overall aim of good educational research. It has this potential because principles are universal whereas practices are local. A further advantage of prioritising principles is that researchers and educators can avoid the allure and trap of simply chasing "the new", and utilising technology for its own sake (Tompsett, 2007).

In an article which is both a rationale and manifesto for developing new research literacies for new media, Helen Nixon (Nixon, 2003) acknowledges that there is uncertainty over methodology in this field. She argues that the uncertainty is due to newness and rates of change in new media, as well as to cost, practical and ethical barriers. Nevertheless, she echoes the clear call for "thick" descriptions, interpretations, analysis and theorising (Nixon, 2003 p.38, citing Mackey, 2003), for which traditional methodologies may not be adequate. This argument highlights the need for a pragmatic, multifaceted, multidisciplinary approach.

There is a sound philosophical as well as practical basis for adopting such an approach. Wittgenstein observed that categories were not necessarily sharply defined, and may share characteristics and resemblances (Dey, 2007). By extension, this is true of methodological categories. Moreover, Pring (2000) warns against drawing too sharp a distinction between the qualitative/quantitative, empirical/interpretivist traditions, arguing that such a distinction represents a philosophical trap in the form of false dualism, when in fact there is mutual dependency. For example, the 'reason' and 'objectivity' espoused by positivist-empiricists are themselves social constructs dependent on collective understanding. On the other hand, the differences in phenomenology of the mind explored by interpretivists depend on there being enduring, stable features of reality which are independent of us. An appropriate methodology thus needs to take account of both empiricism (through scientific observation, for example) and interpretivism (in the analysis of what is observed). Furthermore, a multidisciplinary, multifaceted approach would seem to chime with the way knowledge is often socially constructed online.

With its focus on attempting to deduce effects on and principles of learning through literacy in an online social network, two key concerns of this project were thus *what* the participants did in online social networks, and *why* they did things the way they did. The project sought to elicit, observe and analyse patterns of belief and behaviour amongst a cultural group (boyd & Ellison, 2007; O'Leary, 2004). An empirically-driven, qualitative, reflexive, experiential methodology capable of providing detailed description of attitudes, actions and behaviours was required. It needed to capture faithfully both literacy events (observable activities) and literacy practices (the conceptions underpinning experiences of the events). Issues of project design and methods are considered next.

3.3 My Research Methodology

In the preceding discussion, I have been attempting to prefigure what I feel is a strong argument that using a single methodological approach would not have been most effective in addressing the research problem. This belief led to an approach which was consequently pragmatic and not methodologically pure. The study was originally framed as a case study, but its interventional nature meant that it simultaneously embodied aspects of action research. Because it also entailed a degree of immersion in the project as a participant observer in the classroom, the study had an ethnographic texture (Green & Bloome, 1996). It could be argued that that these methodologies are mutually exclusive. Alternatively, it may be considered tautological to describe something as, for instance, both case study and action research, since all action research involves small-scale, specific interventions which could also be viewed as cases. In the previous section, I made my argument for adopting a reflexive, experiential, flexible methodological approach. Here, I assert that the three methodologies I have named share close family resemblances (Freebody, 2003). They all have a principally qualitative bent and are "empirically omnivorous" (op. cit. p.82; also Denzin & Lincoln, 2003), in that they lend themselves to data collection from a wide array of sources. Following from Wittgenstein, the similarities mean that the distinctions between them as methodological categories are not hard and fast (op.cit. p74). Increasingly, categories are being recognised as fluid (Schwandt, 2003) and that "inquiry methodology can no longer be treated as a set of universally applicable rules" (Lincoln & Guba, 2003 p.254). This means that for teacher-researchers, especially those like myself using constructivist-participative perspectives which seek to answer the call to results-based action, mixed methodologies may make "perfectly good sense" (op. cit p.266). Qualitative research is inherently multimethod and privileges no single methodological practice over another (Denzin & Lincoln, 2003). I therefore felt it was more useful to blend elements of the methodologies than restrict myself to one in my design. Below, I describe that overall design. Then, because the design embodies characteristics of each, case study, action research and classroom ethnography methodologies are outlined sequentially.

3.4 Project Design

In imagining and designing this study I took inspiration from a project designed and reported by Colin Lankshear and Michele Knobel (Lankshear & Knobel 2003, Ch.8). I felt that because of obvious similarities, the design they outlined could fruitfully be adapted to this study. Their project employed a strategy of "scaffolded co-construction" (p.180), with researchers, teachers, trainees, assistants and pupils collaborating in using ICT to complete a negotiated educational task. In this approach, the researcher takes the role of participant-observer. The researcher observes and documents the activity, acts as a knowledge and information resource when necessary, and monitors the expert/insider practices of the participants. Lankshear & Knobel hoped to "foment a pedagogical logic" (ibid) that would be adaptable to a wide range of educational settings. This study has a similar objective, reflected in supplementary research question (c).

Lankshear & Knobel's group agreed to produce a magazine about motorbikes because motorbikes were an area of interest for the four pupils participating. The pupils were selected partly because of their "problems with literacy" (p.182); again, there is a clear parallel with my own participants. For manageability and ease of access, I decided to recruit a similar number of student-participants and establish a topic of common interest amongst them. Initially, I felt that the A-Level subject of Psychology had potential as the topic, as it is studied by approximately one-quarter of students at the College, and thus has obvious educational application. The popularity of Psychology means that in any dyslexia workshop there is likely to be at least one student studying Psychology. Teachers and senior managers I spoke to at the College had already specified that the project must have clear links to the curriculum in order for them to fully cooperate. I planned to encourage my students to bring their pre-existing "funds of knowledge" (Moll, 1992; also Davies & Pahl, 2007: 119; Wellington, 2001 p.236) to the endeavour, and take the opportunity to link curriculum content to personal experiences, local knowledge and relevant artefacts of popular culture, such as songs, press articles and online videos.

Lankshear and Knobel (2003) familiarised their pupils via a “warm-up phase” (p.181) in which they interacted socially and got to know a variety of technologies. After this phase, they negotiated what they were going to do, and how. Similarly, in piloting the study, I recruited a small group of dyslexic and non-dyslexic A-Level Psychology students and encouraged them to collaborate in building a social network webpage. In the pilot, I attempted to use the Ning social network site as a basis for the students to develop a revision resource on the syllabus topic of phobias. I chose Ning for two reasons. Firstly, the College had justifiable concerns about letting students access Facebook, the social network they tend to use by choice, for the purposes of the project. Ning is a closed network, meaning membership of a network is by invitation only. This affords a large degree of control over both who participates and what and how they are permitted to contribute. I felt that this would help to allay some of the College’s fears. Secondly, I felt that by avoiding Facebook I could evade the potential hazard noted above: invoking traditional power dynamics via the co-optation of minority practices, and thereby alienating the very people I am seeking to educate (Lankshear, 2003). Although the pilot recruited enough participants to make the project viable, in practice it was impossible to get the students, who were dispersed across different Psychology classes and different dyslexia workshops, to agree and execute sufficient contributions, and ultimately no resource was created. Following discussion with some of the pilot participants and my supervisor, and further negotiation with the College Principal, I decided to use Facebook for the main project. My own survey in spring 2009 (Barden, 2009b) and informal discussions with my students indicated that Facebook was their preferred online social network, making it a logical choice on which to base my research.

After recruiting the sample in October 2010, we worked together to co-construct a Facebook page. I modelled my role on that described by Lankshear and Knobel, initiating the project and helping to set the direction and ensure progress was made. The students devised their own 'take' on the topic, set the groundrules for participation and decided what and how they would contribute. Prior to the

recruitment process, a general discussion about dyslexia and their experiences of it led to a realisation that members of the group had something in common, which has been the subject of little academic research (Herrington & Hunter-Carsch, 2001): they all felt themselves to be extra-sensitive to sensory stimulation, including light, sound and touch. One student, for example described how she found certain sounds like the whirring of overhead projectors incredibly distracting. The others described similar experiences, leading to one coining the phrase: "We're superhuman, we just can't spell." This became the name of the Facebook group and page. Rather than studying motorbikes, the participants decided to use Facebook to explore and record ideas around dyslexia, hypersensitivity to sensory stimuli, and the relationship between diversity, disability, being 'superhuman' and "Otherness", through reference to popular media superhero characters like the X-men (Lee & Kirby, 1963).

Having described the overall project design, as well as its philosophical and epistemological basis, I now consider the three methodological approaches most suited to my design, and justify the flexible and reflexive mixed-methods approach employed in my research.

3.4.1 Case study

Case study is one suitable design for this type of investigation: “We study a case when it itself is of very special interest” (Stake, 1995 p. xi). A case study can be defined as the detailed, intensive study of a single specific instance of an integrated, bounded system, such as a student, clique or class (Cohen *et al*, 2007; Luck *et al*, 2006; Stake, 1995; Yin, 1994). It is the study of a specimen, not the casting of a net (Runkel, 1990). This study embodied two fundamental features of ‘the case’; it focused on a particular student subgroup in a specific educational institution, and it sought to understand the behaviour patterns of that subgroup (Stake, 2003). My interest was both intrinsic and instrumental (ibid p.3). As a teacher-researcher interested in how dyslexic students use technology, and having

designed an intervention to investigate one particular use, I had an intrinsic interest in how much I could learn about this particular case. But my third research question goes beyond this one case. Because it sought to provide insight into a broader yet clearly delimited issue – deriving pedagogical principles from dyslexic teenagers' use of social networking - and hence begin theory-building, it could be described as an *instrumental* case study (Stake, 1995 & 2003).

Case study is a design into which pragmatic combinations of data-collection methods can be subsumed. In doing so, it goes beyond triangulation: it enables us to move beyond superficial explanation to a deeper experiential understanding connected to empathy and intentionality. 'Intentionality' here includes understanding the aims and purposes of the actors, the meanings of multimodal signs and symbols, and the significance of a temporarily instantiated social institution (Stake, 1995). There is a clear resonance with my research questions, which incorporate notions of motivation (aims and purposes) and identity (empathy).

Case study makes allowance for the complexities of real-life settings. The diverse methods employed in case study generate narrative, textual and numerical data. The volume and variety of data call for a systematic and rigorous approach to the study. Because of their depth and intensity, case studies are capable of providing exactly the sort of vivid, rich, "thick description" (Geertz, 1973) required of the participants' perceptions and uses of multimodal learning environments. Geertz's view is echoed by Flyvberg (2006), who, following Kuhn, declares that case study is crucial for developing understanding of phenomena, by providing exemplars which allow researchers to move from being novices to experts in the field under study. This sort of move would be necessary to enable deduction of the principles of meaning-making and hence learning operating in my students in an online social network.

Provision of a sufficient body of exemplars is one of the ways the conventional dismissal of case studies because of their perceived ungeneralisability can be

countered. Each case will be unique, but cases will be *similar*. Knowledge from one case may not be generalisable, but it may well be *transferable* (Morgan, 2007 p.72) to other settings, helping to generate more knowledge. This is one way of developing the bodies of knowledge Pring (2000) calls for. Bassey (1999) characterises this approach as "fuzzy generalisation" (p.12) and cautions that a "theory-seeking" case-study such as this one should produce "a worthwhile and convincing argument supporting a fuzzy generalisation…or fuzzy proposition" (ibid). My intended fuzzy "products" concerned notions of motivation and identity as well as the relevant principles of learning and pedagogy. Bassey dismisses Yin's (1993) positivist perspective on case study, dryly observing that "few evaluators in the UK would share his view that there is a 'single objective reality' to be investigated" (p.29). I used a similar perspective, choosing methods which would help give an emic slant to the project. According to Stake (2003 p144)"...the ethos of *interpretive* study, seeking out emic meanings held by people within the case is strong" and thus case study was relevant to my inquiry. It suited my emphasis on interpretation, using interpretation to arrive at assertions about the principles and practices at work (Stake, 1995).

This case study took an interventional approach. It therefore contradicts Stake (1995), who repeatedly insists that the case study researcher attempts to research a naturalistic setting – one that would have occurred had the researcher not been there - by not intervening in the case being researched. I created the case being researched. However, it is still a detailed, intensive study of an integrated, bounded system; a system of which I am a part. My participation in the case does not disqualify it as a case, just as a doctor's participation and writing-up of a patient's treatment does not negate the patient as a case. I am therefore still justified in calling my approach a case study.

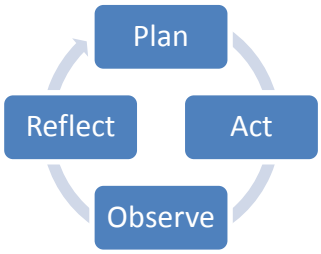
3.4.2 Action Research

As the study was interventional – I intervened in the students' education and use of technology to try and bring about enhancements to their learning – it also embodies some of the qualities of Action Research (McNiff, 1988). Action research is research undertaken with co-researchers, rather than research done to subjects (Atkinson & Hammersley, 1994). Its emphasis is on action which is undertaken to understand and improve some aspect of the co-researchers' lives. In this sense, it can be viewed as emancipatory. Freebody (2003) argues that action research is an advance on case study and ethnographic methodologies because whilst it incorporates their techniques, it moves beyond description by making deliberate attempts to improve education 'there and then', and later through subsequent iterations through the research spiral or cycle (p.83). This change often has a social justice agenda, and is defined in terms of improvements in curricular terms, as per my primary research question. The change is achieved through the aspiration to improve shared practices, and shared understanding of those practices.

Action research is systematic, reflexive, enquiry undertaken to rationalise, understand and improve practice (Carr & Kemmis, 1986). Originating in Kurt Lewin's 1940s work on industrial relations, the action research paradigm has been refined, particularly by Lawrence Stenhouse and later by Stephen Kemmis and Jack Whitehead, to give it particular relevance to educational settings (Koshy, 2010). Classroom action research is recognised as a distinct form of participatory action research (Kemmis & McTaggart, 2003). The emphasis is on teacher reflexivity and the teacher *as* researcher (as opposed to being the object of research).

Whitehead (1985, p.98) re-formulated the often-used action research cycle of:

Figure 3: Action Research Cycle



to a useful series of statements for addressing educational problems in a systematic way. Attending to these statements helps ensure that the research is itself educational – that it helps teachers make sense of their own practice. I list these statements below, together with how I interpreted them for this study:

1. I experience a problem when some of my educational values are denied in practice (my College does not value social networking technologies which seem to inspire dyslexic students to engage in literacy and learning.)
2. I imagine a solution to the problem (I envisage a co-constructed learning resource based on social networking technologies).
3. I implement the imagined solution (collaborating with the students).
4. I evaluate the outcome of my actions (through data analysis: the digital artefact, interviews, field notes etc).
5. I reformulate the problem (what mistakes did I make? What refinements would be useful? What were the unexpected outcomes, and what do they mean?)

Critics would argue that this project cannot be considered pure action research because it has not gone through all the necessary cycles and spirals depicted in the associated models. I counter this by saying that I envisaged the research reported in this dissertation as the beginning of a continuing project to improve pedagogy for students like the ones who participated here. My conclusions help justify the project as action research, as there were meaningful outcomes and improvements in learning practices for the participants (see Chapter 7).

3.4.3 Classroom Ethnography

Ethnography is a methodology which originated in anthropology and has since been used increasingly and diversely in educational research. Through focussing closely on small groups or individual institutions, whilst taking the wider cultural context into account, ethnography aims to develop richly detailed descriptions of the community under investigation. As with case study, generalisability can be addressed through comparability and translatability to similar scenarios (Cohen *et al,* 2007). Ethnography is essentially situational and observational. More specifically, ethnography seeks to observe and hence understand the behaviours and values of the participants. As such, it is an emic approach: the views, perceptions and sociocultural knowledge of the people studied are central to the endeavour (Burton & Bartlett, 2005). Yet as an inherently interpretive approach it is also reflexive and collaborative, with the researcher's developing understanding dependent on analytic rigour and self awareness, as well as on cooperation from the participants (Cohen *et al,* 2007).

Ethnography can be practical in two ways useful to this study: it can help to solve practical problems significant to the participants (Atkinson & Hammersley, 1994) - there is a clear overlap with action research here - and it can be used to generate grounded theory (Cohen *et al*, 2007). Ethnography can be used to generate grounded theory because it relies on first-hand observation over a long period of time. Participant observation is frequently used as method of gathering large amounts of varied multimodal data over the duration of the fieldwork. Because it requires the researcher to, to varying degrees, 'live the life' of the observed, participant observation is often characterised as 'immersion' in the field. Burton and Bartlett (2005 p.24) contend that "immersion is best achieved by teacher researchers, who understand the context of daily classroom interaction, and are aware of the complex social interaction that takes place."

Pertinent to this study, ethnographic approaches have been used to understand a variety of classroom and unofficial literacy practices, as well as how these are interwoven (Anderson, 2007; Dyson, 2008; Maybin 2007). Moreover, it has been

recognised as a means of deriving principles of pedagogy from the understanding of literacy practices among people who find literacy problematic:

> We learn...the importance of ethnographic attention to people's own meanings and practices - if people learn best by building on what they already know...then studying such practices and using them as a basis for androgogy and pedagogy provides a positive way forward to helping more to achieve. Such an account may also help to explain why so many underachieve.
>
> (Street & Baker, 2006 p.227)

Ann Haas Dyson (Dyson, 1997) used a classroom ethnography approach to study children's social and textual lives. Through an extended period in the field, and using methods of observation, fieldnotes, audio-recording of literacy events, interviews and documentary analysis, she built a detailed picture of (amongst other things) the children's official and unofficial literacy worlds. Coincidentally, the children in her study also wrote about superheroes: their class teacher used their interest in mainstream media superhero artefacts - cartoons, comics, trading cards, action figures and so on - to begin to foment a pedagogy of critical literacy that prepared the children to engage with mainstream curricular representations of heroes and heroic deeds, such as Greek mythology and black Civil Rights figures. She also charted significant impacts on the children's identities as they positioned themselves in response to, and relation to, the heroes they encountered.

Rosemary Anderson used classroom ethnography in her doctoral thesis (Anderson, 2007) to develop an understanding of the influence of reading on four dyslexic primary schoolchildren's sense of identity, and the consequences for future engagement with reading. Ethnographic methods also helped her to present her data in voice vignettes, which emphasise the perspective of the participants by faithfully reproducing their words, as do my transcripts. Although my study cannot be classified as a 'true' ethnography, I found it helpful to adopt an ethnographic sensibility and draw on ethnographic methods: collecting rich data through close observation, and trying to understand the context from both etic and emic perspectives.

3.5 Researcher Positionality

Interpretive researchers recognise that research is an interactive process shaped by their own personal histories, biographies, as well as their experiences of gender, class, and other social constructs, and by those of the participants and others in the setting (Denzin & Lincoln, 2003). On the one hand, this recognition helps to expose the fraudulence of the objective, disinterested "scientific method" (Medawar, 1963): "There is no such thing as value-free science" (Denzin & Lincoln, 2003: 8). On the other, parading the researcher's credentials can be interpreted as reinforcing social differentials of education, class and power which help define and exclude the participants as 'Other': exotica to be examined and explained by the researcher, who inevitably privileges their own values (Denzin & Lincoln, op. cit).

The issue of how qualitative researchers should - or should not - write themselves into the text is not resolved. Fine *et al* (2003) argue that self-absorption may take over, and hence shift the focus away from the researched and disproportionately onto the researcher. Moreover, they assert that writing oneself into the text is it is an inherently political act, reifying decisions about what and who is represented, how, and what is omitted or hidden. However, by this argument, omitting oneself from the text would also be a political act. Here I choose to sketch my experiences and values to enable readers to make their own interpretation of this dissertation and the project it describes.

It is not my intention to assert my superiority or authority over my participants, though it cannot be denied that I held a position of authority over them. Not only was I their teacher; they were unanimously impressed that I was studying for a Doctorate and were eager to participate in the project. I acknowledge that I may have subconsciously reinforced my status by, for example, choosing Obi-Wan Kenobi - a paternal, "wise-master" figure from the classic sci-fi movie Star Wars (Lucas, 1977) - as my profile picture for the project Facebook page. I also acknowledge that I bring my own life experiences and values to the project, and that these are embedded in its inception, design, execution, analysis, interpretation

and presentation. I am not dyslexic, and nor am I a teenager. My interest in this topic stems from ten years working as a teacher of dyslexic students in Further and Higher Education. A white middle-class 37-year old male, I believe I was served well by the English state education system. My involvement in dyslexia came about serendipitously, when a friend already working in the field suggested I might undertake some tutoring and in-class support for dyslexic students at my local Community College to help fund my way through the (unrelated) Master's degree I was working towards. From this starting point, I qualified first as a teacher in post-compulsory education, and then as a specialist teacher for dyslexic FE/HE students. This sequence of events led to my current teaching position at the College which is the research site for this project, where I have worked for just over five years. What initially captivated me and drove my commitment was the realisation that, unlike me, dyslexic students did not seem to be well-served by the English education system. They were, and still are, effectively excluded from much learning by curricula which privilege reading and writing. I wanted to contribute something towards addressing this injustice. Latterly, as discussed in my Literature Review, I have been intrigued and motivated by the technologically influenced shift towards other modes of acquiring and demonstrating learning, and the power-shift towards dyslexics it has the potential to stimulate.

I can trace my ontological position back to the time when I, like my project participants, was an A-level student. It was probably largely an act of teenage pretension to buy and attempt to read Bertrand Russell's "The Problems of Philosophy" (Russell, 1989) as a seventeen-year-old. Struck as I was by his clarity and eloquence, I did not have the intelligence or the perseverance to penetrate beyond the first few short chapters. The lectures at the beginning of the Doctorate in Education programme, summarising the broad positivist-interpretivist dichotomy, reminded me of the opening chapter of Russell's book, where he profoundly yet succinctly considers the fundamental nature of physical objects and our relationships to them. It was reading his explorations of questions such as whether the table he sat and wrote at could 'really' (whatever that meant) be said to have a true colour, shape, or texture, and his later exploration of the paradox

that the table could feel solid despite the fact that most of its constituent molecules were empty space, that first led me to question my own assumptions about my own values and what I now know to call positivism and empiricism. Returning recently to Russell's "Problems" I found that my perseverance and intelligence had not improved as much as I would have hoped. Nevertheless its premise, that it is only the subjective that can ever be truly known, is still the foundation of my ontological position.

Because I am not my students, and more so because I am not dyslexic, I will never truly understand what it is like to be them, how they develop strategies for navigating a literate society (Tanner, 2010) and how they perceive and use the affordances of multimodal online technologies like Facebook. I accept that although I have tried to use methods which would permit me entry into their lifeworlds, and attempted to present my findings from their perspective, any understanding I have gained is limited, and is that of an outsider. The interpretation is ultimately my own.

3.6 Sampling process

The five participants represent a sample of convenience, being a captive audience of students who were available and accessible at the time (Cohen, Manion & Morison, 2007). Had I not been doing this research, I would have taught them anyway. The College allocates students to dyslexia workshops solely according to where they have space in their timetable, introducing some element of chance. This means that in any one workshop of around five students, a mixture of year groups and academic programmes will be represented. The participants professed interest in the project, and represented a range of experiences and knowledge of dyslexia. They expressed a range of experiences, attitudes towards and purposes for online social networking. As A-level students and thus relatively high achieving academically, the sample is not representative of the population as whole. As dyslexics, they represent a minority within a minority. This must be taken into account when evaluating the findings.

3.7 Ethical Considerations

Some students participating were under 18 years old. All are legally classified as disabled. Both these factors mark them out as vulnerable and high-risk, according to the University's ethics policy. However, I could not conceive any serious risk of psychological or physical harm arising from the study. On the contrary, I thought that participating was something they would enjoy and benefit from. I have a decade's experience teaching and working with such students, and had previously conducted primary research both cross-college and with sample groups within this institution, with the ethical approval of both the University and senior College management. I used this experience to guide the conduct of the research. Through discussion, information sheets and consent forms, participants gave informed consent. They were made aware of their right of withdrawal. The parents of students under 18 gave informed consent.

The participants wanted their real first names used in this thesis, and I have done so, but the College remains anonymous. The relevant procedures recommended in the University's ethical review policy were followed to ensure freedom from risk or harm. Before starting, I warned the students that people might post hostile comments on their Facebook page. They were still unanimous in wanting to use the project as a vehicle for promoting better understanding of dyslexia amongst their peers, and so were willing to accept the risk. In the ground-rules they devised for themselves, they pledged not to retaliate to any such comments. Through regular verbal checking, I monitored students' well-being during the project lifetime. Students were also advised they could talk to trusted tutors if they had concerns about the project they did not want to discuss with me directly. They were given my supervisor's contact details. I assured them that any video or audio recordings I made for interviews or observation would be kept confidential and stored securely, and that no-one other than myself would see or hear them without their consent.

The impact of the study on student's curriculum attainments had to be considered, to eliminate any negative effects of participating in the project. This is why the

study was 'paused' after the initial data-collection period, allowing the participants to focus on their January exams. Following consultation with the participants and the College Principal, it was deemed that any short term detrimental impact for these students would be balanced by the potential for long-term gains for students at the College, both dyslexic and non-dyslexic.

Chapter Four
Methods of Data Collection

4.1 Introduction

My design involved co-creating a digitally-mediated social network and recording how the students engaged with and learned from it. Consequently, I needed to choose methods which would help me gain insight into the participants' literacy practices in and around the network. I needed a combination of methods with the potential to capture the complexity of the setting, and which could also offer validity and authenticity. I chose to use a combination of classroom observation, interviews, protocol analysis, video recording and dynamic screen capture to gather data which would help me develop an understanding of the flows (Barton, 2011) of events, practices and ideas that took place. Q-Sort was also used as a method of gaining further insight into the participants' self-perceptions. In this chapter, I outline and justify my mixed-methods approach, and describe each method used.

To recap: I modelled my design on that outlined by Lankshear & Knobel (2003), employing a strategy of "scaffolded co-construction" with my participants, using ICT to complete a negotiated educational task. My role was as participant-observer, documenting activity, acting as a knowledge and information source when requested, and monitoring the expert/insider practices of the participants. Lankshear & Knobel (2003) hoped to "foment a pedagogical logic" (p.180) that could be transferred to other educational settings. This study had a similar objective, reflected in supplementary question (c). I therefore chose a similar combination of methods to Lankshear and Knobel, mixing methods to help me gain insight into the participants' literacy practices and ultimately reveal the pedagogical principles their practices evoked.

4.2 Using mixed-methods

"Mixed-methods" is a relatively new and developing approach (Tashkkori and Creswell, 2008) which recognises the futility of dogmatic, paradigmatic wars and attempts to reconcile the old dualisms inherent in them (Morgan, 2007). It respects and aims to retain the advantages of each tradition, whilst trying to overcome some of the weaknesses of each. Its proponents argue that investigators need to utilise all possible methods from multiple perspectives (Creswell and Tashkkori, 2007) in order to advance knowledge as far as we can. A major practical advantage for researchers is that they can use this undogmatic approach to justify creative methodology and a bespoke mix of design components which are most fit for the purpose of answering their research question (Burke Johnson & Onwuegbuzie, 2004; Tashkkori and Creswell, 2007). As such, it is an explicitly pragmatic, flexible, reflexive (Morgan, 2007), multidisciplinary approach with a respectable philosophico-educational heritage reaching back to the work of John Dewey and beyond (Greene, 2008). Its potential is not limited to mere triangulation or corroboration, but extends to enhancing our ability to develop an in-depth understanding of phenomena (Denzin & Lincoln, 2003) in a complex multidimensional reality - what Mason (2006 p.12) calls the "heart and soul" of lived experience. The logic goes that as lived experience transcends and traverses social-science dualisms, so should methods. The approach also tackles the "fraud" of the "scientific method" (Medawar, 1963) by admitting that researchers will inevitably oscillate between the two positions through the process of their inquiry. I turn now to the mix of quantitative and qualitative methods that I used to address my research problem: interview, observation, dynamic screen capture, protocol analysis and Q-sort.

4.3 Data Collection Methods Used in this Study

4.3.1 Interviews

Interviews are planned social encounters which recognise that knowledge is generated by humans, often in conversation (Cohen *et al*, 2007). These planned conversations offer the opportunity to discuss interpretations of events and phenomena and to express points of view, with the object of gathering data which will have a direct bearing on the research question. They are capable of providing rich data and thick description. A further strength is that interviews can readily be mixed with other data collection methods for corroboration, triangulation, or to try and represent as full a picture as possible of the experience. Interviews are also powerful because they are a "potential means of pure information transfer" (Cohen *et al,* 2007 p349) provided the interviewer is skilled enough to elicit the required responses, avoid bias, and analyse the data thoroughly and faithfully. I therefore felt that well-conducted interviews with my participants were a potentially valuable method of gaining insight into both literacy events and literacy practices.

Various researchers have employed interviews in online, multimodal environments of the kind I investigated. In their recent national report on children and young people's use of technology for learning outside the classroom Green & Hannon (2007) used a combination of expert interviews, interviews with children and youths, and polling of parent opinions, together with other data collection methods such as diaries. Of course, dealing with such substantial quantities of data calls for a sizeable, skilled research team, rendering such large-scale investigations virtually impossible for individual researchers. However, interviews can be usefully employed on the smaller scale. Lewis & Fabos (2005), for example, used interviews as the cornerstone of an empirical, qualitatively driven, reflexive methodology in their study of teen use of Instant Messaging (IM). Like Green and Hannon (2007) they used different interview strategies, including audio and video recordings, so that the methods used were aligned closely to the informants and their preferences as well as the data required, and not just researcher ontological-epistemological-theoretical positions. I conducted two semi-structured interviews with the

participants, at the beginning and end of the project, in addition to the unstructured 'protocol analysis' described below. Interviews were initially transcribed using Dragon Naturally Speaking™ software, then checked and amended for accuracy by myself.[3]

Of course, no one method is perfect, and so it is desirable to mix interviews with other data collection methods. By combining interview data with other sources such as observation and screen-capture, some of the flaws in interviewing can be overcome, though of course at the cost of complexity. Faux (2005), for instance, achieved as a teacher-researcher both admirable teaching and learning outcomes and enviable insight into the learning processes of the individuals in her triad of secondary school SEN students (including one with dyslexia) creating multimedia stories. She combined a range of qualitative methods, culminating in semi-structured student interviews.

4.3.2 Participant Observation

Different ways of understanding are made possible by different types of observation. According to Cohen, Manion and Morrison (2007, p.404), the type known as "participant observation", where the observer is involved with but remains essentially outside the group, is a useful method in exactly the kind of teacher-researcher, small-group study I conducted. Participant observation is a long-established method for the study of small, relatively homogenous groups, which recognises that the observer and observed are not entirely separate categories and work together to co-produce knowledge (Tedlock, 2003). Participant-observation is thus a method which fits with my desire to bring an ethnographic texture and constructivist sensibility to the project. Cohen *et al* go on

[3] Ironically, there is an extent to which Dragon embodies my argument that mainstream, free technologies are replacing specialist ones. Dragon Naturally Speaking is voice recognition software which automatically transcribes audio into a wordprocessed document. It is widely used by people with dyslexia. However, it soon risks obsolescence: Windows Vista and later operating systems have a speech recognition engine built in; Google is introducing voice recognition to caption YouTube videos and to control Android smartphones, including the ability to dictate text messages and e-mail (Lukes, 2010).

to explain (op.cit, p.405) how immersion in a particular context over time facilitates a holistic view of the interrelationships of factors and thick descriptions of particular social processes and interactions, which lend themselves to accurate explanation and interpretations of events, rather than relying on the researcher's own inferences. This "thickness" derives from the combination of data types that may be observed and recorded: verbal and non-verbal communications; descriptions; time and timing of events; the observer's categorised comments and detailed contextual data. A further advantage of observation is that, owing to the long period the researcher spends with the participants, reactivity effects, as reported by Lewis & Fabos in their study of teen Instant Messaging (Lewis & Fabos, 2005), may be reduced – the behaviours seen are likely to be fairly natural (Lankshear & Knobel, 2004). The data are "strong on reality" (Cohen *et al*, 2007).

In this study I used semi-structured observation (Lankshear & Knobel, 2004; O'Leary, 2004) of participants in five of their timetabled dyslexia workshop sessions, primarily focussing on patterns of work and activity: time spent on tasks, on- and offline interactions with others, contributions to the project task *et cetera.* I also observed the informal progress meetings which took place at the beginning of each session, as the discussion and interaction taking place were likely to reveal much about the participants, their preferences and so on. I wrote my observation notes using structured sheets derived from Burton & Bartlett's (2005 p.135) "Small Group Scan" proforma, which they assert are of a type widely used by a range of researchers for some time. On these sheets were tables, with one column per participant plus another column for my initial analytic coding. I colour-coded the participants' entries, as I did with all my written data, to help me trace their contributions to the project across the various data types. My observation method was to systematically scan the classroom at five-minute intervals (as far as the ongoing activity permitted) and record the actions of each participant. These notes were then written up and augmented with observations from video recordings, and used as the basis for grounded theory coding and analysis. An example can be found in Appendix B.

4.3.3. Observation via video recordings

Coincidental with (re-)emergence of the image as a mode of meaning-making is an increasing realisation that visual methodologies have so far been neglected in educational research. Flewitt (2006) is critical of large-scale observational studies of young children's classroom behaviour which have over-emphasised spoken language because of dubious epistemological and methodological assumptions. She goes on to make the case that communication and learning tend to be multimodal, including speech, movement, gesture as well as reading and writing, and promotes the use of video – which we can conceive of as a specific sort of observation – as a way of highlighting the interdependence and dynamics of numerous semiotic modes, as well as the influence of environment and context. Pahl (2007) argues that by capturing evidence of the practices and events that informed texts, teachers could understand them better and then extend and explore that understanding in the classroom; this echoes my quest to work to deduce the principles by which my students learn in order to be able to apply them.

Both Flewitt and Pahl make the case that although communication and learning tend to be multimodal, visual methodologies have so far been neglected in educational research. For capturing literacy events and thus developing a base for inquiring into literacy practices, using video as a form of observation seemed attractive for this project, but there were ethical considerations and the issue of data management and analysis to weigh. For example, Cohen *et al* (2007) caution that although recording interviews enhances accuracy, as perceived surveillance it may be constraining. The legitimacy of this warning may be questioned in educational and online environments, and indeed wider society, where high levels of surveillance are increasingly the norm (another aspect of technology today's youth has grown up with).

With the consent of the participants, I made video recordings of all five of the workshop sessions during which they were engaged in the project. As a teacher-researcher and participant-observer, it would have been impossible to capture

much of the multimodal complexity of what went on in my classroom during the project sessions without video. Using video enabled me to record events in much more detail, and then review, transcribe and analyse them thoroughly. By augmenting my participant-observer's notes (see above) with video observation I was able to meticulously construct accurate transcripts. Colour-coding participants' utterances and actions again helped me trace their contributions through the whole corpus of data. This makes my analysis more complete and reliable. Repeated observation also encouraged me to review my initial analytic coding (see above and Chapter 5). A sample transcript is provided in Appendix C.

4.3.4 Dynamic Screen Capture

Video recordings comprised one strand of visual data I collected. The second strand involved using screen-capture technology to record – with their permission – the students' on-screen actions during two of the project sessions. Cox (2007) points out that recorded learner-system interactions (which might include time spent on the system, switches between programmes, responses to presented problems, and so on) are one of three types of "process" data that can be readily captured. He argues that careful analysis of such data can reveal the fine detail of, and deep insights into, an individual's learning trajectory as well as differences between learners. He also points out that this data can complement that from other sources. These qualities made such data suitable for this study, where a high level of detail was required. Cox claims that the combined use of video and screen capture has helped reveal reasoning skills (i.e. 'soft', cross-curricular, knowledge-economy skills) in some students, which may have otherwise been missed.

In this study, I obtained dynamic screen capture data using *Wink™*[4] software. Wink™ records on-screen actions such as mouse movements, switches between windows and programmes and so on. It then renders the recordings as Adobe™ Flash™ movies which can then be replayed on a computer- in Internet Explorer, for

[4] A shareware application available on the College PC network

example - for analysis. Using this method is way of responding to the challenge of "capturing the way things unfold in real time" (Heller, 2011 p.40). As I was making lengthy recordings – over an hour – I set the capture rate to one frame every fifteen seconds. Approximately an hour's worth of activity was thus rendered as a few minutes of video. This was partly to keep the file sizes manageable[5], and partly to enable the participants to give a retrospective verbal report summarising their actions quickly and efficiently. I analysed this data myself, using methods discussed in detail in the next chapter. I also used selected data as the basis for "protocol analysis" with the participants. Protocol analysis is explained in the next section of this chapter.

Lewis & Fabos (2005) attempted to circumvent the ethical-surveillance issues inherent in using visual methods for protocol analysis by pointing the camera at the screen rather than faces, and then getting the students to explain their actions and choices. Their approach produced rich and complex data, with useful insights into the participants' thought processes. A significant disadvantage was that the protocol analysis had considerable impact on the observed activity: "The sessions sometimes felt more like interviews that involved demonstration than they did authentic IM sessions" (Lewis & Fabos, 2005 p.479). I avoided this problem by recording the events and then asking for the explanations afterwards, so that the students could work more naturally without having to explain their choices and actions at the same time. I was also helped by the fact that Wink does not need a camera, and can operate unobtrusively and almost invisibly to the student: reactivity affects are minimal and the data are again "strong on reality."

[5] Wink evidenced an unfortunate tendency to crash when attempting to render larger files, resulting in some loss of irreplaceable data

4.3.5 Protocol Analysis

I include discussion of protocol analysis here because despite its name it is a widely used method of *obtaining* data on cognitive processes (Ericsson & Simon, 1993). It involves elicitng verbal reports of participants' thought processes as they complete tasks. It has been used in studies of education, decision-making, text comprehension and writing. According to its originators, Ericsson & Simon (1993 p.xi) it is "a standard method of research in the study of learning disabilities." Dyslexia is frequently classified as a learning disability (under UK law for example: Disability and Discrimination Act Pt4, 1995), although many would contest the notion that it is a disability (Ehardt 2008, West, 1997 & 2009).

All the topics listed by Ericsson & Simon (1993) are pertinent to this study, and so I felt justified in using the technique to try and gain insight into the processes underlying my participants' literacy practices. Protocol analysis has been used to enable researchers to, for example, extract rules used by English students to summarise texts. These rules remained inaccessible in ordinary interviews (Brown & DY, 1983, cited in Ericsson & Simon, 1993). This is one instance of protocol analysis being used to generate models of how "experts" in a given field perform specific tasks. Such protocol analyses have shown that experts act and think in structurally different ways to novices when completing tasks. As teenagers are often positioned as experts in the use of online social networks, the method again seemed to offer potential insights for this study. As mentioned above, Lewis and Fabos (2005) obtained complex and rich data on young people's cognitive processes relating to literacy practices and identity in their use of online Instant Messaging using protocol analysis.

Protocol analysis was also an emic way of conducting an artefact analysis of the Facebook page constructed by the students. They constructed this page to record and explore ideas around dyslexia, difference and 'being superhuman'. They recorded their research findings, linked to other web pages, and discussed their work with each other and 'friends' outside the group. In doing so, they created a digital artefact. Embedded in this artefact were facts - things they had found out -

as well as representations of self and communicative acts. Protocol analysis helped derive the meanings embedded and communicated in the Facebook page, as this method lends itself well to images, and combinations of images and text (Kress, 1998). Comparing this analysis with those from the other data subsets again contributes to authenticity of emic representation of the participants' understandings, and to the fit and relevance of the theory generated.

To obtain verbal reports from the students on their thought processes and actions I used a script modified from the one provided by Ericsson and Simon (1993, Appendix; see my Appendix D) to better take account of the research context. I played the Wink recordings back to each participant, and used the script and prompts to obtain retrospective verbal reports from them. I made audio recordings of the participants' verbal reports, and then transcribed them using the same method as I did for the interviews. Two examples are presented in Chapter Six.

Because the participants' accounts had to be given individually, and because of the Christmas holidays and January exams, I had to obtain the verbal reports about six weeks after the events they describe. The method thus meant participants had to select and retrieve the relevant information from long-term memory and sequence it into a series of verbalisations to respond. Such retrospective reports are unavoidably incomplete. Attenuating memory will reduce the completeness and accuracy, and hence validity, of the verbal report. The fact that the Wink recordings provided selective summaries of participants' actions further reduces completeness and accuracy. There is also the potential for the script and prompts themselves to influence the participant's cognitive processes. Asking respondents to give reasons and explanations is also likely to result in inference, elaboration and speculation, however honest they try to be. I tried to avoid these problems by limiting myself to minimal prompts such as "Please keep talking" when the participant fell silent or seemed unsure of what to say.

Despite their limitations, retrospective verbal reports efficiently provide unique information about knowledge and experience which cannot easily be accessed by more traditional observation methods. Using protocol analysis with dynamic screen capture in the classroom is not a data collection method I have encountered in the literature reviewed for this study, and may represent a useful tool for future research in screen-based online environments.

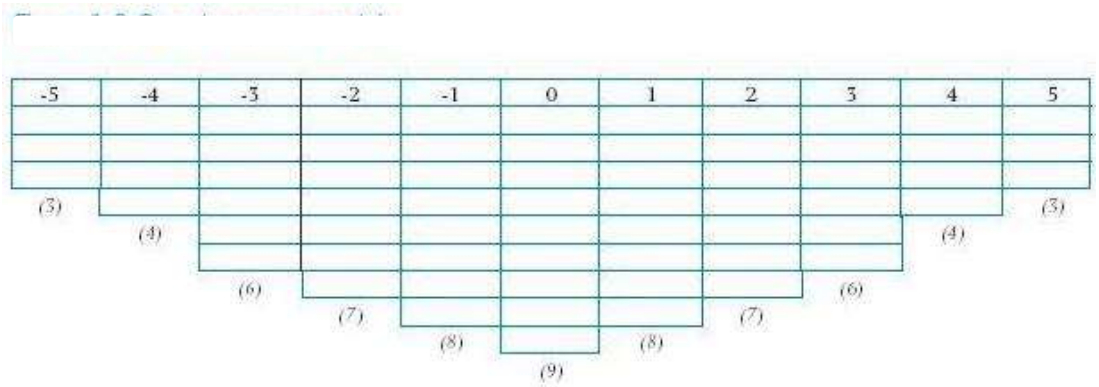
4.3.6 Q-Sort

Shortly after recruiting my participants but before we began the project and I started collecting data, I was approached by another doctoral student from the University of Sheffield's Psychology EdD programme. He was looking for research participants for his own study (Hughes, 2011). Hughes was using Q-sort methodology to examine children and young peoples' perceptions of their experiences of being researchers. As my participants were conducting their own research into dyslexia, I felt that they would also be suitable for his study, and they agreed to take part. Hughes came to the College one day and had both the students and myself complete Q-sorts. He analysed the results and produced reports which he shared with us.

Q-sort methodology was originated by the psychologist William Stephenson as a deliberate counter to the shortcomings he saw in the dominant logical hypothetico-deductive approach to psychology. Q-sort is a constructivist approach which seeks to 'discover' things about people, rather than test hypotheses (Watts & Stenner, 2005). It is a systematic way of studying viewpoints, opinions, beliefs, attitude, and the like (Van Excel, 2005). The results of a Q-sort can be used to describe the characteristics of a range of viewpoints, rather than a population of people. Q –sort can be thus very helpful in exploring such things as belief, preferences, and motives and goals, all of which are aspects of identity which are relevant to my own study.

Q-sort is a two stage process. In the first stage, participants rank a carefully worded and selected set of statements into a quasi-normal distribution. That is, a small number of statements with which the participant agrees most strongly are placed at the right-hand extreme of the sort. A small number of statements with which the participant most strongly disagrees are placed at the left-hand extreme. The majority of statements, towards which the participant feels varying degrees of neutrality, are placed somewhere in the middle, as illustrated in Figure 4. Watts & Stenner (2005 p.69) view Q-sort as "a dynamic medium through which subjectivity can be expressed", and not merely as a passive ranking exercise.

Figure 4: Q-sort response matrix (Meredith, Haslum & Lewis, 2006 [online])



In the second stage, the sorts are subjected to a statistical pattern-analysis, called by-person factor analysis. This statistical analysis objectively identifies groups of participants who make sense of the set of statements in similar ways.

Having an independent researcher use statistical methods to explore my participants' views of themselves as researchers on my project adds a degree of objectivity and additional depth to inform my own analysis.

Chapter Five
Methods of Data Analysis

5.1 Introduction: Constructing a Credible Analysis

In the preceding chapter I described my methods for collecting data. Here, I give an account of my methods of analysing the data, before presenting my analysis and interpretation. My guiding principle for analysis and interpretation was to systematically scrutinise the data, using rigorous and reflexive methods to construct a credible analysis (Charmaz, 2006).

According to Silverman (2006), qualitative social science research can only gain credibility through rigour and transparency. Claims to knowledge must be supported by intimate understanding of, and insight into, the data. Immediacy and authenticity are not sufficient to achieve plausibility because they lay studies open to charges of anecdotalism and theorising based on prejudiced data selection and exoticism. By this Silverman means choosing to analyse striking or dramatic data at the expense of data which is perhaps mundane yet more representative (op.cit p.278). He also states that it is unacceptable to rely purely on participants' or researchers' unexamined and partial explanations of the events observed and described. Reflexivity is thus also crucial.

I am elucidating my methods of analysis, influenced by Silverman's (2006) position: like their quantitative counterparts, qualitative researchers must analyse and present their data in ways which ensure their accounts are full, faithful, legitimate and plausible. Silverman argues that this can be achieved through transparency in the description of data analysis methods, and transparency of researchers' theoretical stance and interpretation of the data. I have laid out different aspects of my overall theoretical stance in Chapters One, Three and Four. In this chapter, I lay out my stance on analysing and interpreting my data. I recognise that my own values and approach will have shaped my analysis (Greenbank, 2003), and so

attempt to add transparency by including examples of my interpretation alongside the data itself in the next chapter.

Silverman (2006) is not satisfied by researchers who make claims to knowledge after simply "hanging out with the tribe and returning with 'authentic' accounts of the field" (p.290). This is partly because neither researchers nor participants necessarily have a privileged or complete understanding of their own actions or the events they are involved in. Credible analyses must protect against preconceptions, bias and misunderstandings on the part of those involved.

In this context, the concept of triangulation to support the analysis becomes problematic; it may not be possible to aggregate data from different sources to arrive at an overall 'truth', because of the subjective nature of qualitative research and the situated character of action (p.292). For Silverman, defensible claims to knowledge are not achieved through triangulation or respondent validation but by using data analysis methods which add rigour, depth and complexity by simultaneously illustrating multiple perspectives on events in a given situated context. Rather than gaining a simple, 'true' picture, as we might by looking at a sequence of architect's drawings of different elevations of a building, we attempt to produce a more Cubist representation of the world: refracted, multifaceted and complex. Silverman draws on notions from grounded theory to outline methods for validating qualitative studies. I now discuss how and why I adopted a grounded theory approach for analysing the data collected for this study.

5.2 A Grounded Theory Approach to Data Analysis

The project generated a considerable quantity and variety of data, summarised in Table 2.

Table 2: Types and Volume of Data Generated

Data Type	Number of Instances	Volume of Data	
		Duration (mins)	Words
Initial Interviews	5	130	19722
Second interviews	5	104	16615
Observation notes[6]	5	n/a	11055
Video recordings	5	356	n/a
Video transcripts	10	n/a	11687
Wink recordings	10	20	n/a
Protocol analysis	7	n/a	1155
Q-sort	1	n/a	11333

The relatively short lifespan of the research project - constrained as it was by the Christmas holidays and then the need for the students to focus on their A2 and AS exams - meant that data saturation (Charmaz, 2006) was not achieved. However, the volume and variety of data generated was sufficient to capture much of the rich complexity of what went on in the classroom during the life of the Superhumans research project.

The different species of data required several methods of qualitative, and some quantitative, analysis. As discussed previously, a principal focus of the study is what the participants did with an online social network, why they did those things, and why they did those things in the ways they chose to do them. As a theory-seeking rather than theory-testing case study (Bassey, 1999), it was appropriate to take a grounded theory (Glaser & Strauss, 1967) approach to data analysis, identifying and

[6] This refers to contemporaneous fieldnotes later augmented by video observation. See Appendix C for an example

coding emergent patterns of behaviour, learning, identity, motivation and so on, as embodied in the various forms of data. These codes were then used as the basis for building a theory of the affordances of the Facebook social network for the participants.

5.2.1 How a Grounded Theory Approach Fits with this Study

Grounded theory is an inductive, pragmatist, flexible methodology which uses incoming data to generate or elaborate theory (Strauss & Corbin, 1994). It fits well with the constructivist paradigm used in this study: in the constructivist paradigm "Findings are usually presented in terms of the criteria of grounded theory or pattern theories" (Denzin & Lincoln, 2003 p.22). An emphasis on the development of theory is one of the major distinguishing features of the approach, and this, together with its flexibility, ensures a good fit with my theory-seeking design.

Exponents of "classic" grounded theory may reject attempts to combine grounded theory methodology with other methodologies or paradigms. Holton (2007 p.267), for example, dismisses such attempts as "frequently falling short." Others maintain that different approaches may have something to learn from one another. Freebody (2003 p.88) contends that the rigor of the grounded theory method can help to counter the criticism that case study, action research and ethnography are too frequently "analytically light." This rigor, and staying close to the data, enables grounded theorists to claim good fit and relevance for the theories they construct to explain the empirical world.

Continuous, repetitive interpretation and classification of data is typical of case study work (Stake, 2003). Dick (2007) argues that as generating theory and conducting research are two parts of the same process, grounded theory also shows good fit with the tenets of action research. He notes that the literature on action research almost invariably lacks detail on *how* theory is to be developed from the observation of, and reflection on, action. He cites a number of PhD

students he has supervised who have turned to grounded theory analysis within action research studies because the action research literature simply does not explain how to analyse data. Using grounded theory methods can thus make the theory building process more transparent and hence add rigour.

Grounded theory, for its part, tends to ignore issues of participation and its proponents can even be critical of the emic approach (Morse, 1998 & Charmaz, 2005: both cited in Dick, 2007: 406); this seems ontologically dubious when the purpose of an inquiry is to understand a social process from the perspective of the actors concerned. An emic theory may not be a perfect fit for the experiences of the actors, but the rigour of grounded theory means a close fit is likely - probably closer and with greater verisimilitude than would be obtained by a deliberately etic approach. Dick (2007) contends that the collaboration and sharing of views which is central to action research increases diversity in the data and adds accuracy and rigour by protecting against the researcher's preconceptions. Protecting against the influence of preconceptions was one of the major concerns of Glaser and Strauss (1967) as they 'discovered' grounded theory.

Timmermans and Tavory (2007) adopt a similar view, although their concern is ethnography. They point out that the roots of grounded theory are in ethnography; that both share pragmatist, symbolic-interactionist ancestry, privileging the idea that actions carry meanings; and that both study people doing things together to trace how identities develop. Timmermans and Tavory thus identify methodological and theoretical fit between grounded theory and ethnography. For them, the advantage of combining the approaches is that the rigour of grounded theory can address the criticism that ethnography is analytically and conceptually light. It does this by giving researchers explicit instructions on how to move beyond detailed description of the setting towards developing theoretical explanations of the actions and interactions, the events and processes, which form the basis of much social science research. Of course, ethnographers give credence to the knowledge people use to guide their actions, and ethnography is inherently emic, striving to understand how people behave, think and make meaning. Through its iterative

analysis, grounded theory seeks to abstract theories of meaning-making from the data; Timmermans and Tavory caution against abstracting or conceptualising "to a degree which obliterates the singularity of, and what is captivating about, the site" (p506). This implies that constructing substantive grounded theory is appropriate to a study such as this, which uses some ethnographic methods for data collection and a grounded theory approach for data analysis.

5.2.2 Substantive Grounded Theory: Theory in Context

In tune with the ideological model of literacy, grounded theory recognises that knowledge is linked closely with time and space - i.e. is situated - and hence aims to produce theories which are both substantive and fluid. 'Substantive' means that they relate to research in a specific discipline, field or setting. 'Fluid' means they remain systematic statements of plausible relationships (Strauss & Corbin, 1994 p. 279), but that they are open to adaptation by other disciplines, and to translation to formal or general theory. There is thus some claim to predictability, with the argument being that similar conditions should lead to approximately similar consequences (p.278). I see this as analogous to Bassey's (1999) conceptualisations of 'fuzzy generalisations' and 'fuzzy propositions' for case studies, discussed in Chapter 3. It also takes account of Timmermans and Tavory's (2007) warning not to over-abstract from the data.

A further justification for adopting this approach is that grounded theory methodology helps us to analyse and respond to change, including political, ideological and technological change (Charmaz, 2006). The analysis requires close examination and constant comparison of the data and the continual asking of generative questions: questions which help to illuminate patterns and processes. There is a clear correspondence here with my aim of discovering *what* the participants do in an online social network, and *why* they do things the way they do. This type of questioning also helps to address fundamental questions of power, which are again central to this study (see Sections 1.1.3, 1.2.3 & 1.3):

> Grounded theory procedures force us to ask, for example: What is power in this situation and under specified conditions? How is it manifested, by whom, when, where, how, with what consequences (and for whom or what)?
>
> (Strauss & Corbin, 1994 p.279)

Grounded theory is a contested term (Charmaz, 2003). Since its 'discovery' in 1967 (Glaser & Strauss, 1967), researchers have adopted different interpretations of both strategy and methods which reflect their epistemological beliefs. Grounded theory has its epistemological roots in the Chicago school of Pragmatism and in Blumer's work on symbolic interactionism (Robrecht, 1995). As such, it recognises that knowledge is created by action and interaction, with people responding to their environment in ways determined by the symbolic meanings of the concepts and objects they encounter. Problematic situations where people cannot act automatically are held to be particularly fertile for generating new knowledge. Pragmatism also rejects the idea of person-group duality, arguing that individuals achieve understanding in part through socialisation and inherited perspectives (Corbin & Strauss, 2008). There are clear antecedents here of knowledge being recognised as both situated and constructed. The situated nature of practice, which is knowledge enacted, is an idea central to the theoretical framework of the New Literacy Studies. Constructivism is an influential epistemology in understanding online environments, where the social co-creation of knowledge is frequently and publicly laid bare. As well as fitting with the study's design, grounded theory thus helps locate this study of emergent practices in a tradition of thought extant for almost a century. I combined these theoretical strands when integrating my final theoretical framework. This process is described below in Section 5.4.6. The theory itself is presented in the concluding chapter.

5.3 Constructivist Grounded Theory

In this study, I have adopted Charmaz's (2006) variation on grounded theory to frame my analysis: Constructivist grounded theory. This approach is reflexive and pragmatic rather than prescriptive. Reflexivity means recognising "that the viewer creates the data and ensuing analysis through interaction with the observed" (p.273), and being sensitive to one's own influence on the participants and the analysis. Constructivist grounded theory holds that reality is temporally, culturally and structurally situated. It recognises that there are multiple realities, and the mutual creation of knowledge. This recognition is manifest in my project design. Constructivist grounded theory thus seeks to elucidate respondents' and researchers' meanings through closely examining views and values, beliefs and ideologies as well as acts, facts and artefacts. There is a clear parallel here with the literacy events/practices conceptual dualism of the New Literacy Studies. Constructivist grounded theory attempts to give opportunities for participants to tell their stories in their own terms and to clarify their perceptions of their own lived experiences. In this sense, it is emic and ethnographic. Authenticity is sought, as opposed to positivist notions of validity. Indeed, Charmaz (2006) rejects the concept of validity, yet her methods for attaining 'authenticity' are so similar to those Silverman (2006) advocates for attaining 'validity' that this debate risks being reduced to the level of semantics. Nevertheless, both insist on the systematic and rigorous application of strategies for the collection and analysis of data. I now go on to illustrate the systematic, rigorous methods and processes used for data analysis in this study.

5.4 Methods and Processes of Data Analysis

Grounded theory strategies for the collection and analysis of data, as used in this study, can be summarised as follows. They draw principally on the work of Charmaz (2003 & 2006) and Corbin & Strauss (2008). For clarity, they are presented as a list, but it should be understood that the process of constructing a grounded theory analysis is not a neat sequence. The process is actually characterised by oscillations

between the different types of data, and between the data and the emerging theory being constructed to try and explain that data:

a) Simultaneous collection and analysis of data
b) A three-step data-coding process
c) Constant comparison
d) Memo-writing
e) Theoretical sampling
f) Integration of the theoretical framework

I now explain in more detail how I went about each of these steps in this study. Figure 6 at the end of this chapter provides a diagrammatic summary of the analytic and theory-building process.

5.4.1 Simultaneous collection and analysis of data

This involved:

i. Collecting and/or analysing data every day I was with the participants or working on the research project (see Table 2, p.68 for data types used).

ii. Asking participants questions to clarify the meanings and interpretations they assigned to events, using interview data as well as questioning during and after the Facebook research project.

iii. Writing up my observational notes at the end of every project day. My analysis of what happened in the classroom during the research project thus began whilst the events were occurring, and was augmented with further recollected detail and reflection a few hours afterwards.

iv. Analysing my field and observational notes, and transcripts, immediately (i.e. on the day they were made) to begin to derive concepts. As with my observational notes, my analysis of the interviews and protocol analysis thus began in the field, informed by data I had already collected. My

transcription method, as outlined in the previous chapter, involved not merely listening to the participants to ensure accuracy and gain an overall impression of the data. It also meant speaking the participants' words in order to dictate them into a transcript. This not only necessitated several passes through the data before I could begin to code it; speaking the words sometimes also lent emotional resonance which helped me identify statements of particular significance.

5.4.2 A three-step data-coding process

The following three-step coding process was used for written notes and transcripts as well as video recordings. Coding *all* the data in this way ensures comprehensive data treatment (Silverman, 2006), which helps avoid charges of bias, anecdotalism and exoticism:

i. Initial open-coding to analytically generate concepts. To generate codes, I examined the data, mindful of my research questions and the sensitising concepts suggested by my initial literature review: multimodality, motivation, identity and so on. I also tried to remain watchful for *"in-vivo"* codes, where the participants' words seemed to encapsulate some aspect of the data (Charmaz, 2006, p.55). Interviews and protocol analyses were coded manually line-by-line. Video transcripts were first coded manually incident-by-incident in five-minute segments. Later, excerpts of video which exemplified particular codes were fully transcribed manually. These transcriptions included talk and action, to take better account of the multimodal communicative environment. Using these data fragments may seem arbitrary (Charmaz, 2006), but fractures the data through close and systematic analysis, helping to quickly move beyond description and superfluous detail (Strauss, 1987; Holton, 2007). Fracturing the data in this way is reflexive because it forces questioning of participants' statements and actions, demands the analyst sets aside their own preconceptions (as far as they are able) and encourages ideas and themes to emerge which could easily otherwise be overlooked. Fracturing and transcribing

does involve changing the data from one mode to another - speech or action to writing - and so is inherently selective, transformative and analytic.

ii. Focused coding to synthesise and begin to explain the data. Here the 228 initial open codes were refined and combined. Codes which appeared most frequently or seemed most significant were used as categories to sort through, classify and parsimoniously explain larger tracts of data. Because of the large volume of my data, and because I felt I had already immersed myself in my data enough to have some inkling of the major emerging themes, I switched from manual coding to using NVivo9 at this stage of the analysis. Waiting until this point takes account of the criticism that computer programmes are not sensitive or "clever" enough to do grounded theory analysis (Becker, 1993). Using NVivo at this stage helped me to: systematically tabulate my data, as advocated by Silverman (2006); thereby gain an accurate measure of which codes appeared most frequently across the full body of data; identify similar codes which could then be refined, combined or raised into categories; and begin to consider links between categories. Several iterations of focussed coding resulted in the unwieldy 228 initial codes ultimately being subsumed into seven categories. I then used these categories in the next stage of my analysis and theory-building, theoretical coding.

iii. Theoretical coding to begin integrating concepts into a theory. This involved working out the dimensions of each coding category, and the relationships between categories.

5.4.3 Constant Comparison

The central tenet of data analysis and coding in grounded theory is one of constant comparison. I followed the strategy laid out by Corbin and Strauss (2008 p.259), who contend that this means:

a. **Comparing different people** (views, situations, actions, accounts, and experiences). I compared the different participants' :
   i. Responses during interviews
   ii. Actions and statements recorded through my field observations and video recordings
   iii. Actions and statements recorded through Wink[7] protocol analysis
   iv. Perceptions of themselves as researchers as characterised by their Q-sorts[8]

b. **Comparing data from the same individuals with themselves** at different points in time. I compared individuals' responses and actions:
   i. between their two interviews
   ii. between their interviews and my field observations and video recordings
   iii. between their protocol analysis and the other data sources
   iv. between their Q-sort results and the other sources

c. **Comparing incident with incident**. I compared the participants':
   i. Actions and statements recorded through my field observations and video recordings
   ii. Actions and statements recorded through Wink protocol analysis

d. **Comparing data with category**. I grouped data from each different source which I had assigned to the same category, to ensure similarity and fit with the category.

e. **Comparing a category with other categories**. I compared categories to establish the nature of the relationships between them.

[7] Refer to Sections 4.3.4 & 4.3.5 for an explanation of Wink protocol analysis
[8] Refer to Section 4.3.6 for an explanation of Q-sort

5.4.4 Memo-writing

Charmaz (2006) instructs analysts to move quickly through the data when defining and applying codes. In contrast, memos are free-thinking, free-writing opportunities to reflect and elaborate upon the codes generated, and consider how they might fit together to explain the data. Memo-writing is thus a vital medial process in constructing a coherent substantive theoretical framework. The ideas generated through memo-writing are then taken back to the data through the process of theoretical sampling.

5.4.5 Theoretical sampling

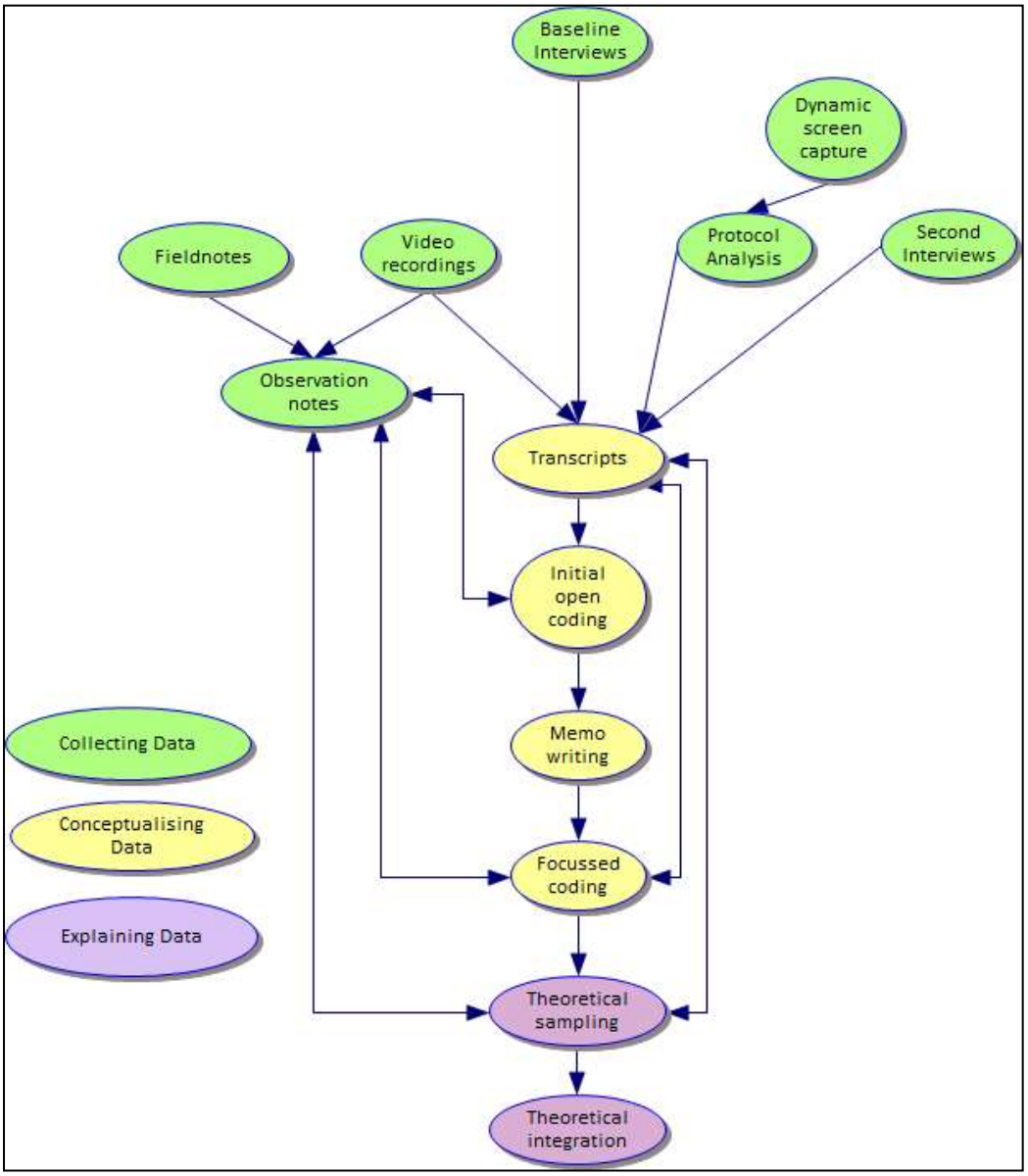
Theoretical sampling is used to test and refine emerging theoretical ideas. This could be seen as triangulation (Stake, 2003), validation (Silverman, 2006) or assuring authenticity (Charmaz, 2006). From any of these perspectives, the process helps ensure theoretical fit, density and relevance. Theoretical sampling is not merely a means of identifying "black swans" (Popper, 1972), though it may be used judiciously for this purpose: a contradictory datum may be enough to falsify a category, and force its revision or rejection. Rather, theoretical sampling is a strategy (Charmaz, 2006) for refining, consolidating and abstracting the theoretical elements that will ultimately be integrated into a theory.

My theoretical sampling was bidirectional. On the one hand, it involved going back to the field data to see if it could be adequately explained by my ideas. The follow-up interviews with my participants were crucial here, as was careful re-examination of the other data. On the other hand, to assess my ideas against current fields of knowledge, and because grounded theorists typically view "all", including literature as data (Glaser, 1998 cited in Charmaz, 2006) it meant reviewing literature relevant to my emerging categories and research questions: adolescent learning, social networks, multimodality, identity and so on.

5.4.6 Integration of the theoretical framework.

Theory is generated from close iterative analysis and coding of the data. My initial open codes denoted what was observed. Focussed coding grouped these codes into categories. Through careful analysis and comparison, I populated the categories with substantive codes, and this enabled me to locate the data in conceptual relationships. This continuing ipsative analysis helped discover patterns of actions and interaction and hence reveal the underlying processes (Strauss & Corbin, 1994). Or, in the NLS nomenclature, literacy events were analysed to reveal literacy practices. From here, I could interpret actions, develop explanations and hence build theory (Lankshear & Knobel, 2004 p.315) which is grounded in and induced from the data. I integrated the framework in two stages: first, memo-writing to clarify and elaborate the characteristics of each category. Second, through physically concept-mapping the categories, processes and relationships using flip-chart paper and post-it notes. Stake (2003 p.146) is describing the development of knowledge in case studies when he describes the process as follows, but the description chimes with grounded theory processes: "Meanings aggregate or attenuate. Associations become relationships; relationships become theory."

Figure 5: Constructing a substantive grounded theory through constant comparison



Part Three
Presenting the Data

Chapter Six
An Interpretation of the Data

6.1 Introduction

My analysis of the data, using the methods described in the last chapter and summarised in Figure 5 (p.80), yielded seven themes. In this chapter I describe the characteristics of each theme, and present extended excerpts of data together with my analysis and interpretation of that data. Beginning to answer my third supplementary research question (p.ii), I use my interpretation of the data to suggest relevant pedagogical principles. The themes are:

1. Identity Work
2. Motivation to Engage in Literacy Events
3. Making Things That Work
4. Levelling the Playing Field
5. Co-constructing Knowledge
6. Cutting Out The Faff
7. Staying Connected

Some of these labels, such as Identity Work, are easily recognisable as themes prevalent in qualitative research. Others, like Cutting Out The Faff, are more colloquial and reflect the situated context of this specific project. Where appropriate, I describe how I arrived at each label.

I interpreted Identity Work as underpinning other themes, and have therefore placed it in primary position. The rest of the list is not ordered hierarchically, and in the next chapter I describe the relationships between the themes as I construct a substantive grounded theory of the affordances of Facebook for my participants.

Before discussing each theme in turn, I present as a preface to this chapter an excerpt from my data which concisely illustrates each theme. There follows a table

with three columns. The first column contains screenshots taken from Chloe's Wink video of 10.12.10. The second column contains a verbatim transcript of Chloe's commentary on the video. This commentary was obtained via the protocol analysis method described in Chapter Four. The third column contains my interpretation of the data as embodying the relevant themes.

6.2 A note on data presentation

In my fieldnotes and transcripts I colour-coded my participants to allow easier tracing of each person's contributions. I have preserved these colour codes in my presentation of the data. The codes are as follows:

Chloe: Orange

Josh: Purple

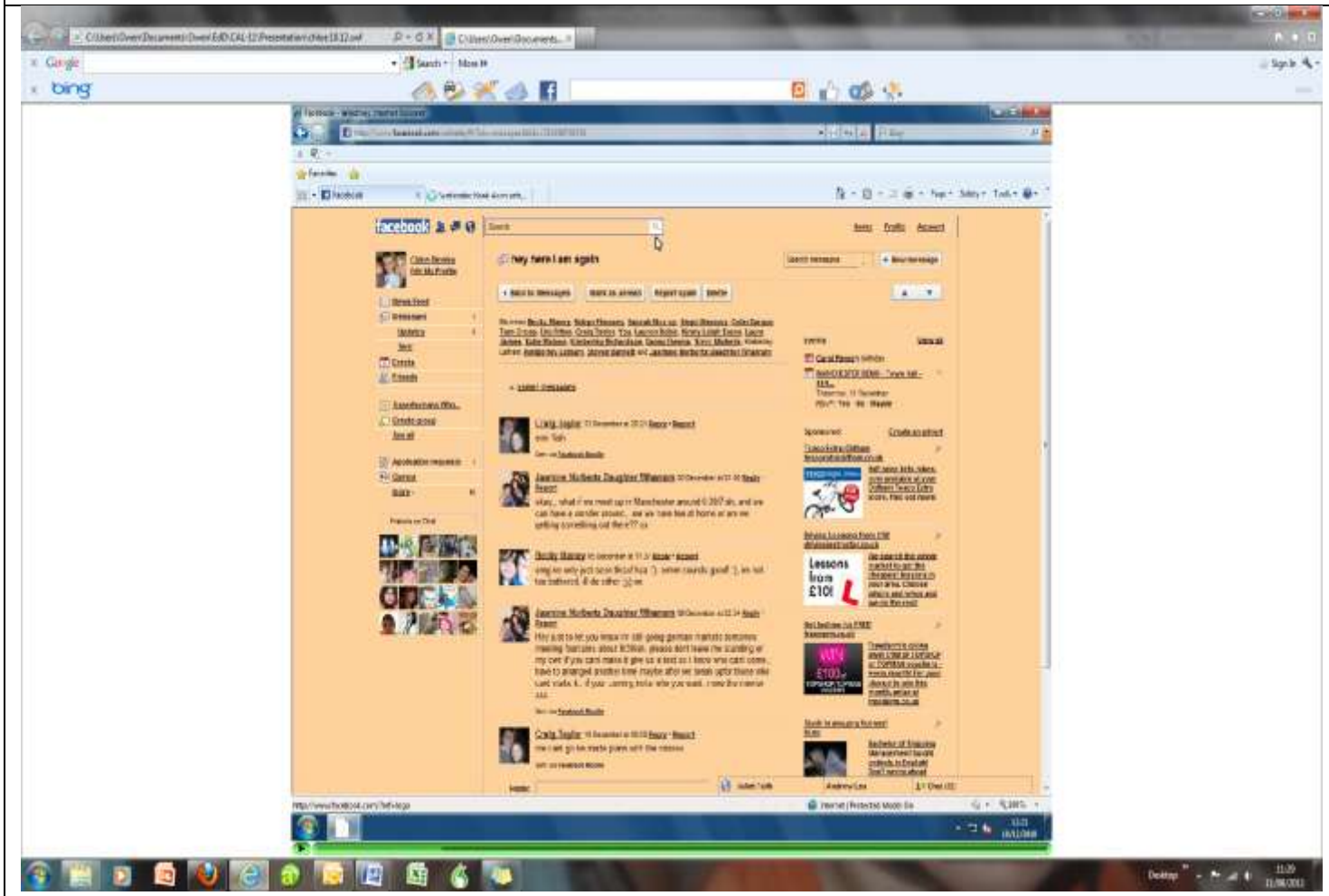
Charlotte: Pink

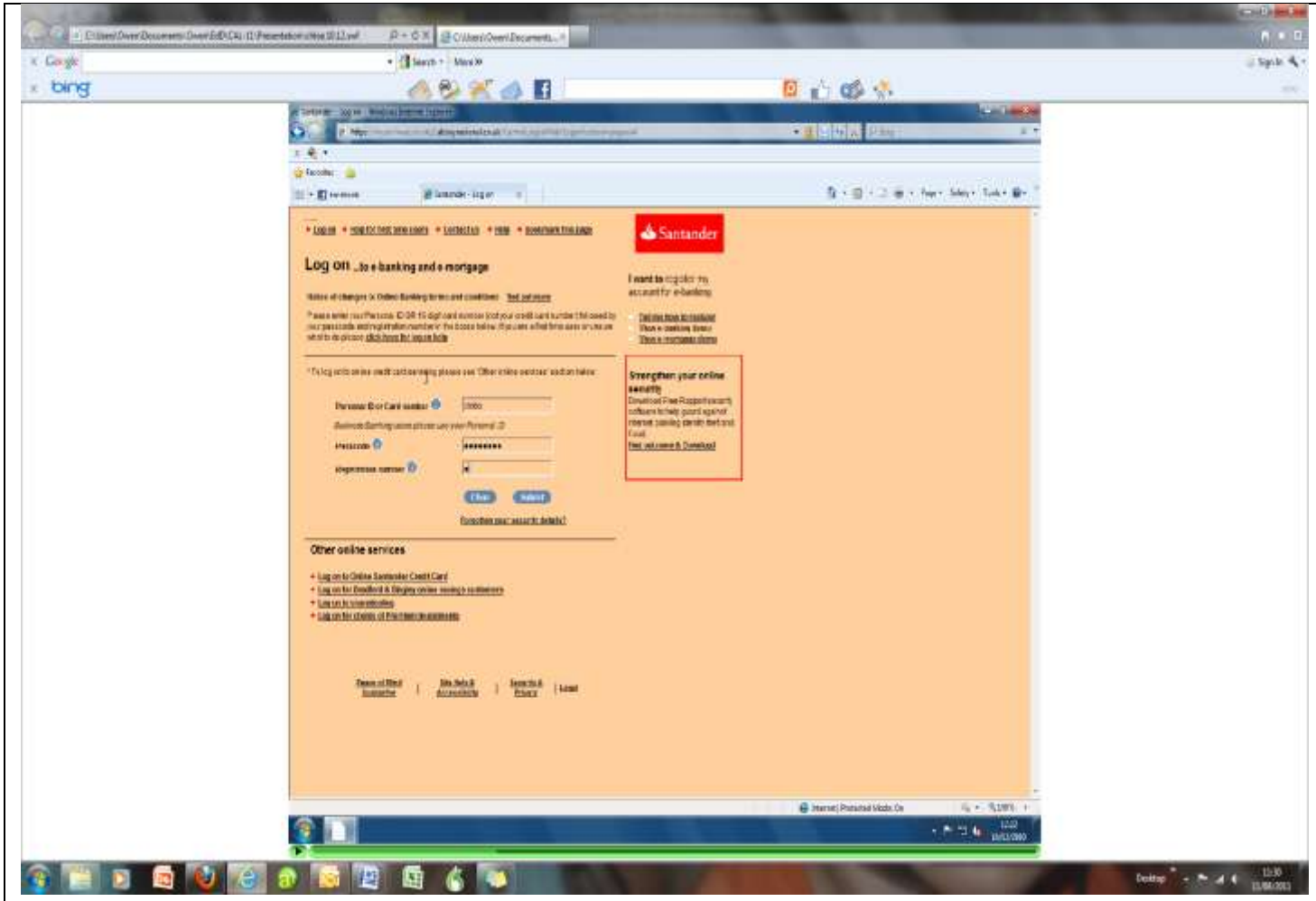
Danny: Blue

Mohammed: Green

Owen: Black

Data Excerpt#1: Chloe's Protocol Analysis

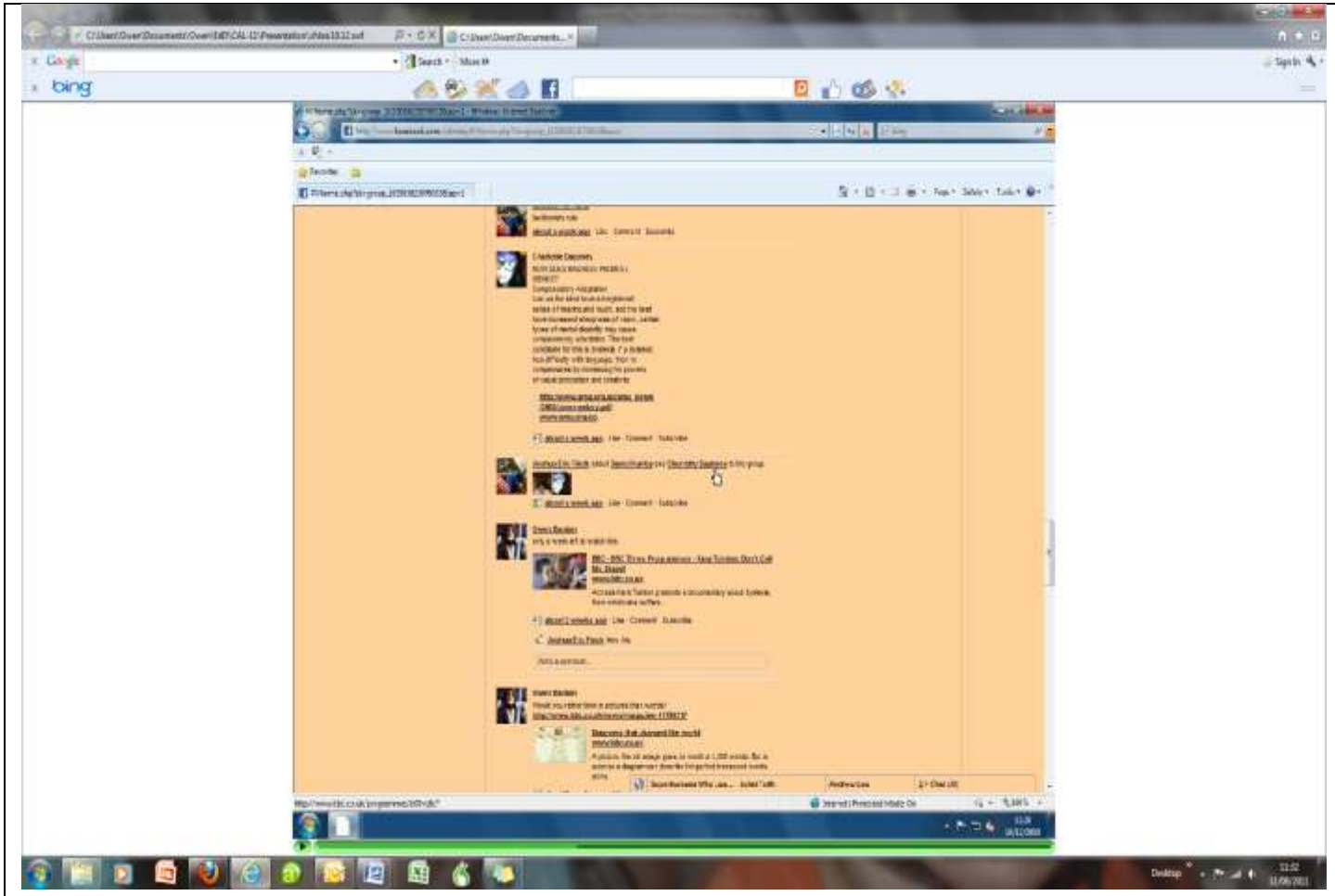
Screenshot from Wink movie	Transcript	Interpretation
	Right I think I was going on Facebook and I was trying to login. Then I checked my messages cos me friend had e-mailed me about summat. Then I checked to see if my Mum was online to ask her what was for tea... then I had a nosy to see what had happened....	**Staying Connected**: As soon as she logs in, Chloe feels the imperative to connect with members of three affinity groups (Gee 2005, 2007), friends and family. She checks a message from a friend as well as "what has happened" within the "Superhumans who can't spell" group. She also connects with her Mum.



... then I checked my bank in to see if my EMA had gone in...

Cutting Out The Faff:
Working online enables quick, efficient communication and information finding on topics that matter to the students.

Identity Work:
The students were able to position themselves as responsible young researchers engaged in "a more grown-up way of working." This way of working is characterised by skilful patterns of cross-domain work similar to the way adults work, yet usually proscribed in the classroom (Davies & Pahl, 2007). The first two screenshots show Chloe crossing the domains of College, friendship, family and finance, much as an adult might while working

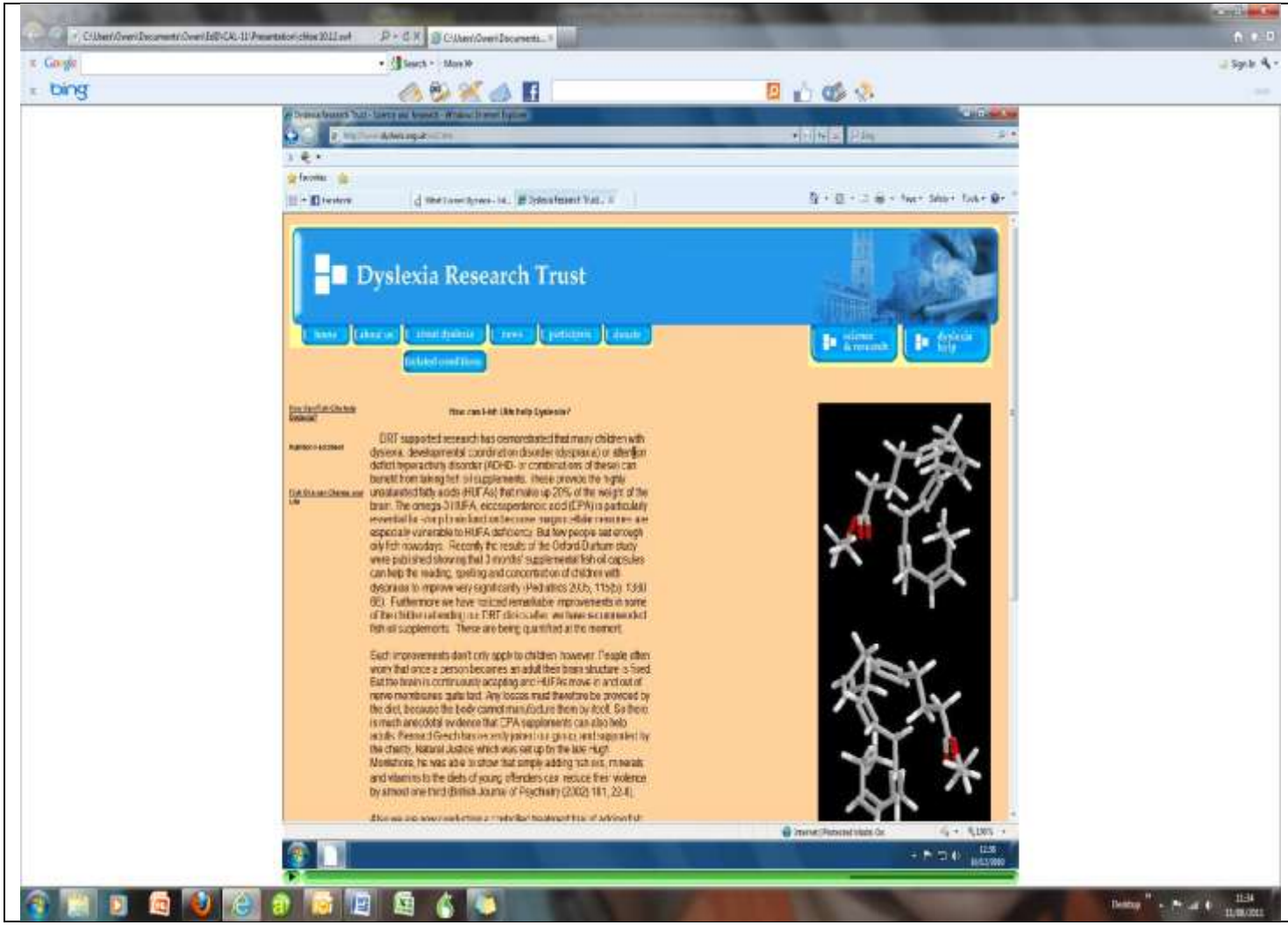


...and then I finally went on the dyslexia thing and I was looking at the videos that other people had put up and watching the Kara Tointon programme I think... then... I don't know what I was doing there oh I was trying to find a website that didn't exist any more...

Co-constructing knowledge:
Chloe co-constructs knowledge of dyslexia, with Facebook as a pedagogical resource. She learns indirectly from peers, via videos they post to the Superhumans page. She learns indirectly from the teacher, via a video he has posted. This learning informs Chloe's subsequent contributions to the page, through which she teaches her peers, family and teacher

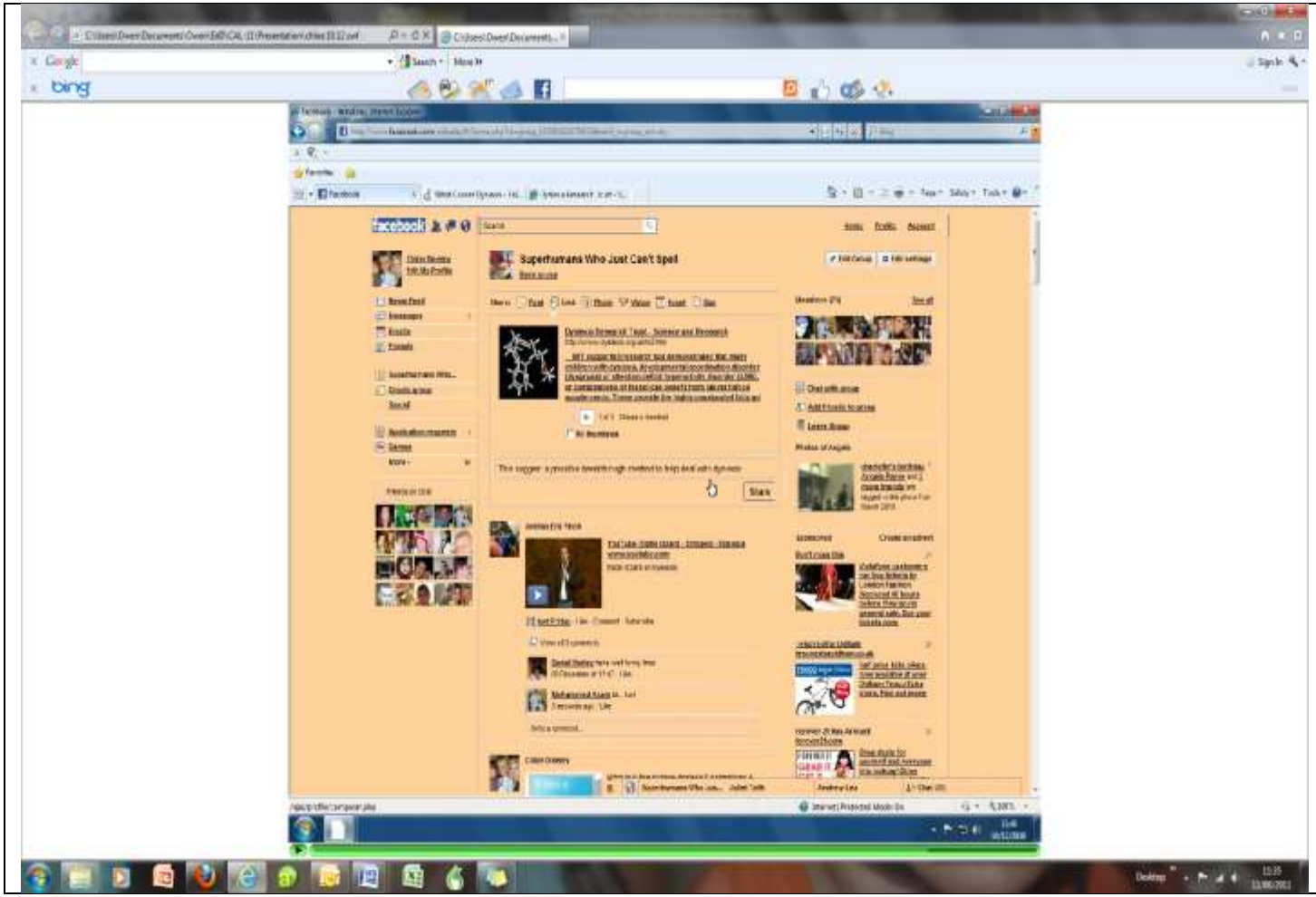
...then I found a link to a bloke who was talking about the possibility of fish oils helping with dyslexia...

Levelling the Playing Field:
Perceiving visual distortions when reading is often associated with dyslexia. One name for this is Visual Stress. Chloe's screens have been adjusted to a peach background to help reduce her visual stress. Here she accesses a video in which an academic expert, Professor John Stein, recommends the use of fish-oil supplements as another way of reducing visual stress for people with dyslexia. Reducing visual stress enables comfortable reading of texts that may otherwise be inaccessible to someone with dyslexia, hence 'levelling the playing field'.



...which I then tried to research more that after watching all the video and... and what else did I do... oh I also read the comments on the top to see what other people had thought... then I Googled fish oils...I was looking for other pages to see if they agreed...

Motivation to Engage with Literacy Events: Motivated by her sense of identity as a dyslexic person, and by what she has just learnt from the video, Chloe sets about reading comments on the site hosting the video, and content from other sites, to corroborate the claims made in the video. This motivation influences her to sustain engagement in reading texts she might otherwise find "too sciencey"

	...and then I posted it on the page and then what else did I do… then I'm not sure what I was doing and then I logged out of Facebook because it was the end of the lesson.	**Making Things That Work:** Chloe posts a link to her findings on the Superhumans Facebook page. In doing so she contributes to a communal, multimodal resource that works to inform audiences about dyslexia and the group's knowledge, experiences and perceptions of it.

I now elaborate and present further evidence on each of these themes in turn.

6.3 Identity work

Identity work is the theme that was most evident in my interpretation of the data, both in terms of the quantity of utterances and actions which embodied this theme, and their significance. There is an argument that everything the students did was in some way identity work, and in the other sections of this chapter I indicate how I interpret each theme linking with identity. However, some work was more explicitly about identity, and here I focus on some telling examples of this.

In studying literacy, identity is crucial not only because it reciprocally shapes our interactions with texts (McCarthy & Moje, 2002), but also because it enables students to explore new values and ways of thinking and feeling (Gee, 2007). Gee (2007) argues that such exploration is a key component in active, critical learning. Identity thus has important pedagogic implications, especially among those who, like the typical dyslexic student, have been characterised as “slow” or “struggling” readers (Anderson, 2007; Lenters, 2006; McCray, Vaughn & Neal, 2001) or found themselves excluded from reading (Gee, 2001, Alvermann, 2001; Williams, 2003 & 2005). Given appropriate motivation and instruction (Singer, 2007), dyslexic readers can use initially negative experiences to construct identities for themselves as ‘successes.’ In this way they are able to positively "re-frame" their identities (Gerber, Reiff & Ginsberg, 1996; also Anderson, 2007; Fink, 1996; Tanner, 2010).

I interpreted the students as engaging in four types of positive identity work in this project:

1. Developing an individual dyslexic identity
2. Developing a shared dyslexic identity
3. Being ‘expert-helpers’
4. Being young researchers

In the next sequence of four sections, I describe each dimension of identity work in turn, and provide illustrative examples which are then analysed in finer detail.

6.3.1. Developing an individual dyslexic identity

Participating in the group and contributing to the Superhumans page was itself a significant signalling of a dyslexic identity for each individual: dyslexia is frequently a source of shame and my participants admitted as much, yet they publicised themselves as dyslexic to a potential global audience of 500m Facebook users. The actual size of the audience who joined the group was only around 70 people[9], but this is still a significant number to make a potentially embarrassing disclosure to. Much of the students' subsequent individual work during the project could be interpreted as them making sense of, and sometimes then communicating, their personal experiences of dyslexia. Through communicating their experiences, students sought to be understood and accepted by others, and also to position themselves as helpers or experts.

"Recognition of dyslexic difficulties with Literacy" and "Making sense of own experience of dyslexia" were the two codes I applied most often in my initial open coding. "Making sense of own experience" had negative and positive dimensions. Prior to and early in the project, the students held almost exclusively negative views about dyslexia, and about themselves as learners. Their conversations, interview responses and Facebook posts showed that they associated dyslexia with words like “retarded”, “problems”, “difficulties” and “stupid”. Participating in this project precipitated a modest degree of re-framing (Gerber, Reiff & Ginsberg, 1996), helping the students to see dyslexia and themselves in a more positive light. This re-framing is significant because learners who perceive themselves to be capable and valued despite the difficulties associated with dyslexia, and who are able to envisage themselves as successful, tend to be more successful than those who don't (Burden, 2005 & 2008; Mortimore, 2007).

The students were keenly aware of the challenges and frustrations that a curriculum dominated by conventional literacy created for them. In their interviews they talked of the difficulties they faced when reading and writing. They were

[9] Of course, more people than this may have viewed the page without joining the group, but there is no way of knowing or quantifying the existence of such people

resigned to the reading and writing they felt was necessary for their studies, but reported tendencies to avoid these activities if they could, or doing the minimum needed to get by. The participants' interview responses and observed actions appeared to help confirm other research findings which indicate that students with dyslexia are more likely to equate literacy with intelligence than non-dyslexics (Humphrey & Mullins, 2002). The fact that dyslexic students perceive themselves as somehow deficient in literacy thus helps to reinforce the notion that they are not intelligent, with damaging consequences for self-esteem and hence academic success, as well as heightened stress levels (Alexander-Passe, 2007). Further evidence to support this claim comes from the way the students tended to dismiss reading they did for their own interests as inconsequential or frivolous. This was true even for Chloe and Charlotte, who positioned themselves as keen readers despite their reluctance to read for their studies. Here is Chloe talking about her experiences with reading and writing during her initial interview. The excerpt starts with her responding to a question about speech recognition software, which enables the user to dictate into a wordprocessor, rather than having to type:

Data Excerpt #2: "...it's just really not happening for me"

Okay so how important do you think it is to have the students to have access to that kind of specialist technology?
I think it's important if the student needs it I think it's important because it helps to take some of the pressure off and for students to stop feeling so down and defeatist.
Do you feel down and defeatist?
Sometimes.
Ok, what makes you feel down and defeatist?
Just like when you're trying to type an essay and you know what you want to say and you just can't get it out. Just when it really starts to become a problem you think what's the point it's just really not happening for me it's not working, sometimes it can get a bit annoying.
[...]
Erm traditionally education's relied a lot on reading and writing erm what's your attitude to reading?
I like reading
You like reading. What makes you like reading?
Er it it...just like when you're reading a good book you just kind of escape to another world it's sort of quite nice to sometimes give you a bit of a release and a bit of escape and...
Ok what is it you think you need to escape from

Just if...having a bad day...
Yeah
...or a stressful day or the weather outside is annoying you or...{trails off, looks away}
And what about writing how do you feel about writing?
{sighs} I don't hate it but I don't particularly like it it's a part of life that you've got to get on with
So you're not very keen on it what is it about writing that you're not very keen on why are you you know {mimics sigh} so...
It takes me forever it just takes too long erm and even if I write something you can guarantee that I'm gonna have to rewrite it two or three times because I've made that many spelling mistakes and muddled my words round and things and it's just kind of its a lot easier if it's on a computer where you can just go back and change the one thing
mmm
like it gets quite stressful
How much reading would you say you have to do now for your studies?
A lot
And how do you feel about doing that reading?
Erm it's quite difficult it's quite complex stuff to understand and it takes it usually takes me three or four attempts at reading it all to fully remember to remember like everything I wrote and everything I've read and to grasp what it's about and stuff erm it's so it's really quite time-consuming
But is that...one of the things that you get a bit down about a bit defeated by?
It can be if I'm reading sort of a text from Biology or something and it's took me sort of ages to read it...
Yeah
...especially in class when everybody else is finished reading and I'm sort of still only on the first half of it or something it can be quite like I may as well just not bother coz I'm not getting through it when everybody else is
[...]
Okay what reading and writing do you do outside of your studies you mentioned that you read books for for y'know pleasure to escape a bit how much reading do you do which would you say you do y'know yourself?
Probably a couple of hours every day
So a couple of hours every day quite a bit then
Yeah
And it would tend to be books yeah?
Books and magazines
And do you do any erm what sort of books do you read?
{shy laugh} erm fiction
Right
Like trashy chick lit books and bits of...{trails off}
Ok and the magazines...
Erm fashion magazines and gossip magazines
Texting and Facebook make you read and write. How do you feel about that sort of reading and writing?

Erm alright coz it's not like you're reading long paragraphs it's usually just a couple of sentences and and then you have your own text speak and stuff so it's not like yer reading proper sentences.

Chloe begins by talking of *"pressure"* and *"feeling down and defeatist."* When reading in her Biology class, for instance, she feels inferior to her peers and this can make her feel down and defeatist, to the point where *"I may as well just not bother."* This comment echoes her earlier one about writing: *"... it really starts to become a problem you think what's the point it's just really not happening for me."* Although Chloe is resigned to the writing and hours of reading necessary for her studies, they contribute to the pressures she feels, which seem to trigger a need for *"escape."* Given her self-confessed difficulties with reading, it is interesting that, at least some of the time, Chloe chooses to escape the pressures by reading. But she self-consciously dismisses this reading as *"trashy"* and *"gossip"*, and Facebook as *"not proper"* reading and writing. The implications are that:

1. Chloe can be motivated to read and write if the task is sufficiently interesting and enticingly framed;
2. Helping Chloe re-frame her reading as valid could be a basis for developing critical literacy, including critical digital literacy.

Chloe's subsequent actions suggest that these implications are not merely hypothetical, but warrant serious consideration for pedagogy. After adding friends and comments in response to other participants' posts, Chloe's third contribution to the Superhumans page was a link to a YouTube video (CovStudent, 2008) which artistically simulates the visual perceptual distortions which are one of the factors making reading so difficult for her. In posting this video, Chloe not only provided a resource which other participants were able to use for their own identity work and creating their own literacy artefacts (see Sections 6.5 & 6.7.1): she also communicated something of her own dyslexic identity, using the video as a proxy for saying "this is what reading is like for me." When combined with her research into magnocellular theory and the benefits of fish oils (see p.87 and Section 6.8.3) it is reasonable to interpret Chloe's actions partly as an endeavour to make sense of

her own experiences of dyslexia, and partly to communicate those experiences in order to promote better understanding of dyslexia, and therefore also of herself as a dyslexic individual, amongst her audience.

Furthermore, through her self-motivated research into the theories, causes and effects of dyslexia, Chloe was able to move some way towards re-framing herself as a 'good' learner and also a good scientist, though she remained dismissive of her reading performance. In this excerpt from her second interview, we are discussing Chloe's contributions to, and feelings about, the project:

Data Excerpt #3: "... I got really nerdy"

Then you had you made a contribution to the page from something called Energy Talk Overcoming Dyslexia erm d'you remember this?
Erm yeah I think it was just sayin' like about the signals and the messages often get mixed up erm and what we see then doesn't get translated properly it was quite sciencey
Right
erm but it was dead interesting
Can you tell me why you chose to post that particular…
I think out of all of them it was the least sciencey one
Ok
Like cos some of them were really really like university standard thesises...
Right
...and you just couldn't make heads or tails out of it whereas this one wasn't so bad
okay so it...it gave you a clear explanation in fairly plain English
Yeah it dumbed it down
[...]
and then the link to the Dyslexia Research Trust the site that you researched why did you post that?
Erm because it was the one it was the one about the erm fishy oils...
Yeah
and how they can affect the brain and stuff and I was just pretty much being a nerd…
Yeah
… and enjoying the sciencey part of it
Okay so you went from a stage where you were avoiding the sciencey part to something where you…
It wasn't... it was science that I understood…
Right
… so I was being a nerd and enjoying it.
[...]
Okay erm has it it had an impact on your own knowledge of dyslexia?

Yeah definitely like I got really nerdy and took a lot of the science and started really looking at the science part of it and that sort of changed the way I look at it because it was stuff like that fish oils understanding things like that gives you another way to deal with it and tackle it and stuff
So you said it it's changed the way you looked at it can you say how it's changed?
It just I look at it from a more sciencey point of view so when I am struggling with things then I think well that this is this is stoppin me or the dyslexia's where Am struggling with picking up word patterns because of this and this and this is so what can I do now I know sort of some of the reasons why I don't work as effectively I sort of look at it from a different way and then tackle it different way
Okay can you give me an example of tackling something in a different way?
Erm like I think instead of tryin t'like read a lot of stuff and stuff now I watch a lot more videos...
Mmm
...and listen to it stuff like acronyms and rhymes and stuff…
Yeah
… I've started using them more so that was stuff I never really did before I just always sort of fitted in
So it's changed your knowledge of dyslexia and that's changed the way you go about your own independent learning …
Yeah

Chloe's responses here give hints that, under the right circumstances, she is happy to "get really nerdy", partly through reading. Far from being *"dumb"*, Chloe later demonstrated, during the preparation for the group's video (see Sections 6.7.2 & 6.7.3), expert knowledge of dyslexia and the brain. Under the right circumstances, Chloe is also able to develop better metacognitive awareness of her own learning processes, and hence take greater control of her learning, thereby becoming, in her own eyes, a better learner. To create the right circumstances, the text must be at an appropriate difficulty level, though Chloe clearly has a sense of the types of text she will engage with and which she won't and this needs to be kept in mind:
"...some of them were...university standard thesises...and you just couldn't make heads or tails out of it whereas this one wasn't so bad."

The degree of control and self-determination (Jabal & Rivière,2007) in text selection afforded by the online milieu is a factor here, as is Chloe's intrinsic motivation to learn more about the topic. It is important to note that although I have presented, for brevity, data from only one student, all the participants evidenced similar

reading and re-framing behaviour, and it would be possible for me to illustrate my point with data from any one of them. For a second example, refer to Mohammed's account of his changing approach to revision in Levelling the Playing Field (Section 6.6.2).

From this analysis, the following suggest themselves as pedagogical principles:

- Capitalising on, or fostering intrinsic motivation
- Ensuring students have access to a range of appropriate texts, and critical awareness of different types of text and their own abilities.

Helping students positively reframe their ability to read would be one potential way of mobilising these principles.

6.3.2. Developing a shared dyslexic identity

Foucault's "paradox of identity" is that it is possessed by the individual, yet socioculturally constructed, with adolescents in particular increasingly influenced by peer group relations (Jabal & Rivière, 2007 p.201). I interpreted much of the off-screen and on-screen dialogue and interaction as the group bonding through the tacit co-construction of a shared identity. This shared dyslexic identity in turn helped shape individual identities. It was established and maintained through participants sharing aspects of their individual experiences of dyslexia in mutually supportive dialogue. Certain themes were apparent in this dialogue. Most prevalent among these themes were:

1. Seeking acceptance and wanting to be seen as 'normal', whilst simultaneously wanting recognition of their group and individual differences.
2. Perceiving 'normies'- non-dyslexics, including teachers and peers - as hostile.
3. Critical discussion around the demands of alphabetic literacy.

1. Seeking acceptance

There is a tension between wanting to be seen as 'normal' whilst simultaneously establishing and promoting individual and group identities which are explicitly Other. Nevertheless, this is what the participants' comments showed they wanted. For example, in a meeting to clarify the students' aims and objectives for the project, Charlotte asserted that *"we are normal"* - by which she meant not being *"weird"* - yet at the same time *"greater than everyone else"* with *"great brains."* Danny on the other hand distanced himself from *"normal"* and *"great."* Although playing partly for laughs, Danny identified himself as *"not great",* a *"freak"* and a *"black sheep."* Josh, echoed by Chloe, wanted to identify the group as *"not generic"*, again asserting a group identity of Otherness. I interpret the group here as working towards a complex shared dyslexic identity, which is seeking acceptance as "*normal"* whilst at the same time being *"non-generic."* In line with social models of disability and inclusive perspectives on education, the students seem to be calling for an expanded definition of *"normal"* which includes dyslexia and themselves, and recognises that *"normal"* embraces a wider range of differences than current popular perceptions allow. Given the potential of digital media and ICT to Level the Playing Field (see Sections 1.2.3, 1.3 & 6.6) and play to the strengths of dyslexic students, as well as challenge dominant epistemologies, this call is one that educators need to heed.

2. Perceiving 'normies' as hostile

In their conversations, group members frequently talked about the frustrations of dyslexia. These included not getting enough help from school; their friends and families not understanding what the lived experience of dyslexia is like; being labelled as lazy or *"cheats"* for getting extra time in exams. Over the weeks, there was a conversational thread expressing the anger and frustration they felt as a consequence of these experiences. This discourse was often characterised by the language of physical violence. Danny in particular talked about how he wanted to *"smash"* an unsympathetic friend at rugby training, and how he wanted to make people understand dyslexia "*by force*." Charlotte echoed his statements and body

language as he banged his fist on the table as he spoke. This perceived hostility is, I would argue, closely tied to the "normal but different" characterisation of the shared dyslexic identity discussed above. It echoes the call for educators to take account of and value diversity, or risk alienating and thus excluding students like my participants.

3. Critical discussion of alphabetic literacy

The strongest conversational thread which ran through the weeks was the nature of reading and writing and how English orthography worked to disadvantage the participants. I now present an extended extract from my video transcriptions, which illuminates this thread by tracing its presence through six conversations taking place over three weeks:

Data Excerpt #4: "...if we were cavemen we'd be fine"

3.12.10

Imagine being dyslexic in Japanese
How could you be dyslexic in Japanese?
I know
Quite easily it's the same way as we are
Yeh no but it's like they're not....
That's like them saying erm
like words they're more like...
symbols ...symbols I mean yeah I know letters
The same stuff probably happens though it probably like moves
Yeah
So I imagine the exact same thing
I'm gonna type that in on YouTube and see what happens
Japanese dyslexics
[…]
Yeah but the Chinese have got over a thousand symbols haven't they or something?
The Chinese are weird...why... but I don't understand why y'd wanna draw pictures to spell words
Well that's all words are pictures...
You can't {inaudible} read them
...they're not they're just symbols...
Yeah
...they don't mean anything they're just symbols
They must think we're really weird the way we write cos we write like left to right
How can they think we're weird
[…]

We broke with tradition therefore what we do...
Is weirder yeah
...is weirder
So shut yer trap

10.12.11
Did you have like a really difficult way of learning how to spell your own name?
No
I cos when I when I first met my other mate called Chloe she couldn't spell her name at all like cl-oh-ee
I did used to spell it wrong
Did you like what?
I've done that many a time
I still spell it wrong now I can't write in block capitals either but I don't know if that's somethin to do with dyslexia
Is it?
So that's the sort of thing you want to get down isn't it tricky writing your own name
[…]
They can detect it in erm newborn babies {inaudible} dyslexia thing there's row 13 chromosomes than can set reading and writing
Be quiet with your damn chromosomes
I just read it then. And apparently it can be detec- detected in unborn babies
Row of 13 how d'you spell chromosomes?
{sounding out the letters} Kuh-huh-ruh-o-muh...
Mm
o-suh-o-muh-es-uh I think
I don't know I don't know how you use little letters
Never have done. Never learnt the grown-up alphabet
You've never learnt the grown-up alphabet? My sister always like spells with it and I'll say how d'ya spell this and she'll say it and I'll say y'know you're twenty get a grip
[...]
Do you lot have different writing? Like look my writing changes.
Yeah same here
Does your writing completely change?
Yeah mine I write fast near the start and then goes smaller and smaller and smaller
Yeah. Well mine goes from small to MASSIVE
Mine goes from close together to really really long
Mine goes from neat to scruffy but neat is like once in a blue moon. It's happened about four times.
{laughs}
Then it goes to like a spider's just stood in ink and just ran across ma page
{laughs} {laughs}
I use squiggles instead of letters as well. If I don't know how to spell summat I'll just go {comically mimes scrawling}
{sniggering}
Yeah that's what I do with ma spelling

And hope that they get where you're at
What about...
Shapes I spell with shapes rather tha- shapes and sounds rather than actual letters.
Would you like to have been an Egyptian?
Yeah!
Oh god
Eye bird foot person doing this {striking 'Egyptian' pose} it'd be so much easier
Or Welsh. Welsh they spell phonetically with that it's better
Really?
Apparently yeah
Oh that'd be so cool
I think I'm secretly Welsh
[…]
17.12.10
What's the difference between a disability and an impairment?
An impairment's just a difficulty isn't it like erm a speech impediment is like difficulty speaking because you've got somethin'...
An impairment is something yeah that means you are less able to do something like speaking or walking or whatever it isn't necessarily...the disability depends on the environment that you're in a bit really so if you didn't have to read and write...
Then it wouldn't be...
...if you never had to read and write...
...basically...
...dyslexia wouldn't be a disability
...if we were cavemen we'd be fine
Yeah
Cos we'd just have to draw pictures
Well erm it's an interesting point right that erm the skills which were valued by caveman like being able to find your way around easily, solve problems, thinking in pictures are the same right are very similar to the skills of people with dyslexia...
Could that be a reason...
I can't throw a spear though
... why dyslexia hasn't died out?
Yes exactly good thinking
Because if it was somethin' that was an advantage then they'd...
But it's still an advantage {inaudible}
If it was purely a disadvantage then yeah it would've died out
It would've died out

Running through this extended conversation we can see critical awareness of different orthographies, including pictographic oriental alphabets, cavemen pictures and Egyptian hieroglyphs as well as the English alphabetic system. There is thus an awareness that literacy is culturally and temporally situated: *"We broke*

with tradition therefore what we do...is weirder" and *"...if we were cavemen we'd be fine."* Tied to this is critical awareness of the students' own learning preferences, and the challenges presented through the necessity of working in an culture which privileges a literacy that works against those preferences, to the extent that they find it difficult to learn to spell their own names and maintain consistent, neat handwriting: *"neat is like once in a blue moon...it goes to like a spider's just stood in ink and ran across ma page."* Here Josh uses humour as a defence mechanism as he reinforces Chloe's sense of childishness and inferiority (also evident in the nervous laughter that follows later) in being unable to use *"the grown-up alphabet"*, meaning spelling with letter names rather than their sounds. The fact that Charlotte associates *"little letters"* - lower case - with letter sounds, assuming case determines pronunciation, also indicates a misunderstanding about this aspect of literacy common to students with dyslexia. The difficulties associated with alphabetic literacy revealed here contrast with the favourable views expressed about the phonetic spelling of Welsh, Egyptian hieroglyphs and cave drawings. In an increasingly multimodal and icon-driven semiotic landscape, where we are in a sense returning to hieroglyphs and cave drawings, the ability to foreground preferred modes has significant potential to help level the playing field for these students.

In their discussions of orthography, the participants again demonstrated critical awareness of the semiotics of texts. When Danny initially expresses confusion over *"drawing pictures to spell words"* Josh responds by pointing out that written words *"are just pictures...they don't mean anything, they're just symbols"*, with the implication that they are sets of symbols dyslexics find difficult to decode. Charlotte talks about hieroglyphs and how they would be *"so much easier"* as a writing system because they are pictographic, and her enthusiasm is echoed at this point by Chloe: *"Yeah!"* The project thus provided an arena for student-led development of critical literacy, with very limited direct instruction from the teacher.

This data also illustrates the way in which students shared aspects of their individual identities to construct a group dyslexic identity, with some re-framing

taking place in the process. The relationship between individual and group identities can therefore be seen as a reciprocal one. The central section is particularly revealing. Four of the five participants[10] discuss their individual handwriting (all using the phrase *"mine goes..."*) and approaches to spelling, constructing a shared understanding of dyslexia ("difficulty writing neatly and spelling properly") and hence a shared identity ("we all find writing neatly and spelling properly difficult"). The students co-construct knowledge of dyslexia, each other, and the nature of reading and writing through these interactions. Note how they do so in a mutually supportive way, with no arguments or significant disagreements. When this conversational thread around literacy difficulties re-emerges in the final week, it is used as the basis for some re-framing work. As I, the teacher, explain the distinction between disability and impairment, Charlotte makes the connection to her sense of dyslexic identity as someone who finds alphabetic literacy problematic, but is *"fine"* working with pictures. She frames dyslexia as positive:"*still an advantage."* Chloe also reaches Edhart's (2008) realisation that dyslexia must confer some evolutionary advantage so as not to have died out. She is thus also able to re-frame dyslexia, and hence her own identity, in a more positive light. This demonstrates how developing the group identity reciprocally shaped and re-framed participants' individual identities.

As well as further supporting the contention that educators need to pay attention to the needs and strengths of students like my participants, this data has the following pedagogical implications:

- When permitted to explore a subject they find motivating, with few constraints, students may be able to develop critical understanding of that subject. The challenge for teachers is facilitating such exploration when faced with prescriptive curriculum demands (Somekh, 2007). One aspect of specialist dyslexia tuition and academic support is that it is less constrained by the formal curriculum, and so is potentially one arena where such

[10] Danny and I were engaged in a separate task, necessary but unrelated to the project

exploration could be encouraged. A more radical and inclusive approach would be the structural transformation of pedagogy (Somekh, op.cit) so that all students were immersed in rewarding, rich, exploratory learning environments which help foster critical awareness. Some of the principles of learning embodies in good videogames could apply here (Gee, 2007): see Section 7.4.5 for an elaboration of the relevant pedagogical principles.

- As part of their framing activities for enabling screen-based collaboration and exploration, teachers should attend to the potential of classroom talk for stimulating critical learning. Rojas-Drummond & Mercer (2003) have suggested ways of encouraging such productive talk around screen-based classroom activities.

6.3.3. Being "experts" and "helpers"

I detected a paradox in the student's discussions and presentations of identity. When asked directly in their interviews, the students tended to try and give the impression that they *"weren't bothered"* or didn't have *"strong feelings"* about their own dyslexia, as these three examples illustrate:

Data Excerpt #5: " I've never particularly been bothered by it"

So has it changed the way you feel about about dyslexia?

Erm kind of but I've never I've never particularly been bothered by it...

… has it changed the way you feel about dyslexia or about being dyslexic?

Not really just like no I don't think it has I've always I've never had never had an issue with being dyslexic

Mmm

I never sort of had any major feelings towards it I still don't it's just something I have to deal with

Like maybe people with dyslexia often feel like outsiders y'know slightly excluded or slightly different to people who are not dyslexic and may be this is a way of tryin to...

Yeah

... trying to build a bridge if you see what I mean

Yeah but like it's never really affected me cos instead of focusing on like English which obviously my weakness is instead of focusin on that I've always focused on my strengths…

However, the anger and frustration expressed elsewhere in their conversations and interviews towards their peers, teachers and former schools is at odds with the emotional disinterest they expressed in relation to their own dyslexia. Recall Chloe's admission of *"feeling down and defeatist"* earlier in this section (p.92), contrasting with her claim here that *"I've never had never had an issue with being dyslexic...I never sort of had any major feelings towards it I still don't."* Also, it is difficult to see why the group would be so keen to help others unless they felt the difficulties and challenges dyslexia presents were significant. The word "help" was used very often, with the group keen to position themselves as "helpers." On the one hand, this enabled them to think of themselves as altruistic "experts" on the topic of dyslexia, by virtue of their lived experiences, augmented by their research and learning for the Superhumans project. In contrast to the sense of inferiority revealed by the conversations about alphabetic literacy, the project thus helped Level the Playing Field by conferring some authority on the participants. On the other hand, in recognising and seeking to act on the need for 'help' for dyslexic people like themselves they belied their assertions that dyslexia was not a significant challenge in their lives, and exposed, tacitly or explicitly, further frustrations arising from perceived disadvantage and discrimination.

6.3.4. Developing identities as young researchers.

As well as being able to take on and exploit identities as 'experts', the participants were able to take on identities as 'young researchers.' This led to an appreciative sense of being involved in what Charlotte described as "a more grown-up way of working." The Q-sort results filtered the participants into four categories, according to participants' perceptions of themselves as researchers. In Hughes' (2011) statistical analysis, these were as follows:

Mohammed significantly associated with the Factor 1 category: *'Young people involved as 'experts' on discrete areas, led by adults'.* This viewpoint sees that the involvement of young people in research is led by adults who hold the power, get the resources and identify the benefits of the research. Young people have little chance to express their views, have limited decision-making opportunities or responsibilities and not much influence generally, although this does not seem to detract from them getting on well with the adults and enjoying the project. Young people become involved because they know about the issues affecting them. They get more involved with discrete aspects such as deciding on research questions, data collection and analysis.

Josh significantly associated with the Factor 2 category: *'Young people have limited influence-frustrating, but leading to research benefits'.* Young people had defined areas of responsibility (eg data collection) but did not really make important decisions, experiencing frustration over the limits placed on them by the adults. Adults saw them as equal members of the team but felt the need to support their continued participation. Young people understood what was going on and knew enough to work as young researchers. Although they were more like assistants, young people were able to gain from this by experiencing a different kind of relationship with adults. Their ideas were valued by adults who felt that the research benefited as a result.

Charlotte and Danny significantly associated with the Factor 4 category: *'More than assistants, experts who gained a sense of power-sharing with adults.'* Young people were regarded as experts and did not feel that their involvement was tokenistic, where adults knew best. They were much more than assistants to the adults and at times, it seems that adults had an assistant role. Their contribution led to research which was just as good and publishable as that produced by adults working alone, although they were not involved with feeding results back at the dissemination stage. The project gave them a sense that power-sharing between adults and young people was possible and they experienced a different way of learning with adults.

Chloe's result was 'confounded', meaning that she associated with Factors 1 and 4, but not significantly to either factor.

6.3.5 Implications for pedagogy

I interpret these results as evidence that the project enabled students to inhabit 'projective identities' (Gee, 2007) as, to a greater or lesser extent according to the individual, competent and trusted researchers. The significance of this is that inhabiting and reflecting on projective identities in a safe and stimulating educational environment is a way of provoking active critical learning (Gee, 2007), in this case for soon-to-be undergraduates and "budding professionals" (Willett, 2009 p.14). Such learning is crucial if education is to involve students exploring ways of becoming and ways of being scientists, researchers and the like, rather than relying on simple transmission and drill-and-skill pedagogic models.

6.3.6 Summary

In this section I have presented evidence supporting my interpretation of Identity Work being the principal theme in the data. I have divided the students' identity work into four categories, and offered excerpts of data to illustrate the nature of each category and how I arrived at it. I have suggested pedagogical principles that the categories evoke.

6.4 Motivation to Engage in Literacy Events

The literacy challenges that dyslexia presents do not necessarily mean that students with dyslexia do not engage with, value and enjoy reading and writing. In Barden (2009a), I showed how one dyslexic A-level student was highly motivated to read, partly by wanting to become what she thought of as a 'good' reader (and later, actor), and partly by a sheer love of reading. This study found ample further evidence that the participants do value literacy experiences and can be intrinsically motivated to engage in literacy events. They expended a great deal more time and effort reading than writing, but they did engage willingly and, at times, for extended periods in both these activities.

In their initial interviews, the students divulged contrasting attitudes towards reading. Chloe and Charlotte positioned themselves as enthusiastic readers, often reading fiction to "escape." It is worth noting that they were seeking to escape the pressures of education and their everyday lives by choosing an activity which is normally negatively associated with dyslexia. Danny professed that he "didn't" read. Mohammed positioned himself as devout, reading the Koran everyday in order to memorise it (he said he had already memorised three-quarters of it). Josh spoke passionately of his frustrations at being excluded from the reading experiences his non-dyslexic girlfriend enjoyed. In contrast, the students were united in asserting that they never, or hardly ever wrote unless they had to. Charlotte, for example, said that she thought birthday cards were probably the only things she ever voluntarily wrote in.

PDespite its rich multimodality, Facebook is driven by reading and writing. An individual might choose to update their status by simply posting a photograph, video, or hyperlink, but most of the time will accompany it with some text. Their Facebook friends respond by writing text, and other people can also read the comment threads, and add to them with further writing if they wish. Yet in my initial interviews, my participants did not see Facebook in this way. They did not characterise their use of Facebook as involving significant amounts of reading or

writing. Like Chloe (see p.94), they did not classify Facebook as "proper" reading and writing. This suggests that there is something about the medium that seduces these users to engage in reading and writing, without them perceiving these potentially problematic tasks as presenting any sort of difficulty. Although the students often valued brevity in both reading and writing, sometimes they engaged more fully, and for relatively prolonged periods, with texts that many readers – their age, or perhaps older, and dyslexic or not – would find challenging.

6.4.1 Fostering intrinsic motivation

I interpreted there being three conditions which fostered intrinsic motivation to engage in literacy events, potentially with a challenging text or for a prolonged period. In reality, these categories interact and overlap, but I have presented them as a list for clarity:

1. When the student had an inherent interest in the topic
2. When the student was seeking to develop further understanding of their experiences and/or self (content resonates with own experience)
3. When the student was seeking to (consciously or subconsciously) communicate something about themselves.

It is clear that these conditions are closely bound up with identity. An excerpt from Charlotte's second interview illustrates my point, beginning with an analysis of how her identity motivates her interest in developing understanding of her own experiences of dyslexia through reading.

Charlotte's initial research question was *"What is the link between being Superhuman and being dyslexic?"* Her online searches for an answer to this question led her to a document called "Beautiful Minds: Is There a Link Between Genius and Madness?" (Lyens, 2002). This document is an article from a professional journal published by the Singapore Medical Association. As such, it is aimed at a professional, psycho-medical audience, and demands some understanding of the psycho-medical domain and its vocabulary in order to be fully

understood. Charlotte is a seventeen year-old dyslexic Arts student. Despite our work earlier in the year on the nature and theories of dyslexia, she does not have the command of the subject-specific technical vocabulary anticipated by the author. Yet she was self-motivated enough to persist with the text, and then post a link to it on the Superhumans page, because it helped to answer her research question (it spoke to the research topic she was interested in). In addition, the article resonated with her experiences and the offline discussions we'd had in the group about dyslexic "geniuses", dyslexic role models, and the group's own perceptions of their being 'superhuman' and creative, independent thinkers:

Data Excerpt #7: "...I was just like oh woh yay"

How does madness promote genius do you remember adding this?
Yeah it is erm the whole thing about dyslexics being able to be superhuman and um having like erm one of their senses being heightened...and like how erm a blind person has really good hearing and they can find a way around it like that but then we've got...
Yeah
...certain things that are better for us
Okay what are the things that are better for you
I can't remember but erm I suppose it's just...
Well...
... the thinking like being able to look at something completely different to everyone else
Yeah
...and see round the different ways around like think outside the box and stuff and yeah this one was quite long this one and this is one that you were like oh you're reading this!
Do you remember how you came across this?
Erm my question was summat to do with erm advantages of being dyslexic or something and I think I just typed it into Google and something came up but...
So this is the research questions...
Yeah
...that you each had on a post-it note okay yeah I mean it is quite a you know quite a tricky article but you were obviously you took something from it and then you wh- how did you what how did you go about reading this article {inaudible}?
Erm looking at the t-titles actually
{inaudible} yeah
If it's erm it seemed interesting then I'd read the rest of the...
Mm
...paragraph but the introduction I only read the introductions because it's always something...
Mm
...about someone that's quite boring

Mmm I suppose I'm asking you what what I mean it is quite difficult article...
Yeah
...so I'm asking you what motivated you to read this...
Erm
...when you probably wouldn't read usually something that was this difficult to read
Well it I'd I think it is an actual experimental like write-up or something
Yeah
So I thought that would be quite an accurate look onto how dyslexics work and how other people with disabilities work...
Right
...so I think it I was just like oh woh yay
So because it was it it had accurate information and would be a reliable answer to your question
Yeah

In terms of my first condition above, Charlotte had an inherent interest in the topic. Firstly, she selected her research question from a range of ten, from which she had a free choice. Secondly, in selecting this question - *"What is the link between being Superhuman and being dyslexic?"* - Charlotte gave herself an opportunity to engage in identity work which would help her to make sense of her own experiences of dyslexia. By doing so, she satisfies the second of my conditions: developing understanding of self. By posting a link to this article on the Superhumans page, Charlotte is explicitly and knowingly signalling something about her experiences of dyslexia, thus satisfying my third condition: consciously communicating something about herself. We can see that Charlotte's identity work involves the interplay of several identities, as discussed below. Charlotte's work in answering her research question also involves the interplay of different multimodal aspects of literacy. I now elaborate both these strands of analysis.

6.4.2 Interplay of identities

Charlotte's endeavours to answer her selected research question can be viewed as a literacy event, mainly characterised by reading. The writing component was limited to entering her search term into Google, and pasting some of the text from the article as a caption for her hyperlink to it. These activities took mere seconds. In

contrast, she spent about ten minutes[11] reading the article. Through her relatively prolonged reading, and her explanations of why she had done it, Charlotte evidenced all four of the identities I introduced earlier. Firstly, her choice of research question indicates a desire to make sense of her own experiences of dyslexia, and thus engage in individual identity work. Charlotte is a visually creative "alternative" Arts student, studying Graphic Design and Photography. The article she chose to read reported on perceived links between "madness", "genius", "powers of creativity" and dyslexia. It made positive associations between dyslexia and visual- and creative-thinking, and gave examples of "eminent people" with dyslexia (Lyens, 2002 pp4-7) who were thereby offered as potential role models. The article thus spoke to Charlotte's sense of self as a creative, visual-thinking dyslexic person. The research question, the overall tenor of the article and the specific role models given provided Charlotte with an opportunity to engage with re-framing work, developing an individual dyslexic identity that included *"being able to be superhuman [...] certain things that are better for us [...] the thinking like being able to look at something completely different to everyone else [...]and see round the different ways around like think outside the box..."* Although positive, this re-framing is only partial; note how Charlotte continues to equate dyslexia with *"other disabilities"*, particularly blindness. However, such re-framing is inevitably and invariably a major individual project, and not something achieved through simply reading one article. Nevertheless, Charlotte's reading here can be interpreted as an important part of her wider re-framing project.

The second identity in play is that of the group dyslexic identity. By posting a link to the article on the Superhumans page, Charlotte is contributing to the shared identity. She is also providing her peers (and wider audience) with an opportunity to undertake similar re-framing work and hence come to understand dyslexia in a more positive light. Charlotte's account of her engagement with the article also shows that the third and fourth" expert-helper" and "researcher" identities are also in play. Charlotte positions herself as diligent researcher who is judicious in

[11] I can only estimate the duration from my video-observational and fieldnotes

choosing what she shares with others. This is evident in her celebratory *"I was just like oh woh yay"* when she finds an authoritative source that "*is an actual experimental like write-up or something* [...] *So I thought that would be quite an accurate look onto how dyslexics work."* In asserting that she values "actual" science and "accuracy" in the learning she shares with others, Charlotte can be seen to be positioning herself as a diligent researcher who carefully chooses only reliable information to pass onto others via the Superhumans page. She chooses "accurate" information believing that this is the best way to inform and help others, even if the information is likely to make challenging reading for her audience.

6.4.3. Interplay of literacies

In addition to the interplay of identities, Charlotte's work with the article evidenced the interplay of literacies. As part of my scaffolding of the students' research, early in the life of the Superhumans page I posted links to a number of videos that I thought they might find useful. One of these was a BBC Horizon documentary called *Is Seeing Believing?* (Horizon, 2010). As the title suggests, the programme is a "pop-science" exploration of the nature of visual perception: a topic of potential interest for an artistic dyslexic student like Charlotte. About three-quarters of the way through, the programme features a man who has been blind since birth. He has developed the ability to "echolocate" like a bat, using clicks of his tongue to acoustically render a mental map of his environment with such accuracy he is able to ride a bicycle. This could be seen as a "superhuman" talent. Prior to reading the "Genius and Madness" article, Charlotte had spent some time watching this part of the documentary, and this informed her understanding of the article: *"dyslexics being able to be superhuman and um having like erm one of their senses being heightened...and like how erm a blind person has really good hearing and they can find a way around it..."* She is thus able to contextualise and understand some challenging reading by recruiting understanding gained from video. My interpretation is that the multimodal framing, gained via video and classroom discussion, helped motivate her to engage with a difficult text. In addition, she read tactically (Williams, 2011) rather than the full text, in order to get the information

she needed: "...*looking at the t-titles [...] If...it seemed interesting then I'd read the rest of the...paragraph".* Charlotte was thus able to use academic and multimodal literacies to motivate her reading of a challenging monomodal text.

6.4.4 Summary

My analysis indicated three interrelated and overlapping conditions which fostered intrinsic motivation to engage in literacy events for my participants, who belong to a subset of the population who are often characterised as eschewing or struggling with reading and writing. Identity played a key role in motivation. The example given demonstrates that when motivated, Charlotte was able to mobilise different literacies to support engagement with challenging texts.

6.5 Making Things That Work

According to Kirkpatrick (2011), Mark Zuckerberg's intention when designing Facebook was not merely to provide a medium for people to share the minutiae of their lives. Both Facebook and Zuckerberg were about "getting stuff done" (p.11). Kirkpatrick argues that an affordance of Facebook is enabling everyone to be "an editor, a content creator, a producer, a distributor" (op cit. p.9); all of these can be seen as "getting stuff done". My participants clearly saw Facebook as a way of "getting stuff done", and not simply as a forum for sharing quotidian aspects of their lives. Their perception of Facebook as a work-enhancing utility was first made explicit in the baseline interviews and early planning meetings I conducted with them. Initially, they saw the advantages as being tied to the ubiquity of Facebook access amongst their peers, and its ability to help them find ways of circumventing some of the challenges that dyslexia presents. As the project progressed, they edited, created, produced and distributed content as they co-constructed the Superhumans page. In doing so, they did more than simply use the technology to compensate for their perceived literacy difficulties. They engaged in active, critical literacy-based learning which has implications for epistemology and pedagogy.

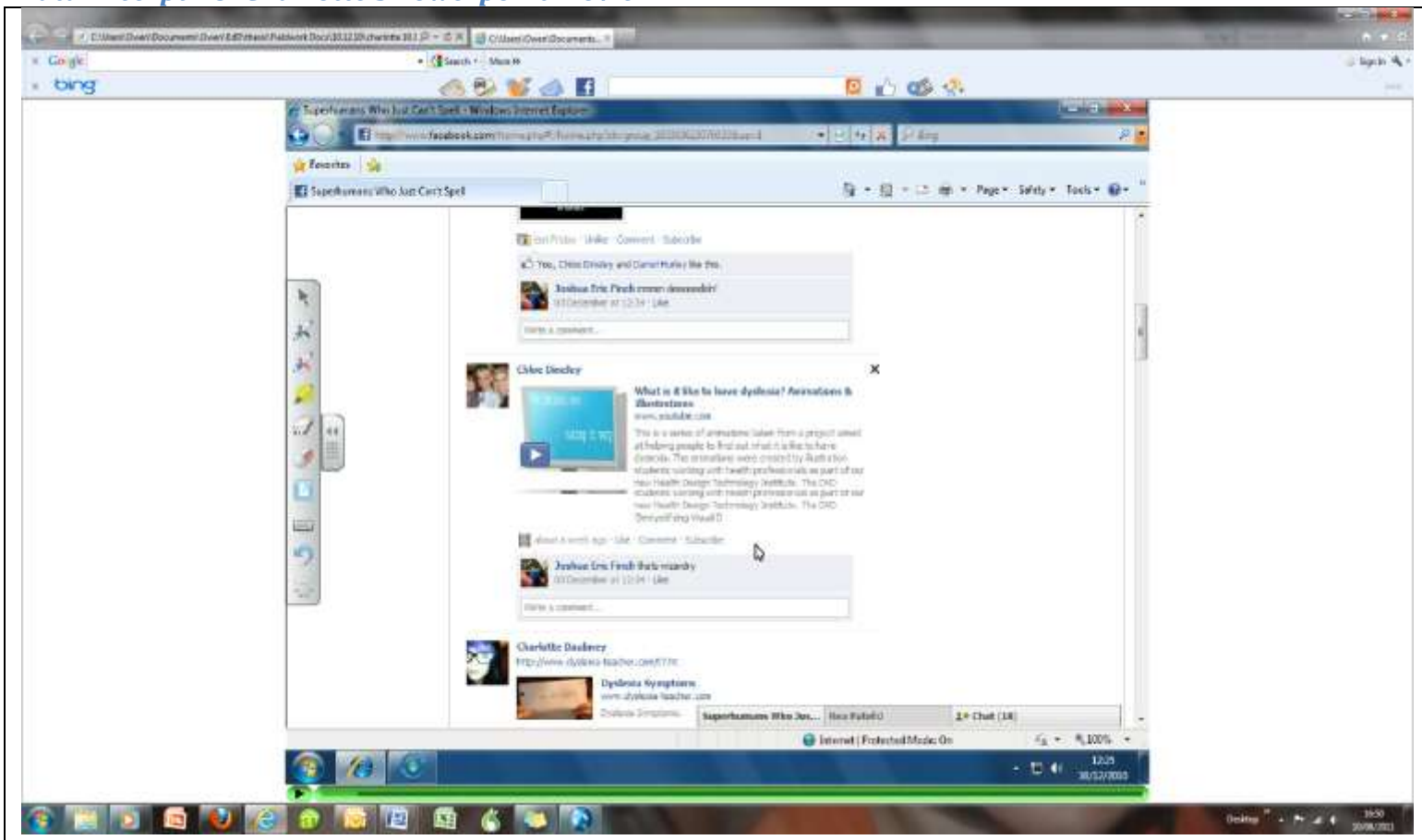
Both Kirkpatrick's characterisation of Facebook and the students' use of it recall Lankshear & Knobel's (2003, p.173) call for the development of a new "digital epistemology", rethinking epistemology as:

> practices of knowing that reflect a range of strategies for assembling, editing, processing, receiving, sending and working on information and data to transform resources of "digitalia" into "things that work."

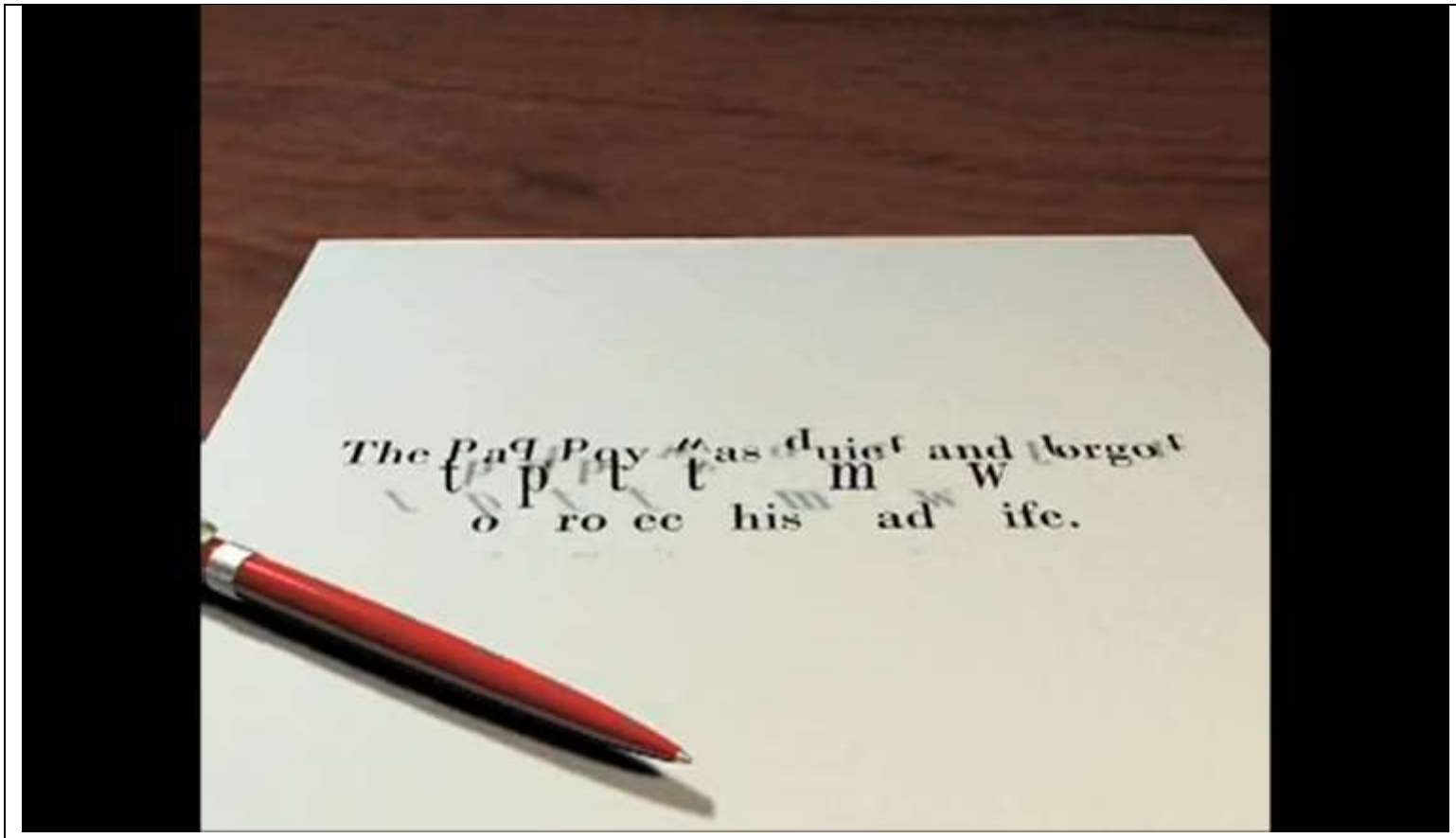
This sensitising concept, coupled with my early observations in the field, led me to decide on "getting stuff done" and "making things that work" as initial codes which I eventually subsumed, with 17 other codes, into the theme of Making Things That Work. It could be argued that the whole Superhumans page was a "thing which worked" as a pedagogic resource, a repository for the students' research findings, and a social semiotic "ensemble" (Kress, 2010 p.159) signifying the students'

multifaceted Identity Work. Each post and comment could be analysed to show how it worked in the collective "orchestration" of meaning (op. cit. p.161) that the page represents. The students' contributions to the Superhumans page included text-only compositions, text-image compositions, "poached" (Williams, 2011) and "mashed" texts and text-image compositions, original graphic and photographic artwork, and original videos, as well as many hyperlinks to other web texts. Given the number of contributions and the complexity of the overall ensemble, it would be very challenging to present an analysis of the entire Superhumans page as a "thing" that "works" in the space available. Instead, I present one example. There follows a sequence of screenshots from Charlotte's Wink recording of 10.12.10, together with a verbatim transcript of her protocol analysis of the recording. It shows how she "made something that works" to teach herself about making a Powerpoint movie, and teach her audience about dyslexia, visual stress and herself:

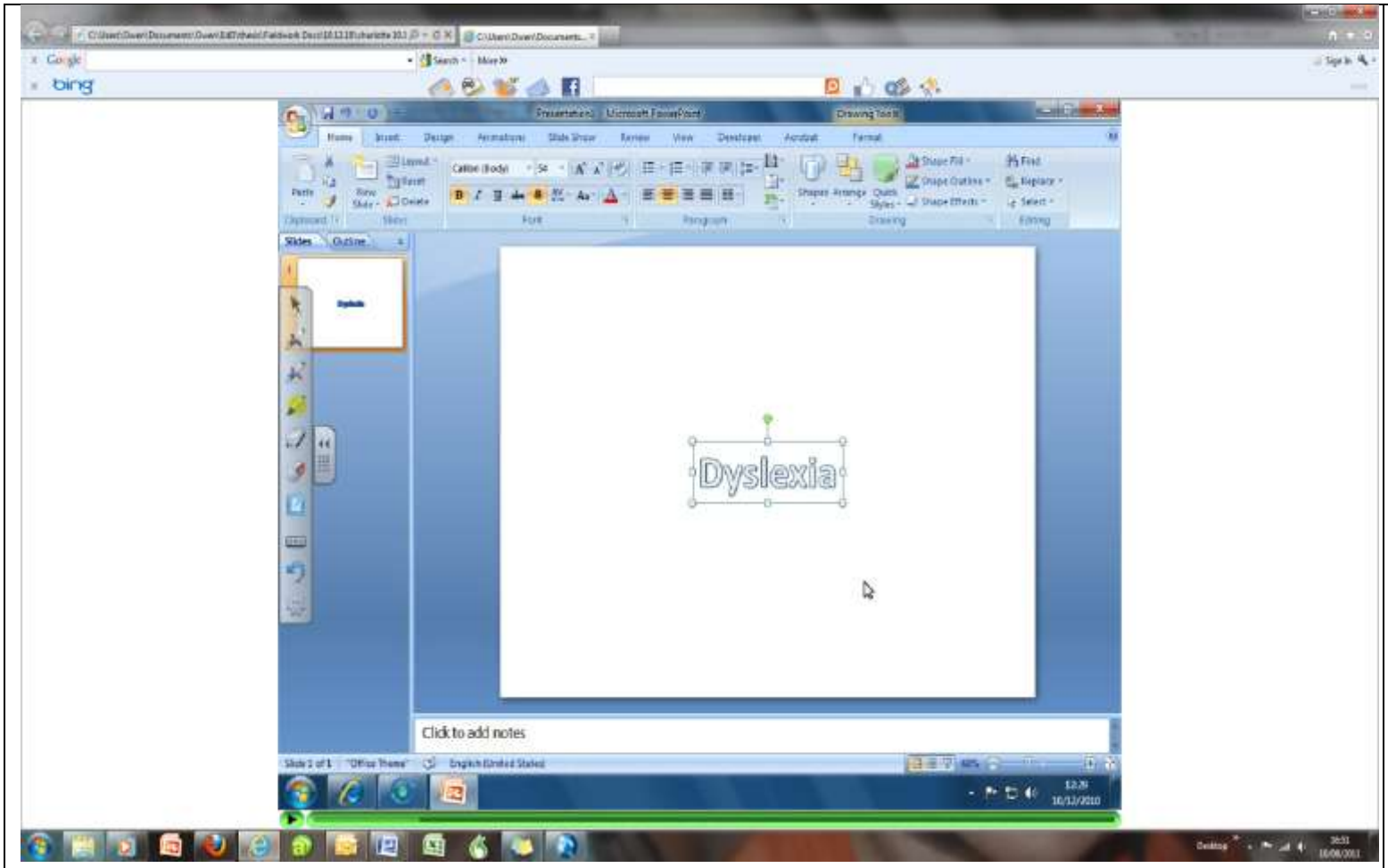
Data Excerpt #8: Charlotte's Powerpoint movie



I was logging into Facebook and then I went to the website our little page...



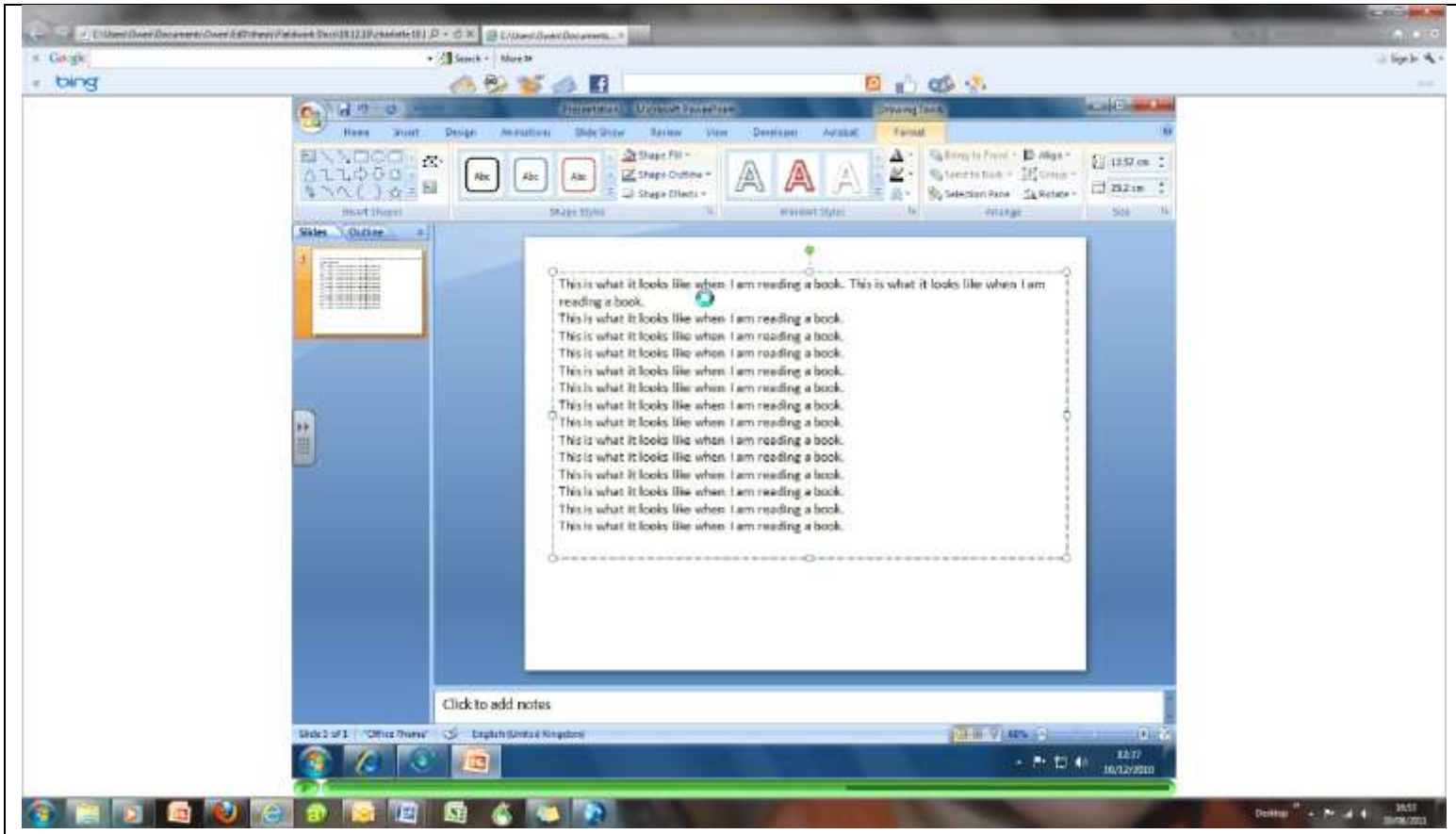
...and then I was watching Chloe's video on how dyslexia works for other people.



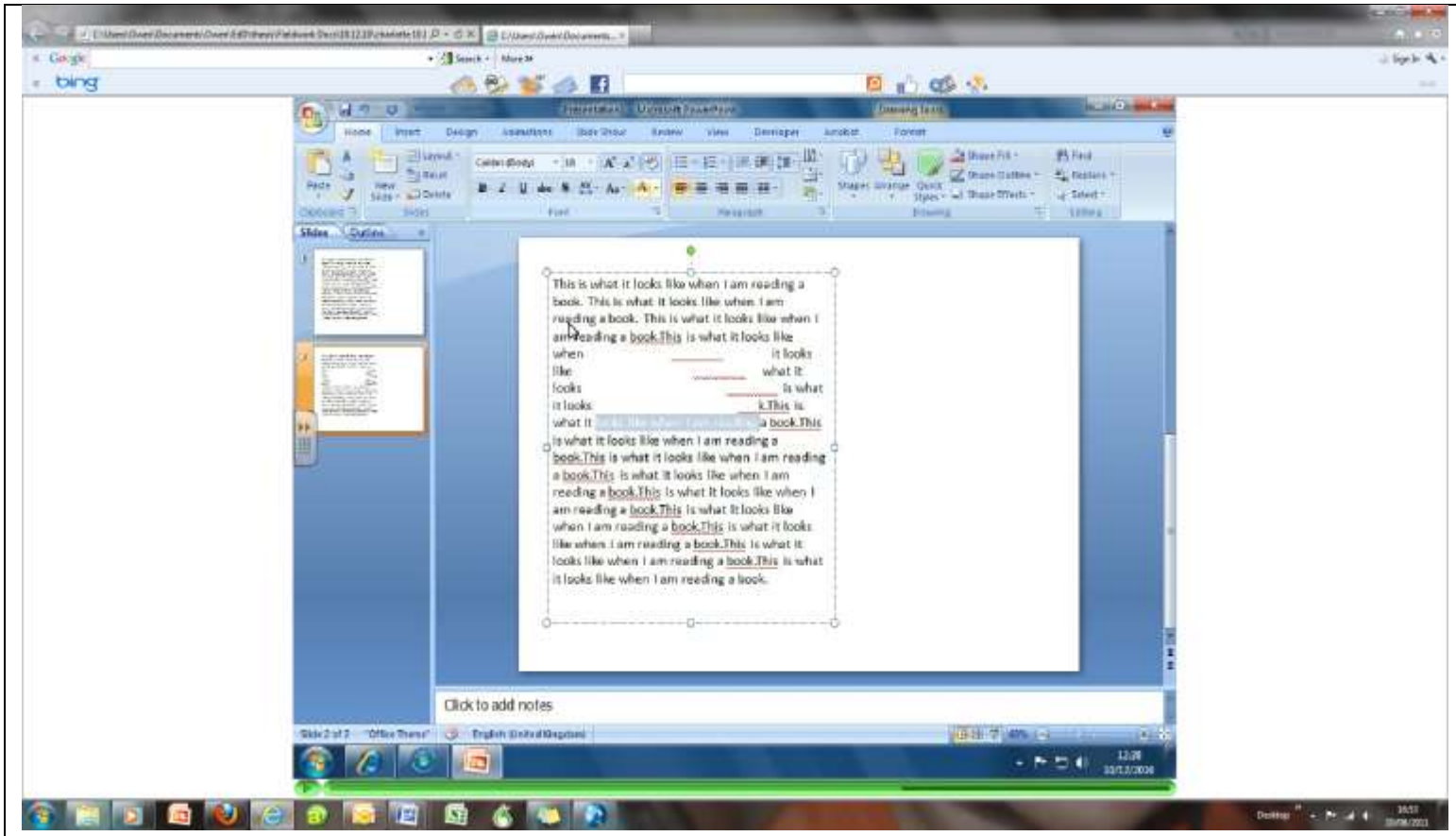
I thought I could do a little PowerPoint on the dyslexic like how other people see it but then I needed to figure out how to do it.

I went and looked at different pages to get some information on other people's experiences for dyslexia and then I went...I looked at the BBC website erm with something about words and the funny man...

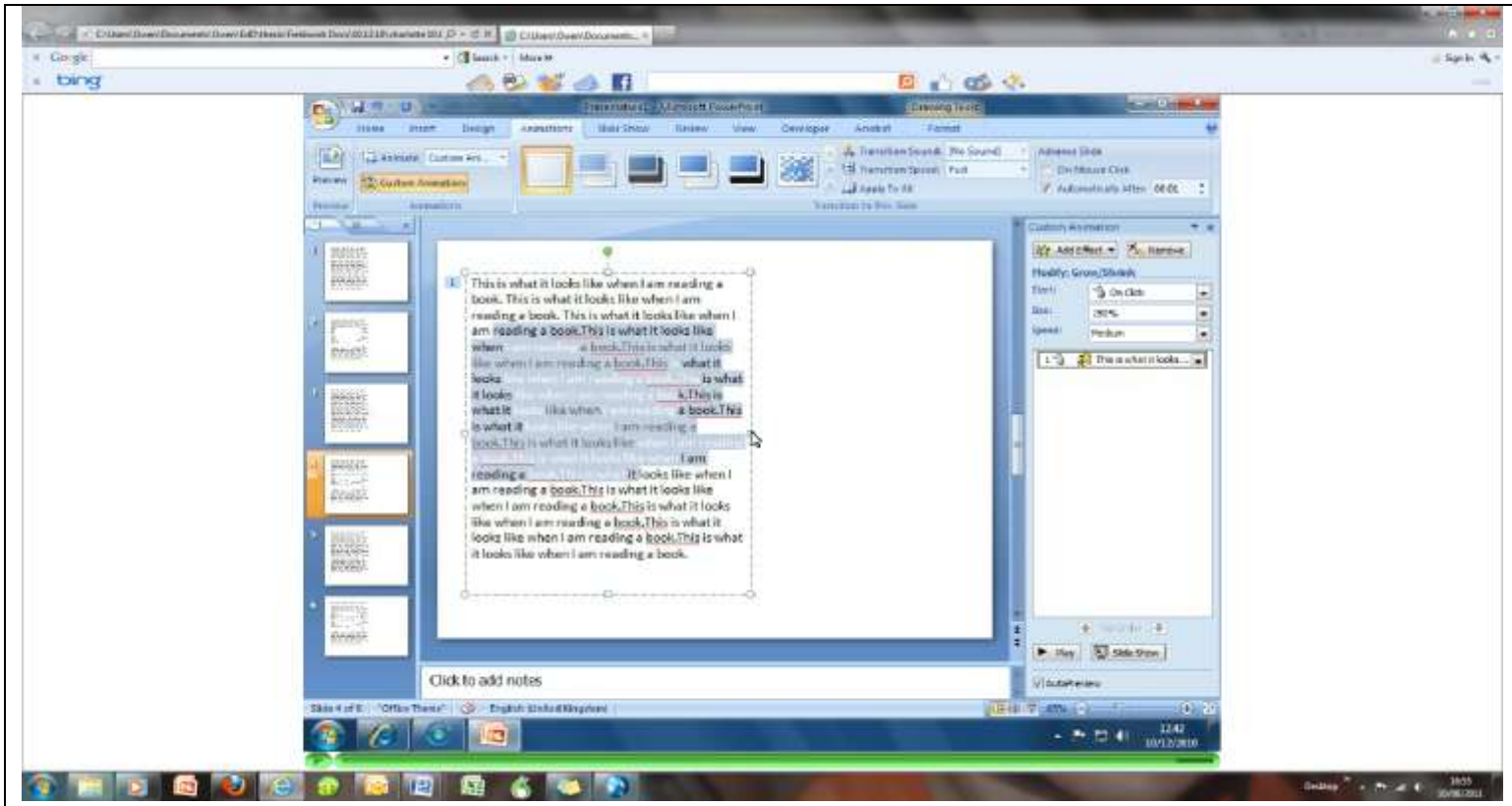
... and then I think I watched the video again...



and then I put into PowerPoint like "This is what it looks like when I'm reading a book" and then I put it into a little thing because what happens is the middle of the page disappears...



and then I tried to re-enact that so that everyone else can see it like in the video Chloe put up on Facebook and I don't think it worked that well so I had to put in a lot like loads of times...



and then I had to make the middle of the writing white and then I think I made it grey afterwards because it didn't work properly because I wanted it to like the flash up and like on and off so I had to make some of them grey and then I added some effects onto it and then I think it was the end of the lesson so I had to log off

6.5.1 Making Something That Works

This sequence of images and the accompanying commentary illustrate the way Facebook affords Charlotte a means of making something that works. The first stage in the sequence is her logging into Facebook and then navigating to the Superhumans page. She chooses to watch a video Chloe has posted (CovStudent, 2008). Inspired by what she sees, and (according to my fieldnotes although not evident in her commentary) influenced by Josh's creative response to Chloe's video posting, creating his own Powerpoint movie to simulate his experience of visual stress, Charlotte decides to make a video on dyslexia showing *"how other people see it."* Her response to Chloe's posting and Josh's reaction to it highlight how Facebook can be used for peer-to-peer teaching, and the theme of Co-constructing Knowledge (see Section 6.7).

Intriguingly, Charlotte sets herself a problem to solve in order to achieve her ultimate communicative goal: *"I thought I could do a little PowerPoint... but then I needed to figure out how to do it."* Charlotte did not ask me as the teacher, Josh, or any of the other students for help with solving the problem of how to create the animated Powerpoint movie she had in mind. She felt confident enough to learn through experimentation and trial and error, effectively expecting the software to teach her how to use itself (Gee, 2007). And she was successful. In less than half-an-hour, she produced her Powerpoint movie, complete with animations to simulate her experiences of the visual distortions she perceives when reading, and which are associated with her dyslexia.

However, after setting herself the problem, Charlotte's next move is not to experiment with Powerpoint. She waits to get the help she knows she will need "on-demand" and "just in time" (Gee, 2007). Instead, Charlotte's next move is to conduct some further research: *"I went and looked at different pages to get some information on other people's experiences for dyslexia".* This action is indicative of another facet of something that "works". Having the "right" information and accurate facts was

important to the participants. They valued and sought authority in a source and were careful to vet information before sharing it with others on the Superhumans page (as Chloe's work on the magnocellular theory and fish oils also illustrates; see pp.87). This is evident in Charlotte's choice of a page from the BBC website: in her second interview, she also asserted that: *"I like stuff from the BBC it's usually quite accurate compared to other stuff."* If we accept that in this educational context accurate information is a component of a text that "works", in the sense of being reliable and informative, Charlotte's move to triangulate the information from Chloe's YouTube video demonstrates another aspect of making something that works.

6.5.2 Links to other themes

The way Charlotte sets about triangulating also illustrates links to other themes I abstracted from the data. In looking for *"other people's experiences for dyslexia"*, Charlotte privileges the insider perspective. She does not look for the opinions of academic, scientific or institutional experts. Instead, Charlotte's stance here again appears to echo social models of disability and inclusive models of education. She treats fellow dyslexic people as the experts on dyslexia, and their testimony as something that will work to help her reach her communicative goal. In my analysis of this group, I have characterised privileging the insider perspective as a dimension of the theme Co-constructing Knowledge (see Section 6.7).

Charlotte's account also helps to confirm dimensions of a two other themes. Firstly, she watches the video Chloe posted more than once. This choice and control is a dimension of Levelling the Playing Field. Secondly, constructing the Powerpoint involves reading and writing. Charlotte must read the web pages she visits, (perhaps tactically - see Section 6.4.3), the menus in Powerpoint, and the text she has written to ensure it says what she wants it to. In setting herself the problem of creating the Powerpoint movie, Charlotte thus evidences Motivation to Engage in Literacy Events.

Despite Charlotte's move to triangulate by seeking other people's experiences of dyslexia, ultimately her Powerpoint becomes about her own experiences. Note the shift in perspective as her commentary progresses: "*I thought I could do a little PowerPoint on... how other people see it ...to get some information on other people's experiences...I watched the video again... and then I put into PowerPoint like 'This is what it looks like when I'm reading a book'... and then I tried to re-enact that so that everyone else can see it*" As she moves, apparently inspired by her second viewing of the video Chloe has linked to, from wanting to represent other people's experiences to representing her own, Charlotte's Powerpoint becomes explicitly about Identity Work. She uses the affordances of Facebook, as a distributed memory (Sparrow, Liu & Wegner, 2011 and see p.132, below) and pedagogic resource, together with Powerpoint's facilities for editing, arranging and processing text to transform the digitalia of a professionally produced YouTube video about an amalgam of other dyslexic people's experiences into something which works to communicate *"This is what it looks like when **I'm** reading a book... so that everyone else can see it."* In this way, the Powerpoint works to signal Charlotte's dyslexic identity as well as to illustrate on a more general level how dyslexia can affect the experience of reading.

I interpret the pedagogical implications of this data and theme as being the following:

- It has been claimed that digital epistemology is characterised by a trend amongst young people for a self-determined emphasis on procedural knowledge and critical, collaborative knowledge-making superceding that on declarative knowledge (Lankshear & Knobel, 2003; LeCourt, 2001; Loveless *et al*, 2001). Charlotte's actions in creating her Powerpoint appear to support this claim, as she makes a personal decision, influenced by collaboration with peers, to learn the procedures for operating Powerpoint. In doing so she makes knowledge about how Powerpoint works. She also engages critically with the text she produces: *"I don't think it worked that well...I made it grey afterwards because it didn't work properly because I wanted it to..."* . The affordances of

Facebook and Powerpoint thus enable active, critical literacy-based learning. This active, critical learning could be replicated in other settings.

- Charlotte's account shows that she can be motivated to engage with literacy events, even though literacy is usually problematic for students with dyslexia. In large part, her motivation stems from the capability to immediately respond to some learning (in this case about the effects of Visual Stress for other people) by doing and making something which is personally meaningful. Charlotte also has choice and control over *how* she responds. The implication is that teachers should find ways of enabling students to make personalised, creative, meaningful responses to planned learning. The evidence presented here suggests that Facebook and Powerpoint are potentially effective instruments for this.

- It has been argued that solving problems within meaningful experiences, and thereby creating new knowledge rather than learning old, is a type of learning many students with dyslexia find particularly motivating (Mortimore, 2003; Reid, 2009). Designing such problems is one way teachers could consider for enabling students to make personalised, creative, meaningful responses to planned learning.

- The fact that Charlotte was able, and chose, to access the video Chloe posted as well as other relevant resources linked to on the Superhumans page by her teacher, indicates that Facebook has the potential to be used effectively as a subject-based pedagogic resource. It can be used to encourage learning which has some input from the teacher but is characterised by self-determination and collaboration with peers.

6.5.3 Summary

In this section I have described the characteristics of Making Things That Work. I have presented an excerpt of my data to illustrate this theme. I have analysed that data to explain how one of my participants used the affordances of Facebook and related digital media to make something that works. I have suggested pedagogical implications of this theme.

6.6 Levelling the Playing Field

"Levelling the playing field" is a phrase that came up often in the interviews I conducted with the participants, and also in the group discussions we had about what we wanted the project to achieve. I did not introduce the phrase at any point: it came from the students. Although it could be criticised as a cliché, it was evidently a concept that was important to the group. Like the other themes, this theme and its significance arose from my reiterative study of all the observational and interview data. Unlike the other themes, there are no extended excerpts of data I can present which neatly encapsulate the situated meaning of Levelling the Playing Field in the context of this research. There were many small illustrations of Levelling the Playing Field, but I did not identify one "stand-out", cross-thematic exemplar on which to base my presentation of this theme. For this reason, my analysis of this theme is presented slightly differently to the rest of the themes in this chapter. I present a number of 'smaller' examples which allude to the potential for Facebook to level the playing field.

Students with dyslexia are quite justified in seeing the field on which formal education is conducted as uneven, bumpy and tilted against them, such that they find themselves playing a game strewn with vexatious obstacles. To use an analogy from amateur football, they always seem to be the ones "kicking uphill". The traditional, autonomous view of literacy (Street, 1984), which characterises literacy as a set of skills to be learnt, internalised and performed in the head of the individual, dominates education. Students with dyslexia typically find these skills very challenging and are much less likely to master them than their peers. In an education system which has and continues to privilege alphabetic literacy it is not surprising that dyslexic students can feel very strongly that they are not playing on a level field.

Despite rejecting the idea that dyslexia had had any significant negative impact on their lives when I interviewed them (see Section 6.6.3), my participants did say and do things that showed that they had been left feeling angry and frustrated when they didn't get

the help with literacy skills they felt they needed and deserved from teachers earlier in their school careers. Their comments support the idea that these students felt the school and educational playing field had been, and continued to be, biased against them, with serious consequences for their learning. Their expressed desire to inform others about dyslexia and the potential help and support available also indicates that they recognised the disadvantages people with dyslexia face in the education system and wider world.

The students felt that ICT, digital media and Facebook could go a considerable way towards redressing these injustices and hence levelling the playing field. They all saw continued need for 'specialist' support for dyslexia which utilised ICT, and they also saw mainstream ICT as having a role in redressing the imbalance.

My interpretation of the students' words and actions over the course of this project is that for them, levelling the playing field had the following dimensions:

- Keeping up to date and meeting deadlines
- Increased control over when, where and how (by what mode) learning happens
- Developing metacognitive awareness of one's own learning preferences and processes
- Developing awareness of, and taking increasing control over, literacy processes and demands
- Giving and getting help on demand

In Identity Work (Section 6.3.3), I discuss the students' role as helpers and experts, giving and getting help on demand. So in this section I will focus on the other dimensions listed above.

6.6.1 Increased control over when, where and how learning happens

Facebook is a multimodal virtual space. Students have access to it on their mobile devices, home computers and - sometimes - school or College computers. Teachers and peers can post links and other learning resources. Students can choose which resources to use, when and how often. They can also choose which to ignore or reject. Such choice is not merely a matter of convenience. It has some potentially profound impacts for students who find alphabetic literacy challenging. Instead of having to read through dense handouts or verbose textbooks to 'get at' detailed knowledge about a topic, students can simply search for and watch a video. If they don't understand, they can watch it, or parts of it, again - as many times as they like. The crucial thing for a dyslexic student is that they can attend to the visual and auditory modes - watching and listening (the modes where they are most likely to have cognitive strengths) without having to concentrate on the decoding of printed words and sentences (the mode which they are most likely to find most challenging)[12]. This implies faster learning, and learning in a way the student prefers and has control over. The memory challenge may persist, but digital media offer two affordances to counteract this: the video can be watched again, as often as needed; or the video can be embedded or linked to on Facebook page so that it has persistent presence on the relevant page, meaning the student can come back to it again at some point in the future if they need to. In other words, Facebook can 'remember' the video on the student's behalf (Sparrow, Liu & Wegner, 2011). They can then watch it again from almost any location, not just the classroom: Charlotte, for example, reported watching a documentary on the dyslexic EastEnders actress Kara Tointon, to which I had posted a link on the Superhumans page. She watched it first in the classroom during one of the project sessions, and then again at home with her family, partly for her own understanding and partly as a means of developing shared understanding of dyslexia and Charlotte's experience of it. In this instance, increased control over learning was thus motivated by

[12] See Sections 1.2, 1.2.3 & 1.3

Identity Work and Staying Connected. Charlotte's use of video to take control echoes Chloe's, as described in relation to fish oil supplements in Section 6.8.3.

6.6.2 Developing metacognitive awareness of one's own learning preferences and processes.

Linked to controlling when, where and how learning happens is the idea that students can develop their metacognitive awareness through a multimodal environment like Facebook. Metacognition means 'thinking about thinking.' It involves being aware of, and able to control, one's thinking and learning processes. The literature suggests that people with dyslexia tend to not to spontaneously develop good metacognitive awareness (McLoughlin, Leather and Stringer, 2002; Reid, 2009). Finding ways of improving metacognitive awareness has therefore long been a staple of the specialist literacy and study-skills teaching interventions usually advocated for people with dyslexia. Emerging evidence from neuroscience also suggests that, in *any* learner (dyslexic or not), fostering understanding of the brain and how learning happens has the potential to do more to improve future learning than simply teaching study-skills (Hinds, 2010; Royal Society, 2011).

There was evidence in this study that the students' self-directed learning was influenced by their learning preferences, and later altered and – according to the students' testimony - improved by their enhanced metacognitive knowledge. Here, for example, is Mohammed talking about his changing approach to reading and revision in his second interview:

Data Excerpt #9: "…before that I thought I was normal"

I er just found out when I come here six months before that I thought I was normal like other people but I did have difficulty reading...when I came here and when you did that test on me...it was a shock to me I don't know that this happens but I didn't know nothing about dyslexia but when I come to this group then I start finding out information about dyslexia and how it affects people…

[...]

Erm so you've learnt a fair bit then…has what you've learnt or has participating in the group changed the way you feel about dyslexia...
Yeah
...at all?
Yeah I do I feel I different now because before I used to like didn't used to like {unintelligible} revising like reading I just used to like read the page and then just write cover that up and write again but when I come here after that I changed my method of to revising I used to like just skip on my reading so and then put it on mind maps or like structure the notes I have differently than I used to do before and I think it's changed the way I revise now
Okay and what has what has prompted you to make those changes? Was it for instance things that you learnt from the page things you learnt from the group or was anything else?
No it was the things I learnt from the group and what you told us as well about how to revise from mind maps and all that
So it was it was a mixture of partly things I taught you and things you found out on here is that...
Yeah
...fair to say?
Yeah

Mohammed had only recently been identified as dyslexic when he joined the group. Because he had previously seen himself as 'normal' he had revised in what he considered the 'normal' way, repeatedly reading his original notes and then covering them to test himself. Mohammed's account shows how, in combination with the feedback from the dyslexia assessment itself, and direct instruction in revision techniques, he was able to use resources provided by his fellow students to develop better awareness of what would make learning more effective for him, and hence take greater control over revision. Revision is a major component of curricular learning for students sitting exam-intensive A-Levels, so having greater control over it is very significant.

6.6.3 Developing awareness of, and taking increasing control over, literacy processes and demands

My participants were acutely and surprisingly aware of the processes and nature of reading and writing. This critical awareness of literacy demands is a crucial component of the Identity Work and Motivation to Engage in Literacy Events discussed in the relevant sections of this chapter. Here I describe some of the ways in which students showed they were able to take greater control of literacy processes and demands.

Few would deny that it is difficult to learn well if we are physically uncomfortable. Yet students with dyslexia are often faced with persistent debilitating discomfort when they try to read and write. Chloe and Josh talked about the visual discomfort they experienced when reading; Mohammed described how his eyes would water if he tried to read for very long; Charlotte talked about the pain she got in her wrists when trying to write with a pen, even a specially designed ergonomic one. Digital media can level the playing field by giving students control over how they read and write, in such a way as to eliminate these discomforts. Chloe was able to change the background colour on her PC from white to peach, to enable her to read in comfort. Charlotte said that she could send *"thousands"* of texts or type on a computer keyboard with no difficulty, ever. At a very basic level, the students thus valued digital media, including Facebook, for the way they enabled them to participate in comfort in reading and writing.

Moreover, removing the discomfort associated with reading and writing allows students to focus on the quality of the text, rather than struggling to engage with it at all. This further levels the playing field. Like any group of diligent students, my participants were keen to produce "good" work for their College assignments and the contributions they made to the project: well presented, with "the right" facts, "proper" spelling, and correctly deployed vocabulary. The students' perception was that the editing affordances of digital media, and the facility to ask for and get help, either from

the peers or from the teacher, combined with the elimination of discomfort, was another way in which the playing field of literacy could be levelled.

A third way in which students took control of literacy processes was by engaging tactically with reading and writing (Williams, 2011). Digital media help to level the playing field, but they do not flatten it completely. Reading and writing still present significant challenges, even with digital media tools. In addition to attending to individual texts tactically (Section 6.4.3), the variety of texts available to students online helps them to select reading which they feel has the right content and is at the right level for them, without necessarily relying on a teacher to select for them. This is important, because in selecting a text based on the anticipated reading ability of a whole class, a teacher is likely to choose a text which a dyslexic student will find inaccessible or demoralising. However, the nature of my participants' on-screen activity was often characterised by fairly rapid switching between different windows, cycling in quick succession through a range of information sources. The students' observed behaviour, and their interview responses, indicates that they were happy to read or write tactically in order to gain or produce a summary of their learning. But they would tend to privilege other modes - video, or discussion with a peer, most likely - for getting the detail of a topic. In this way, they orchestrated and interpreted multimodal ensembles to communicate or construct meaning (Kress, 2010). They were able to take control by foregrounding information presented in particular modes, according to personal preferences and the affordances of mode, in order to construct and disseminate knowledge.

Taking control in this way is significant because it is an aspect of critical literacy. Critical literacy has received scant attention in the literature on specialist tuition for people with dyslexia (Hunter-Carsch, 2001), which has focussed almost exclusively on 'skills and drills.' Yet all students need to develop critical literacy, including awareness of the affordances of different modes in an increasingly information-saturated online world

(Facer, 2011; Gee, 2007). The implication for pedagogy is that teachers should foster critical awareness of how to arrange and interpret multimodal texts. This is levelling the playing field by treating modes more equitably: students with dyslexia are likely to have talents in some modes to complement talents of non-dyslexics in alphabetic literacy.

6.6.4 Summary

In this section, I have argued that Facebook represents a way of levelling the playing field for my participants. Like many students with dyslexia, they justifiably feel that the education field entails an uphill battle for them. Digital media, including Facebook, have the potential to level the playing field and make education more equitable. I have described how the multimodal online environment helped the participants take more control over their literacy and learning. I have suggested that the evidence from this project supports calls for teachers to foster critical digital literacy in their students.

6.7 Co-constructing knowledge

In tune with current thinking on Web 2.0. epistemology (Dede, 2008; Kress, 2010) my students seemed to subscribe to a view that sees knowledge as constructed and held collectively, rather than separately in the minds of individuals. This epistemology combines opinions and beliefs with objective facts to reach some sort of negotiated collective agreement which is fluid and inevitably provisional. I did not explicitly instruct the participants in "ways of knowing." They had gained this perspective elsewhere. Their responses in interviews and contributions to discussions also helped to reveal their sense of knowledge being co-constructed. More evidence to support this claim comes from the ways I observed the participants interacting with each other and their contributions to the Superhumans page. I interpreted practices of co-constructing knowledge as having, for this group, the following dimensions:

- Co-constructing knowledge with other participants
- Co-constructing knowledge with the teacher
- Co-constructing knowledge with friends and family
- Co-constructing knowledge through face-to-face discussion
- Co-constructing knowledge through the Superhumans page
- Privileging the student perspective on learning
- Valuing insider perspectives on dyslexia
- Seeking alternative perspectives on the world

The first three relate to constructing knowledge within affinity groups. The next two dimensions relate to processes of knowledge construction. The final three indicate preferences for how to go about constructing knowledge. These values were evident, for instance, in the aims and outcomes they agreed for the project:

1. Getting the point that Facebook can benefit education across to senior College management
2. Using Facebook for peer support, to improve learning
3. To find out what other people think about dyslexia
4. Making people more aware of dyslexia and its effects
5. To find ways to overcome dyslexia, and prove that the participants and other people with dyslexia aren't stupid and are normal
6. To show that students can be responsible using social networking sites
7. To help the College's reputation by showing that it trusts students
8. To prove that a different form of communication is efficient / better, by showing students communicating about work

These aims suggest that the participants envisaged that by working with each other, the teacher, and peers outside the Facebook Research group, to co-construct 'some of collective agreement' about dyslexia via the Superhumans page , they would be able to 'prove' that Facebook had educational benefits (the work with family was apparently unforeseen and arose later in the project). As dyslexia 'insiders', with student perspectives on learning, they would be able to influence others' constructions and make people more aware of the effects of dyslexia, ways to *"overcome"* it, and the fact that people with dyslexia *"aren't stupid."* By having "*To find out what other people think about dyslexia"*, the group appear to be seeking alternative perspectives on the world in order to construct their understanding of dyslexia. The significance they invested in 'famous' role models with dyslexia, and other evidence from people with dyslexia, as their research progressed helped to confirm the importance of insider and alternative perspectives. Although the students did not anticipate it, much of their knowledge construction work was conducted offline and face to face via discussion with each other and fellow students outside our classroom. The ways in which the group used the student perspective to co-construct knowledge are now discussed further.

6.7.1 Peer Learning through Facebook

From the outset it was clear that the students privileged the student perspective on learning. They appeared to value opportunities to learn with and from peers, rather than simply being told by a teacher, or being given prescriptive reading or writing tasks like filling in handouts and workbooks. Learning in this way was seen as more accessible, relevant and *"down to earth"* than teacher-led classroom instruction. This peer-learning could take place in two principal ways: through each other's posts to the Superhumans page, and through face-to-face discussion. The ways in which they responded to each other's posts provided evidence that the students could 'teach' each other indirectly through their contributions to the Superhumans page. Spoken dialogue was not always necessary for this 'teaching' to take place. I have described in Section 6.5, for example, how Charlotte was motivated to produce her own Powerpoint movie on visual stress by watching a YouTube Video that Chloe had linked to on the Superhumans page, and then observing Josh beginning to create his own Powerpoint movie. In this instance, the 'teaching' took place through Chloe providing a learning opportunity which Josh took, using it to unintentionally model a creative response for Charlotte. Through this combination of interaction on Facebook and direct observation in the classroom, Chloe and Josh scaffolded a motivating learning activity for Charlotte, without any direct intervention from a teacher.

6.7.2 Peer Learning Through Offline Discussion

Face-to-face discussion was equally, and perhaps even more influential than Superhumans page in the co-construction of knowledge. During the project sessions a lot of time was spent discussing aspects and experiences of dyslexia. There was a lot of Identity Work going on in these discussions, but this work on co-constructing identity was bound up with co-constructing knowledge about dyslexia. It is important to realise though, that although discussions may have been prompted by activity in the classroom, they were not geographically or temporally limited to the classroom. I

discuss in Section 6.9.1 the example of conversations Chloe reported she had with a dyslexic friend in Biology lessons, and with her father, which were based on the Superhumans page.

The following excerpt illustrates the way the students co-constructed knowledge through face-to-face conversation. The discussions the participants had in class were rich and often insightful, as this example shows. It is an excerpt from the project session on 10th December, when the students, at my prompting, were expanding on ideas they had started to develop the previous week for what to include in the first video they made. This activity provided an opportunity for them to summarise what they had learnt so far. In the discussion, the students draw on knowledge of self, family, genetics, biology, neurology, medical science and role models as they try to decide what to write down to answer the question "What is Dyslexia?" In doing so, they co-construct a collective agreement about the nature of dyslexia which combines several strands of knowledge:

Data Excerpt #10: "Be quiet with your damn chromosomes"

Erm what it is what dyslexia is just put down what it is
We don't know
Learning disability
To me what I see is I see dyslexia is a thing it's the problems y'get
Mmm
Because y'can't really there isn't an easy way to describe it without y'know usin' the problems
They don't know what the cause is yet so
Learning disability can't read write
It can be genetic
It is genetic isn't it
Yeah I think mine's genetic
Mine's genetic
I think my Dad's got it
Me Dad me Nanna and me Great Nan
My mum and my Grandad
I think it well it is in my stepdad's family he's got it his dad had it and his son's got it but no-one in the female side's got it
That's just chance

{inaudible}
Yeah because it depends on the mixture doesn't it cos my brother's not got it he is clever he got he's got an artistic flair but he's not got a design flair if you get me
Mm
No
{inaudible} chromosomes line up when you're…
Oh shut up
{inaudible} in Biology
They don't know exactly what it is yet
It's an actual it can be physically detected
Can they is it them scanny things
Well yeah cos like if
You get patches don't ya
We were saying before that if y'know once that our brains are symmetrical...
Yeah
...and normal people's aren't you get them people that say oh it's not a real thing how do they explain that
Yeah
They can detect it in erm newborn babies {inaudible} dyslexia thing there's row 13 chromosomes that can set reading and writing
Be quiet with your damn chromosomes
I just read it then. And apparently it can be detec- detected in unborn babies
Row of 13 how d'you spell chromosomes?
Kuh-huh-ruh-o-muh...
mm
o-suh-o-muh-es-uh I think
[...]
What else have we learnt about the project?
About all the famous people that're dyslexic...
The brain
...and the brain yeah
Brain
Overcompensating for lack of sense
-es
[...]
Erm visual cortex failure
It's an occipital lobe the cortex is actually bits of the actual layer of the brain so the cortex is the wrong terminology it'd actually be in the occipital lobes back there
How d'ya spell occipital lobe?
{Laughs}
No
Have you done the brain? Cos I can't...
O-c-c-i-p...
Y'don't get to do the brain Biology I'm quite disappointed

It's not that interestin if I'm honest
Erm d'you...
I'd rather learn about the brain than plants
Granted

6.7.3. Constructing knowledge of dyslexia through discussion

Despite Charlotte's initial assertion that *"we don't know"* what dyslexia is, it can be seen that this is quite clearly an informed debate on the subject. In fact, given that there is currently no consensus on what dyslexia is, as discussed in Chapter One, Charlotte is quite justified in her uncertainty. Chloe's response to Charlotte's comment is *"learning disability."* This is a response which is based partly on lived experience, reinforced by the work done on the project. Recall, for instance, Chloe's investigation of fish oils and visual stress (p.87, & Section 6.8.3), which reinforced the deficit, medical-model discourse of dyslexia as disability. Further evidence for Chloe's research reinforcing this construction of dyslexia comes, for example, from a blog post which Chloe linked to on the Superhumans page, which uses the language of deficit, such as *"faulty communication"* and *"Dyslexics require special training"*:

> Dyslexia seems to be caused by faulty communication between the eyes and the brain... the brain does not interpret these signals clearly... Dyslexics require special training to be able to interpret what they see in ways that let them extract the necessary info to be able to interpret them correctly.
>
> Jones, 2010

Josh makes the next contribution to the discussion, reinforcing Chloe's position but introducing a personal tone by opining that dyslexia *"is the problems you get"*. Chloe now takes a more scientific angle, bringing in the ideas of *"causes"* and *"genetic".* This enables Charlotte to make her first original contribution to the conversation, asserting that *"mine's genetic."* There then follows an exchange in which the three of them co-construct an understanding of dyslexia based on sharing and comparing their family histories of dyslexia. Note how the conversation touches on both heritability and

individual differences: *"I think it well it is in my stepdad's family he's got it his dad had it and his son's got it but no-one in the female side's got it...That's just chance... Yeah because it depends on the mixture doesn't it cos my brother's not got it he is clever he got he's got an artistic flair but he's not got a design flair..."*

The discussion then takes a different turn, with Chloe reintroducing a scientific perspective through introducing her knowledge of chromosomes from Biology, augmented with her own research findings - *"I just read it then"* - on newborn babies and *"chromosomes that can set reading and writing."* There is also some discussion of medical science - brain scans - in this section. Josh is able to bring in some learning of dyslexia theory from workshop sessions earlier in the year, before the project began. Josh's contribution is thus an example of working with a teacher and peers to co-construct knowledge; I had originally enabled him, some weeks previously, to 'discover' this knowledge, which he now brings to the group's consciousness: "*We were saying before that if y'know once that our brains are symmetrical... and normal people's aren't."*

6.7.4 Discussion about Dyslexia as Identity Work

There is then a joint attempt to spell "chromosomes", which leads to a some critical discussion of alphabetic literacy, which I have omitted here as it is presented and analysed in the section on Identity Work earlier in this chapter (see Section 6.3.2). Note how this excerpt from the conversation is also very much driven by Identity Work. The students draw on their own lived experiences, thereby sharing aspects of their individual identities, in working collaboratively towards constructing collective understanding of dyslexia. There is also a quasi-competitive edge to the conversation. Although the conversation is good-humoured and essentially supportive, the participants can be seen subtly jockeying for position according to who (or who's family) is the 'most' dyslexic. This competitiveness can be interpreted as evidence of

an essentialist view of dyslexia, with the students claiming dyslexia as fundamental to their senses of self.

The excerpt concludes with reference to *"famous people that're dyslexic"*, a remark with two levels of implicit significance. Firstly, it alludes to the elevated, quasi-superhuman status often awarded to celebrities, and helps the students associate themselves with celebrity and talent. Secondly, it again hints at the significance of insider perspectives on dyslexia, before returning to discussion of relevant regions of the brain. Josh and Charlotte may not be able to spell "occipital lobe", but this does not stop expert knowledge being exchanged and developed. The teacher's role as facilitator in the construction of knowledge is again illustrated here, with my role limited to offering help with spelling. The help I provide with spelling is a useful reminder that the stated reason for this conversation taking place is to help the students develop a script for a video, and Charlotte is mindmapping the ideas throughout. As well as Identity Work, the conversation thus demonstrates further Motivation to Engage in Literacy Events.

6.7.5 Implications for Pedagogy

My limited involvement here helps illustrate that although the participants accepted me as a guide and facilitator of their learning, who had enough institutional authority and trust in them to help them co-construct the knowledge which would enable them to meet their own educational goals, rarely did they seek or even seem to need direct instruction in the research topic of dyslexia. This chimes with two of Gee's (2007, p.226) learning principles:

1. Explicit Information On-demand and Just-in-Time. The learner is given explicit information both on demand and just in time, when the learner needs it or just at the point where the information can be best understood and used in practice.
2. Discovery Principle: Overt telling is kept to a well-thought out minimum, allowing ample opportunity for the learner to experiment and make discoveries.

6.7.6 Summary

In this section I have argued that, in line with current thinking about Web 2.0 changing epistemology, my participants subscribed to a social-constructivist conception of knowledge. This is a worldview that sees knowledge as co-constructed and held collectively, rather than individually. I have presented evidence showing that the participants privileged peer-learning (including that mediated by web 2.0 environments including YouTube as well as Facebook) over direct instruction, illustrating the ways in which they negotiated a collective agreement about the nature of dyslexia and its implications for identity via the Superhumans page and face-to-face discussion. I have suggested two pedagogical principles the evidence presented evokes.

6.8 Cutting Out The Faff

"Faff" is a word used colloquially by people local to the College. Here, if something is awkward, fiddly, frustrating or seems to take longer than it should, then it is a “faff.” My participants disliked faff, especially if they felt it got in the way of their learning. They cited several things that could be classed as “a faff”, including:

- Trying to ring a friend who has no credit
- Trying to text a friend who has their phone switched off
- Delays in texts reaching people
- Accessing and using Ozone, the College's VLE
- E-mailing a teacher for help or advice on an assignment.

Chloe used the phrase “cutting out the faff” in her initial interview. I initially adopted it as an *in vivo* code, later raising it to a category. It maintains student voice in this section of my analysis, and seemed to neatly summarise an affordance of Facebook, and other digital communications technologies, which was valued by the students. For my participants, “cutting out the faff” had the following dimensions:

- Expecting to find information quickly
- Levelling the Playing Field
- “Getting stuff done”: working towards goals quickly and efficiently
- Getting help “just in time” – as and when needed, whether from a friend, peer or teacher
- Immediately acting on new knowledge
- Staying Connected / universality

6.8.1 Disliking Faff

The participants were aware of, and frustrated by, the limitations of mobile technologies and the College's use of "official" digital communication channels. They expected to be able to contact their friends and teachers, and locate information needed for their studies, quickly and without hindrance. Hindrances might include the costs associated with the use of mobiles for texting or making calls, or teachers neglecting to upload the necessary files to Ozone, the College's VLE. The students perceived Facebook as a way of circumventing these hindrances. With mobile internet access included in their agreements with the phone companies[13] they didn't see data costs associated with accessing the mobile web as a barrier. There was an assumption that fellow students would have comparable mobile web access, and would therefore also be available at any time to give or get help or information on demand (see Staying Connected, Section 6.9).

The students were particularly critical of the College's "official" digital channels, including e-mail for contacting teachers and Ozone for accessing curriculum materials. Some of my earlier research in the College (Barden, 2009b p.12) had indicated that students felt that e-mail was just another way of *"teachers telling me to do more work."* Logging in to their e-mail accounts was seen as a faff, and the delay between sending a teacher an e-mail and getting a response as a faff. Both studies indicate that the students did not use e-mail to communicate amongst themselves, there being no point when a response could be gained more quickly through other channels. E-mail was thus perceived as slow, and unidirectional, or at least strongly biased in favour of information flowing from the College to the students. An excerpt from Charlotte's initial interview illustrates the practice of bypassing e-mail to cut out faff:

[13] Unfortunately I neglected to ask whether they paid for their phones and associated costs themselves, or whether their parents did

Data Excerpt #11: "... she's not even used her e-mail once this year"

Okay do you think Facebook or similar sites could help your learning?

Er I do because erm if you've got access to talk to the teachers or access to talk to your other students in the different classes say if someone else was in a different class and you were in a free period and you just messaged them saying I need help with this Psychology can we meet up at lunch then obviously that's gonna be helping you with work or you could just even ask your teacher instead of e-mailing them...

Yeah

...you could Facebook message them and say can you tell me when the workshops are

Why do you want to avoid e-mailing them?

Well not everyone goes on e-mails I to- I was talking to my friend the other day and she's not even used her e-mail once this year

I mean I students are always told to check their e-mails so why do you think they don't use it?

Because not everyone uses computers in their lessons I mean they'd obviously have to go specially go to the JU or the library or through their phone to get onto the e-mail and...

But that's going to be true of Facebook as well though isn't it?

Yeah but most people do have Facebook on their phone and it takes a lot more effort in a way to get onto the e-mail than it does onto Facebook

6.8.2 Using Facebook to Cut Out The Faff

There is some Identity Work going on here, with Charlotte positioning herself as a responsible student using her free periods to meet up with a friend to get help with her work. However, each of the students independently made claims for the potential of Facebook to cut out educational faff in this sort of way. In addition, one of their collectively agreed aims for the project was to *"prove that Facebook can benefit education"*, suggesting that there was more at stake here than careful presentation of individual identities. Linking with Staying Connected and universality (see Section 6.9.2), Charlotte's comments here also reveal a desire to communicate quickly and efficiently in order to get help and achieve something meaningful, which will help her with her learning.

The students were also readily critical of the College's VLE, known as Ozone. As with e-mail, the act of having to log in was seen as a faff. Students were further disinclined to engage with Ozone because they felt that teachers were not using it properly – files and information from lessons, or links needed for further independent study, were missing or difficult to find. They felt that technical and compatibility issues also prevented some students accessing Ozone some of the time or even altogether. Having used Ozone as a teacher, I have sympathy with the view that it is difficult to organise information in a way that makes it easy for students to readily locate the information they need. For example, each student has access to an area for each of the subjects they are studying. Each subject area is then subdivided into four folders: Announcements, Calendar, Documents and Links. As a teacher, I might want to ask students to look at a document, such as a Word file or Powerpoint presentation, and then explore some links associated with that document. On Ozone, the student is then faced with having to navigate somewhat cumbersomely through two different folders to access the material and learning I have planned. If the work is associated with an assignment, they will have to go to another folder – probably Announcements or Calendar, depending on the teacher – to check the deadline. All of this would - quite understandably – count as a faff.

The students saw Facebook as an obvious solution to all this faff. Because of its perceived universality, they saw Facebook as a place where they could get all the information and help they needed, in one place, when they needed it. Independently in their interviews, they envisioned each class or subject in the College having its own Facebook page. This page would have all the necessary teaching and learning resources needed for the course. Each student taking that subject would be a Facebook friend to that subject group. Because students are "*always on Facebook*", the perception was that, at any given time, someone would be available to answer queries - about deadlines, say – or offer help. My participants saw this help as potentially being offered in two ways. Firstly, by the direct answering of relatively simple queries (an example

might be something like *"What have we got to do for this week's Law homework?*"). They saw things operating differently in the second circumstance: when they were truly "stuck" on something and needed more in-depth help. In this situation, as exemplified in the excerpt shown above, they anticipated using Facebook to quickly arrange to meet to get help face-to-face and one-to-one, either with a fellow student (the greatly preferred option) or perhaps with a teacher (much more reluctantly and much less likely). Despite its recognised facility to sediment and hence "remember" conversations, the students did not anticipate using Facebook to conduct extended exchanges – chats, for example – to give and get help or information. Neither did they mention Skype or similar video-calling utilities. Instead, they privileged offline, face-to-face interaction (see Staying Connected, Section 6.9).

6.8.3 Chloe Cuts Out The Faff

Chloe enacted a very clear example of "cutting out the faff" to achieve something meaningful she felt would enhance her abilities as a learner. The event was captured in one of her Wink recordings and she subsequently provided a commentary as part of the protocol analysis procedure, included in the introduction to this chapter. A significant proportion[14] of people with dyslexia perceive unusual visual effects when they are trying to read. Chloe is one such person. These effects have a number of names, including Meares-Irlen syndrome, Scotopic Sensitivity, and Visual Stress. They are common in, but not exclusive to, people with dyslexia. They are often most pronounced when black text is presented on a white background, the usual combination for paper-based texts and for many web pages. The effects vary from person to person, but include such things as the text appearing to move, shake or dance around the page; the text (or portions of it) coming in and out of focus; difficulty tracking (keeping on the same line); the white background "glaring" and seeming brighter or more prominent than the text; or seeing dots, patterns or colours not

[14] Estimates vary from one-third to one-half

printed on the page. These effects can trigger unpleasant secondary effects such as nausea, dizziness and headaches. When faced with these effects - probably just about every time they try to read – it is not surprising that people with dyslexia can find reading highly problematic and difficult to sustain, and so often try to avoid it.

The usual solution is to use colour. Coloured backgrounds seem to alleviate or eliminate the effects for most people, for reasons which remain unclear. Using colour does entail faff: the person has to change, by a variety of means depending on the medium[15], the appearance of the page to make it readable (this is why Chloe's screenshots show peach backgrounds rather than white). However, during her research for this project, Chloe encountered another potential solution. She came across a video on a website I had linked to on our Superhumans page. The video was of Professor John Stein of Oxford University, talking about the beneficial effects of fish oils on the brain and hence learning.[16] Stein is a leading proponent of the "magnocellular theory" of dyslexia (Stein, 2001). The magnocellular theory of dyslexia attempts to explain why some dyslexic people perceive visual distortions when they read. In the video, Professor Stein suggests inclusion of fish oils in the diet to complement the use of coloured backgrounds or other similar adjustments and thereby help reduce visual stress for those dyslexics who experience it. As such, fish oils are presented as a way of Levelling the Playing Field (see p.87). In one session, Chloe watched the 7-minute video twice. She read some of the comments on the page and then looked at some other reputable dyslexia research and information websites to corroborate what Stein had said. She knew, having checked when she first logged onto Facebook for the session, that her mum was also logged on. Satisfied that the information on fish oils was accurate, she messaged her mum through Facebook, asking her to buy some fish-oil supplements.

[15] These include using coloured paper, plastic reading overlays, changing the screen colour, or wearing tinted lenses

[16] I am aware of the controversies associated with this topic but a discussion of them is beyond the scope of this study and is hence omitted

I now relate Chloe's actions to the dimensions of "cutting out the faff" I posited above. Within the space of 45 minutes, she was able to *find relevant information quickly*, accessing expert knowledge on a topic of great personal interest and significance (from an expert who normally publishes in text books and academic journals, and whose knowledge would therefore usually be inaccessible to a dyslexic A-Level student). She was also able to *find additional information quickly to help her* triangulate and corroborate that knowledge. Finally, the *universality of Facebook meant that her mum was online* and so Chloe was able to *act immediately* to *get something done* which she felt would help make her a better reader and hence learner, *getting further personalised help just as she needed it*, all without leaving her screen or seat. This is "cutting out the faff."

6.8.4 Summary

My participants expected their digital communication and information-finding to be quick, efficient and hassle-free. They were disinclined to use the College's official digital communication channels, e-mail and Ozone. These channels were problematic because of the amount of "faff" they entailed. The participants saw Facebook as an obvious way of "cutting out the faff", and thereby improving their education. They perceived this affordance as a property of Facebook's perceived universality and ease of use. I have presented an example of one of my participants using Facebook's ability to cut out the faff to "get stuff done" and hence Level the Playing Field.

6.9 Staying Connected

Hulme (2009, p.2), characterised young people (which he defined as 16-24 year olds, a range which includes my participants) as living "hybrid" online/offline lives, weaving complex tapestries of communication. Much of the work my participants did during this study involved weaving such tapestries. A lot of their effort, in both the digital and concrete worlds (Stirling, 2011), was expended in "staying connected" with their friends and families. The students also expressed desire to use Facebook to stay connected with their teachers. Staying Connected has the following dimensions:

- Maintaining and extending affinity groups (Gee, 2007): friends & dyslexic friends, family, academic (peers & teachers)
- Universality: perceiving universal, cost-free access amongst their affinity groups, and thereby communicating efficiently.

6.9.1 Maintaining & Extending Affinity Groups

Gee (2007, p.212) defines "affinity groups" as people "bonded primarily through shared endeavors, goals and practices." I saw evidence of my participants working to maintain five types of affinity group. Not all participants were active in all types of group: individual priorities, purposes and sense of identity influenced which affinity groups each student worked to stay connected with. The groups existed as flexible, overlapping entities. The five types of affinity group I identified were:

- The Superhumans Facebook group
- Friends
- Family
- Being dyslexic
- Being a member of the College

The most obvious affinity group was the Superhumans Facebook group. This was the informal name I gave to the five participants. It seemed fitting on two counts. Firstly, they were using Facebook to conduct their own research on dyslexia. Secondly, I was researching their use of Facebook. This group had explicit and tacit shared endeavours, goals and practices. One explicit goal they had was to collaborate to try and influence the College's stance on the educational value of Facebook, through their research practices. Tacitly, and perhaps even subconsciously, much of their dialogic identity work helped them to move towards a goal of bonding as a group of dyslexic students. This can be seen in the way classroom conversations were structured around sharing experiences of dyslexia, and the supportive exchanges and utterances made between the students during these conversations (see Section 6.3.2). Working towards this tacit goal enabled them to make progress towards another goal: that of influencing people's perceptions of dyslexia. Again, there were implicit and explicit dimensions to this goal. Explicitly, the students wanted *"to prove that we're not thick"* to outsiders. Implicitly, this involved some re-framing of dyslexia into a more positive experience, as discussed on p.103.

However, it would be wrong to assume that the Superhumans Facebook affinity group only consisted of the five participants and myself. Chloe, Charlotte, Mohammed and Joshua all talked about significant offline conversations which either involved or recruited new members to the affinity group. Charlotte reported conversations with her parents and a friend, and Mohammed with his cousin. Josh spoke of *"quite a lot"* of conversations with classmates resulting from *"capturing"* people via the Superhumans page. Chloe reported that the Superhumans project prompted her to have lengthy offline conversations with a dyslexic friend, and with her Dad, who apparently thought that he might be dyslexic:

Data Excerpt #12: "... he give me in-depth hour-long reports on how interesting he thought it all was"

Right so the first thing that I can see that you did erm here is to add...
Ryan
...yeah a friend Ryan to the group
He does dyslexia support...
Yeah
... in another one of the classes here...
Yeah
...and I was telling you about it and he was interested so I added him
So you added him right okay and did he what happened after you added him did he do anything…
He used to speak to me about it because we had Biology...
Yeah...
...he used to come in Biology with me and we used to speak about things and like all the stuff we did about the brain when we first started researching it and stuff I told him about all that...
Okay
...and he like found it really interesting
Good right okay erm so you had conversations in Biology erm
{laughs} instead of doing Biology
Yeah {laughs} erm anything else did he talk to anyone d'you know or…
I think he spoke to a few people a few of his friends about it
Right
and he knows quite a few dyslexic people at the College
yeah okay
so I do think he spoke to other people about it
[...]
Erm then ah here you added some more friends
Yeah
Can you remember why you did that?
My dad was being nosy and my friend Lauren does English language so she was findin it was quite interesting
[...]
Okay erm alright any response from your Dad?
He thought it was interesting he give me in-depth hour-long reports on how interesting he thought it all was
Right what did he find interesting about it?
Well he thinks he's dyslexic and his mum was dyslexic and he said it was interesting to like watch it and see things and think yeah I do that and yeah I do that and yeah that explains why I do that
Okay
And he he was just genuinely being an annoying Dad

Chloe's comments illustrate that the affinity groups the students belonged to had flexible, overlapping memberships. She extends the Facebook Research Group by recruiting Ryan online. Ryan is already a member of her "friends" and "being dyslexic" affinity groups. Chloe also adds her Dad, already a member of her "family" affinity group and a potential member of her "being dyslexic" affinity group, to the Facebook Research affinity group. Recall that in her Wink commentary (pp.84-89), Chloe revealed how she wove online and offline strands of her communicative tapestry by messaging her Mum on Facebook (online) to instruct her to buy some fish-oil supplements (offline). Her account here also shows how she frequently fused these strands. Her online acts of adding Ryan and her Dad were followed in both cases by extended offline conversations. These conversations contributed to Identity Work and the Co-construction of Knowledge, as Chloe, her Dad, Ryan and other friends used online and offline resources to collaboratively develop understanding of dyslexia and self, weaving public threads into their own personal tapestries: *"He does dyslexia support... and he was interested... and we used to speak about... the brain...and stuff... he like found it really interesting... he knows quite a few dyslexic people at the College... so I do think he spoke to other people about it [...]and he said it was interesting to like watch it and see things and think...yeah that explains why I do that."*

6.9.2 Universality

The participants saw the potential of Facebook for staying connected with teachers and peers. An important aspect of this was enabling them to give and get help on-demand. The students saw this facility and imperative to stay connected as being afforded by universality and ease of cost-free access they and the members of their affinity groups enjoyed with Facebook.

The imperative to stay connected is demonstrated by the way the students prioritised adding friends to the group. Within two hours of the Superhumans page being launched, my participants had recruited 59 friends to the group. Mohammed's first

contribution to the group was to add 35 friends. After creating the group and adding me, Mohammed and Chloe, Josh's first contribution was to add his girlfriend to the group, and he added another seven people during our first session. Chloe's first contribution was to add five friends. The participants worked to sustain these connections throughout the life of the project. During our project sessions, I observed the students frequently checking for messages with friends and family. They almost always checked for messages soon, if not immediately, after logging onto Facebook, and would keep checking throughout the sessions (some of this was captured via Chloe's Wink commentary). Through constantly maintaining these connections, the students were able to work towards a variety of goals across the domains of their social lives, family lives and academic lives. Students exchanged messages or uploaded photographs to arrange their social lives and maintain their place in peer networks. They communicated with family members about the project, dyslexia and also family matters, as this second excerpt from Chloe's initial interview illustrates:

Data Excerpt #13: ... everybody I know's got mobile Internet now

How often do you use social networking sites at the moment?
Every day
[...]
And what sort of things do you use it for?
Er just like talking to me friends on Facebook and uploading pictures an' planning nights out and things like that oh and checking for homework...
Uploading pictures erm now are you telling me that [checking for homework] because it's something you actually do or because
Oh god no yeah no
Oh right ok yeah... how often do you check for homework?
Erm couple of times a week
Ok ok so why do you use [...] Facebook for those things?
Cos it's free and all my friends have got it and like it's easy to send out like a big message to multiple people [...] instead of having to send out like lots of individual texts and stuff
Ok erm and the homework why do you use Facebook to check for homework?
Same again you can just put out one big message and everyone can see it in one go [...] than 'avin to sort of text loads and loads of different people and I've got people on Facebook [...] who I haven't got numbers for and stuff [...] it's easier.
[...]although we got access for this project all the other students are still barred from Facebook on the College network what do you think about that?

I just think they should let kids go on it I mean 'cause like nearly everyone everybody I know's got mobile Internet now it's on their mobile phones and so you can get on Facebook that way like so if kids really want to get on Facebook that really can in College on the phones and stuff and on iPods so College banning it now kind of has no relevance because it's not like they actually need College computers to get on it...Facebook's just there and everybody uses it already.

In this excerpt, it is evident that Chloe uses Facebook to combine elements of her academic and social lives. She uses Facebook because of its lack of financial cost, accessibility and ubiquity. These features enable Chloe to use Facebook's perceived universality to maintain and extend her affinity groups, partly through giving and getting help with homework: *"Every day... Cos it's free and all my friends have got it... nearly everyone everybody I know's got mobile Internet now... Facebook's just there and everybody uses it already."*

6.9.3 Prolific, but unsophisticated?

There is no doubt that Facebook formed a significant thread in the communicative tapestry woven by each student. But there is a significant caveat to the concept of Universality and the portrayal of my participants as virtually permanently online. This project also found evidence to support the mounting criticism of the stereotypical characterisation of young people as "digital natives" (e.g. Hypergogue, 2011; Wheeler, 2011a). Prensky's (2001) theory is increasingly being viewed as oversimplistic and divisive. My participants may inhabit the territory of so-called 'digital natives', having grown up with digital and online media as an integral part of their lives, but they are not necessarily skilled in using all of the "native" culture's tools.

An example: one the one hand, Charlotte's self-motivated decision to create a Powerpoint movie to illustrate the effects of her visual stress, is evidence that she was willing to learn by setting herself a problem, thereby "learning by doing" and ultimately achieve a communicative goal (see Section 6.5). This sort of creative, problem-solving behaviour is predicted by the digital natives theory. Surprisingly though, for a student

who professed and evidenced great enthusiasm and daily use of Facebook, Charlotte didn't know how to add friends to the Superhumans group. Charlotte was not alone in this, for her, embarrassing lack of "native" knowledge. None of the students knew how to create a Facebook group (though Josh quickly worked it out). Chloe did not know how to add friends to the group either. Mohammed had to ask me how to create a hyperlink from the Superhumans page to a video that he'd found on YouTube. Creating a group, adding friends to it, and posting links are all relatively straightforward tasks on Facebook, which makes these observations all the more surprising. In some senses then, the participants could be seen as prolific yet unsophisticated users of the technologies (Crook *et* al, 2008). The implication of this evidence is that we need to avoid assumptions about young people's use of, and level of skill with, digital media.

6.9.4 Summary

The two interview extracts presented here, taken in the context of the other evidence in this chapter, show how my participants used Facebook a tool for staying connected with, and efficiently and effectively managing the demands of, multiple affinity groups. Facebook's perceived easy universal reach made it attractive for this purpose. It must be recognised, though, that the exchanges that take place on Facebook may only represent "the tip of the iceberg", where the bulk of the iceberg is longer and more complex offline interactions, which are not visible on the catalytic "surface" of a Facebook page. The evidence also suggests that educators need to be wary of stereotypical representations of young people as "digital natives."

6.10 Chapter Summary

In this chapter I have elaborated the seven themes I abstracted from the data. I have described the characteristics and dimensions of the themes, and presented a range of evidence to illustrate and support my interpretation. I have begun to consider the implications for pedagogy my interpretation of the data evokes. In my final chapter, I use my interpretation to answer my research questions and construct a substantive grounded theory of the affordances of Facebook for my participants.

Part Four
Concluding the Thesis

Chapter Seven
Conclusions

7.1 Introduction

In this final chapter I answer my research questions (see p.ii). I answer them by constructing a substantive grounded theory of the affordances of Facebook. After developing answers from the theory, I acknowledge strengths and limitations of my study, and use these as a basis for suggesting further research.

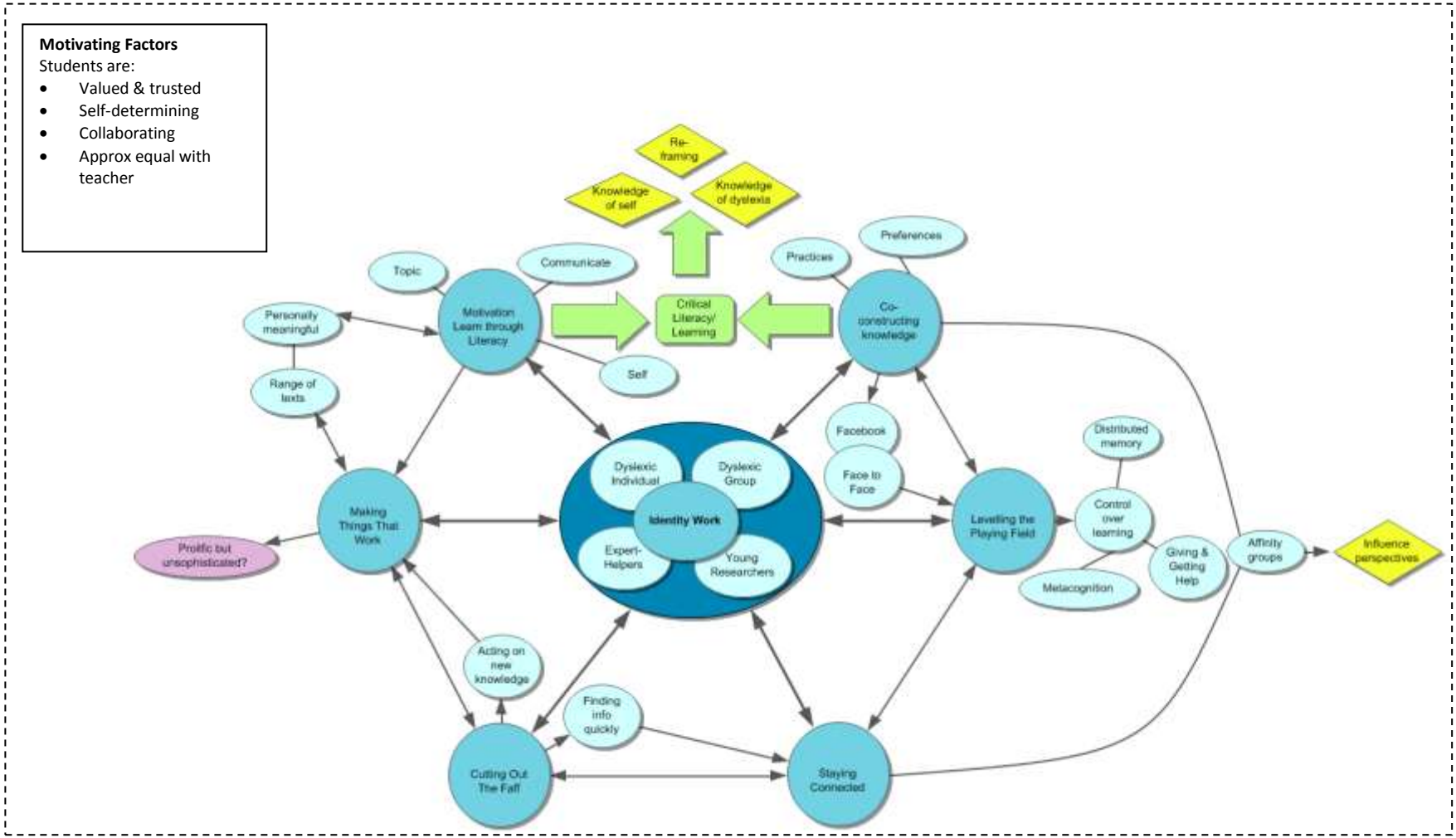
7.2 Nature of the Theory

To answer my research questions I present a substantive grounded theory of the affordances of Facebook for my participants. It is substantive in that it relates to research in the particular setting I have conducted this study in. It is however, sufficiently abstract for some "fuzzy generalisations" (see Sections 3.4.1, 5.2.2 & 7.4.5) to be derived. It is grounded in, and constructed from my interpretation of the data. As such, it is an interpretive theory. Interpretive theories are those which are reflexive through acknowledging that they are subjectively constructed through experiences with the data. They emphasise imaginative understanding of conditions, contexts and consequences, of patterns and connections, over objectivist explanation and linear reasoning (Charmaz, 2006). In tune with the philosophy of literacy adopted by the New Literacy Studies, the theory is situated and tries to explain meanings and actions; this makes it fully compatible with symbolic interactionism (op. cit, p.107), in which my methodology is rooted (see Section 5.2.1).

7.3 A Model of the Affordances of Facebook

To help explain my theory, I now offer a diagrammatic model. Following the model is some general guidance on its interpretation. Then I use the model as a basis for elaborating my theory.

Figure 6: Affordances of Facebook



7.3.1 Interpreting the Model

The diagram (Fig.6, p.165) represents the research site and context. The border of the diagram is a dashed line. This dashed line represents the porosity of the project affinity space (Gee, 2004). Although much of the students' work for the project happened within the classroom, Facebook and other online media and devices bring the outside world into the classroom. This is one aspect of porosity. Secondly, as I have shown in my analysis of the data, significant work was done outside the classroom, including important conversations with friends and families. Thirdly, as I explain later in my conclusions, the distinction between online and offline is increasingly hard to sustain, and this is another factor in the porosity of the project affinity space.

The darker blue circles represent the themes described in the previous chapter. These themes are the affordances of Facebook for my participants, as rendered through my analysis of the data collected for this study. The smaller, lighter blue circles represent dimensions of themes. The central theme is Identity Work, whose primacy I indicated at the beginning of Chapter Six. The four dimensions of Identity Work pertinent to this study can be seen overlapping within the central circle. The overlaps represent the reciprocal, dynamic interaction between the four aspects of identity. Orbiting Identity Work are the remaining six themes. The way that Identity Work underpins each of these themes is illustrated through the thick arrows which connect each theme to Identity Work.

In my analysis, I explained connections between themes that my interpretation of the data suggested. I acknowledge that, as with methodological categories (see Sections 3.2 & 3.3), theoretical categories may be fuzzy (Dey, 2007 p.170) and overlap. For clarity of presentation however, I have connected overlapping categories with thinner arrows rather than actually overlapping them.

The yellow diamonds represent outcomes from the project, which I elaborate on as I answer my research questions. The green arrows and box at the top-centre of the model represent what I interpret as the most significant process for the participants in this project: active, critical learning through and about literacy.

7.4 What are the affordances of an online social network for dyslexic sixth-form students?

In this study, the principal affordance of the Facebook social network was that it provided an arena for active, critical learning. The learning was active in that the majority of it was not achieved through transmission model, teacher-led didactic pedagogy, but through the students collaborating with each other and the teacher to co-construct knowledge. The learning was critical in that it involved informed discussion and evaluation of dyslexia and literacy and selves, as well as the participants self-evaluating and in some instances modifying their own approaches to learning.

7.4.1 Conditions and Context

It is important to specify the conditions and context in which this active critical learning took place. The participants were A-Level dyslexic students, studying at a successful Sixth Form College. Although in one sense students at the College have been filtered in as a result of prior educational factors, their decision to attend the College when there are other options locally does mark a degree of self-selection. The fact that they are A-Level students indicates that they are academically able, and are seeking academic success and most likely university futures. These factors are relevant because as a self-selecting aspirational population, A-level students are not a representative sample of the general population. Their academic ability and implicit motivation to do well in formal education may distinguish them from other groups in education. This would

have to be taken into account in any attempt to generalise, replicate or adapt either this theory or the project that inspired it in other settings.

A second factor that distinguishes my participants from the general population is their dyslexia. Dyslexia affects about 10% of the population, and around 4% significantly. My participants thus represent a minority. The advantage in this context of the participants being dyslexic is that each individual's experiences of dyslexia contributed strongly to their motivation to engage with the overall project, and with their own contributory research. This second level of motivation must also be taken into account. However, the participants' dyslexia was not the only factor underlying this second level of motivation. Aspects of the project design and my own approach to being a teacher-researcher also helped to motivate the students to participate. The College prides itself on its inclusive ethos and reputation, and I try as far as I am able to carry this through to my own role. Part of this is to strive to treat the students as equals; equal to each other and equal to me. Of course, I never can be their equal, as I acknowledged in Researcher Positionality, Section 3.5. Nevertheless, I endeavour to foster relationships with my students in which they know that they are trusted and valued. They are also expected to respect each other and collaborate harmoniously and productively. As part of this, I offer students a degree of self-determination. This was evident in this project. Firstly, the students could choose whether to participate or not, and gave informed consent. Secondly, they produced their own ground-rules for participation in the project. Thirdly, they set their own aims, intended outcomes and planned actions for their own research. Fourthly, they decided on their overall research topic - dyslexia - and were able to select initial research questions based on their own stated areas of interest in the topic. Fifthly, in the project sessions they worked independently for the majority of the time. I would usually frame the learning at the beginning or end of a session, for example by encouraging the students to discuss what they had learnt or think about what they needed to do next in order to achieve their stated goals. I would then restrict my role to passively observing, unless I was asked a direct question or

chose to make a comment when I felt a student had done or said something that warranted the group's attention. This approach was acknowledged by Josh, who commented to Martin Hughes, who conducted the Q-sort with the group: *"…he made us feel like a real part of what he was doing and trying to achieve which helped motivate us into doing it-he went out on a limb to trust us with the use of Facebook….. gave us no real limitations in this*."

These factors are significant not merely in terms of the theory I am setting out here, but because both I and the participants viewed the project as a success. The motivating factors I have enumerated here all contributed to that success, and so it is vital that my reflexive theorising takes account of them.

So far I have discussed features of the project arena in which this study and theory are situated. Another significant aspect of the arena is the nature of the Facebook social network, as used by myself and participants. We are accustomed to conceptualising Facebook as a digital, online social network. Evidence from this study suggests that this conceptualisation is neither sufficient nor accurate. We are accustomed to differentiating between online and offline, concrete and digital. It may no longer be appropriate to make this distinction. As the porous boundary of my model suggests, online and offline, classroom and wider world, leach and blend into each other. If a student clicks a hyperlink on her smartphone's web browser to read a page of information, whilst sitting next to the friend who sent her the link, and they are both talking about what they are reading, it may be impossible to clearly delineate "online" and "offline" communication, or "online" and "offline" literacy events (Williams, 2011). In addition, much of the active, critical learning this project produced was prompted or informed by online activity but achieved through various combinations of interactions with online texts, offline texts and face-to-face discussion. Sometimes the discussions took place around a computer or digital device screen, and sometimes they did not. Facebook had a catalytic role here, facilitating the learning but itself unchanged by it.

The consequence of this is to highlight the need for researchers and educators to attend to all aspects of students' Facebook use, and not just to what is evident on the screen. It is through taking account of as many aspects of Facebook that I could, by dint of my combination of methods, that I have been able to construct this theory.

7.4.2 Affordances of Facebook

For my participants, in the conditions and context set out about, Facebook provided an affinity space (Gee, 2004) for active, critical learning. This learning was motivated partly by the design of the project, partly by my approach as a teacher-researcher, and partly by the students' interest in the topic they were researching. Their motivation to participate and succeed carried through to their motivation to engage in literacy events. Adopting Street's (1984) ideological model of literacy, and considering what goes on around a text as well as the text itself, the motivation to engage with literacy events was reciprocally supported by the manner in which the students collaborated to co-construct knowledge. The co-construction of knowledge involved various affinity groups as well as specific literacy practices and preferences. These practices and preferences included meaningful face-to-face conversations as well as contributions to the Superhumans Facebook page. Contributions the Superhumans Facebook page involved making, using and interacting with a range of types of text. Facebook acted as a pedagogic 'hub' for these texts, with the participants using it to access and store texts relevant to their research, and teacher and students using the page for teaching and learning. Over five weeks, the students used Facebook to create a social semiotic ensemble which worked to communicate aspects of the participants' identities as well as their subject knowledge. Each of the texts within this ensemble also worked to communicate aspects of the participants' identities as well as their subject knowledge.

The students' habitual use of Facebook and its perceived ubiquity amongst their peers strongly influenced the way they went about their work, and how they envisaged the

educational potential of Facebook. There was evidence of an imperative to use Facebook to stay connected with a range of affinity groups. This range included the Superhumans Facebook Research group, friends, family, College peers and fellow dyslexics in a variety of settings. The ability and expectation to stay connected, combined with its utility as a pedagogic resource, meant that the participants envisaged Facebook as an obvious means of giving and getting personalised on-demand help with College work. The imperative to stay connected is a thread in the communicative tapestries woven daily by each student. Staying connected is also a factor in the students' expectation to be able to find information quickly. In turn, finding information quickly is a factor in cutting out the faff: communicating effortlessly and "getting stuff done." Getting stuff done also relies on the ability to act immediately and meaningfully on new information. Getting stuff done thus contributes to making things that work.

The ability to stay connected with friends, teachers and significant others, to get stuff done and make things that work also contribute to the students' sense of Facebook levelling the playing field for them. There was evidence that, prior to the project, the participants felt a justified sense of injustice in the way formal education had treated them. Both they and I perceived that Facebook, in combination with other everyday technology like YouTube and Powerpoint, offers a potential way of achieving more equitable education. There are four dimensions to this potential. Firstly, as a pedagogic resource Facebook can act as a distributed memory for students. This is particularly significant for students with dyslexia, because of the working memory, long-term recall, and organisational challenges that dyslexia often presents. Secondly, Facebook's reach amongst their affinity groups suggests the potential for the participants to give and get personalised on-demand help, on an equal footing with their peers, and in a milieu where 'proper' spelling and grammar are de-emphasised. This is significant for my participants, who find these aspects of literacy challenging. Thirdly, through co-construction of knowledge with peers and the teacher, Facebook provided

opportunities for self-discovery and hence metacognitive development. Fourthly, metacognitive development is a factor in taking greater control over literacy and learning. This increased control was evident in, for example, Chloe and Mohammed's assertions that they had changed the way they went about aspects of their learning as a result of their participation in this project. Increased ability to take control over learning is fundamentally tied to agency.

I have described the conditions and context in which this study took place and on which this theory is founded. Much of the setting could be replicated elsewhere. The implication - or fuzzy generalisation – from this is that when students are motivated, when they have clear goals and roles and a degree of self-determination, and when they have access to the right resources - time, space, the right technology and the right people - Facebook can be used to foster active critical learning.

7.4.3 What does use of the social network reveal about the students' motivation to learn through literacy?

My participants were highly motivated to learn through literacy, though they would not have considered a lot of the learning they did as literacy-based. Their perceptions about literacy were evident from their interviews and discussions. They made a clear distinction between "proper" reading and writing and the reading and writing they did on Facebook. The reading and writing necessary for their studies was classed as "proper" reading and writing. For my participants, proper reading and writing was characterised by being imposed, rather than self-chosen. It was difficult and represented a significant challenge. Although they were resigned to it as a necessary component of their curriculum, often they would try to find ways of avoiding reading and writing, or at least minimising the amount they did. The challenges proper reading and writing present can leave dyslexic students feeling inferior to their peers and "down and defeatist."

In contrast, reading and writing done for Facebook was not perceived by the students as proper reading and writing. This is partly a function of Facebook's perceived democraticness and informality, de-emphasising 'correct' spelling and grammar rules and conventions. This is especially true when Facebook is compared to the texts the students need to produce for their curriculum studies where, for example, marks on exam papers are likely to be awarded – or deducted – for spelling and grammar. Brevity is another reason why the students did not classify the reading and writing they did for Facebook as proper. When we also take into account the way that Chloe dismissed the reading she did for her own interests as "trashy", the suggestion is that the participants' perception of "real reading" means reading a text that is long, difficult and serious. Unless a text is long, difficult and serious, it does not count as real reading. This is a view of reading with strong undertones of Street's (1984) autonomous view of literacy and the deficit model of dyslexia, with the students struggling to develop the skills necessary to decode difficult curricular texts.

In contrast, if we take a perspective based on Street's (1984) ideological model of literacy, we can see that the students were very often highly motivated to learn through literacy. Firstly, Facebook is driven by reading and writing. By default, being on Facebook meant reading and writing for the participants. This was self-directed learning through literacy they enjoyed and found motivating, as evidenced by their very participation in the project, and their aim of proving to the College that Facebook has educational value. It was literacy that went beyond a mere utilitarian conception of staying connected. The students produced and interacted with a wide variety of multimodal texts: text-only compositions, text-image compositions, "poached" (Williams, 2011) and "mashed" texts and text-image compositions, original graphic and photographic artwork, and original videos. They were aware of their audiences and adjusted their compositions accordingly. Chloe, for example, was careful to use "proper" spelling when posting photographs she thought her grandparents would look at. They were also aware of their own strengths and limitations as readers, and adjusted their strategies accordingly, often reading tactically rather than the full text. All of these factors suggest strong motivation to engage with texts.

Adopting the ideological view of literacy, however, means that we cannot just focus on the texts themselves. We must consider what goes on around the text. Both under explicit instruction from the teacher, and spontaneously amongst themselves, the participants had rich discussions about their learning. "Their learning" has two senses here: *what* they had learnt, and *how* they learned. These discussions fostered active, critical learning about the interlinked domains of dyslexia, literacy and selves. Partly through these discussions, the participants co-constructed knowledge of these domains. Charlotte's willingness to engage with a Singapore doctors' journal, subsequent to classroom discussions about the nature of dyslexia, demonstrates that co-constructing knowledge in this way could contribute to enabling her to do some

"real reading" of a long, difficult, serious text she would most likely have otherwise avoided.

These findings are significant for the following three reasons. Firstly, they suggest that although the participants appeared to principally subscribe to an autonomous view of literacy, there were indications that they understood the situated nature of literacy practices. This is evident in the conversations about orthography I presented in the previous chapter. This understanding, and the enthusiasm they showed for the topic, could be capitalised on to further develop critical literacy in the participants. This might include, for example, more explicit consideration of the affordances of the various modes Facebook puts at their disposal. It might also include teaching the students to value the reading and writing they do both for and not for College, as things which work to enable them to achieve specific goals. Secondly, the ability to motivate students to voluntarily select and then engage willingly with a text they would most likely otherwise reject or only superficially interact with has clear educational application. Thirdly, there is the suggestion that promoting an ideological model of literacy could have benefits to these participants and other students. One very important potential benefit is developing an improved sense of agency for students who have traditionally been disadvantaged by literacy in education. At the end of the project, I showed the students' final video (Appendix F) to the College Principal, and explained how I saw it as evidence of the students learning through literacy, even though they saw what they were doing as "making a video." As a consequence, she suggested convening a group of teaching staff to explore ways of exploiting social networking in the College for educational gain. Obviously, my position as a teacher will have had influence here, but the Principal would not have made her suggestion without seeing some value in the students' work. She contacted them individually afterwards to thank and praise them for what they had done. The ability to influence your Principal and College's approach to teaching and learning is, I would argue, a potent signifier of agency for any sixth-form student. More so for a student who is

from a traditionally disadvantaged educational minority. Finally, developing critical literacy and a sense of ability and agency in the students also have the potential to build on the important identity work done by the participants over the course of the project.

7.4.4 What does the project reveal about the students' sense of identity?

Consistent with the wider literature, the evidence suggests that the participants began the study with relatively low self esteem and a sense of inferiority. This is evident in, for example, Chloe's admission of "feeling down and defeatist" when confronted with some reading her peers seemed to have no difficulty with; in the way the participants associated dyslexia with disability and stupidity; in the way they saw their efforts at literacy as being childish and unsatisfactory; in the frequent use of humour as a defence mechanism; and in the oft-stated desire to help other students with dyslexia. One of the reasons I regard this project as a success is the way it has enabled the students to partially re-frame their dyslexia and themselves, and see both in a more positive light. This reframing is partly the result of the interplay of four aspects of identity and projective identity work, and partly a result of the students' critical co-construction of knowledge about dyslexia, literacy and selves.

By collaboratively researching dyslexia, each student was able to develop a better understanding of their own individual dyslexic identity. They also developed a group identity, with much of their work helping them to bond as a group and build mutual understanding of each other. Through developing self- and subject knowledge, they were able to position themselves as expert-helpers on the topic of dyslexia. This is a positive identity shift. They were also able to take on identities as trusted and valued young researchers. This too is a positive identity shift for would-be undergraduates. Chloe's assertion that she "got really nerdy" and "enjoyed the sciencey part" helps to

show not just that she was prepared, like Charlotte, to engage with reading she would otherwise perhaps avoided; it demonstrates her taking on the projective identity of a scientist-researcher engaged in meaningful, literacy-based work. This implies positive consequences for learning and self-esteem, apparently confirmed by Chloe's comment at the end of the project that she was now able to look at dyslexia in a different way, and go about learning in a different way.

As with fostering the participants' critical literacy, this positive re-framing of identities had consequences beyond the individuals themselves. One of the group's aims was "to prove that we are normal and we're not thick." Feedback from the participants in their second interviews indicated that they had, through conversations prompted by their activities on Facebook, improved the understanding and hence changed perceptions of dyslexia and dyslexics amongst significant others in their affinity groups, including close friends and family. My contention is that the ability to influence perceptions in this way is not only good for individual self-esteem, but is another marker of power and agency. The students were able to use this agency to mount a small but significant challenge to the discourse of deficit which characterises popular and academic debate on dyslexia.

7.4.5 What pedagogical principles does their use of the social network evoke?

My interpretation of the students' use of Facebook in the context of this project evokes the eight pedagogical principles listed below. Of course, it is not possible to generalise from this single case, but if the principles are considered alongside current literature on changing epistemologies and the evolving roles of teachers and students, then they have the potential to be used as the basis for "fuzzy generalisations":

1. The students' use of Facebook and related digital media prompts reconsideration of the roles of teachers and learners. Simple transmission models where the teacher

imparts knowledge and the learner absorbs it may often no longer be appropriate (Somekh, 2007.) Teacher and student roles may have to be more fluid and dynamic, as teachers can no longer control the wealth of information that enters the classroom. In addition, teachers and learners are likely to bring different, but potentially complementary technology skill-sets into the classroom. These factors suggest a possible return to the literal Roman meaning of "pedagogue", as someone who "walks with" or leads the students towards intended learning. It also prompts consideration of heutagogy - self-directed learning (Wheeler, 2011b) - and if, when and how this should be incorporated into the classroom setting.

2. Teachers will need to consider approaches which fit with social-constructivist digital epistemologies. Maintaining the "building" metaphor, these approaches will cast teachers as designers or architects of learning experiences, scaffolding and framing collaborative tasks within affinity spaces. The affinity spaces afforded by Facebook in this project prompted active, critical learning through the projective identity work done by the students (Gee, 2007). Such learning is crucial if education is to involve students exploring ways of becoming and ways of being scientists, researchers or what-have-you, rather than relying on simple transmission and drill-and-skill pedagogic models. "Fuzzy" replication of this project ought to be possible to enable other students to achieve similar active, critical learning in other settings. The primary role of the teacher in such settings may not necessarily be as subject expert, but rather as facilitator and mediator (Somekh, 2007), providing a direction, an appropriate degree of challenge, and equality of access to the relevant technology (Davies, 2009). This approach to teaching recalls two of Gee's (2007 p.142) principles for learning through videogames:

    a. Explicit Information On-demand and Just-in-Time. The learner is given explicit information both on demand and just in time, when the learner

needs it or just at the point where the information can be best understood and used in practice.

b. Discovery Principle: Overt telling is kept to a well-thought out minimum, allowing ample opportunity for the learner to experiment and make discoveries.

3. Digital "native-immigrant", "insider-outsider" characterisations may no longer be apt. My participants were skilled in some aspects of technology use, but naive in others. In some senses, they fitted the description as "prolific but unsophisticated" technology users. Students know what they know. It may not be possible to predict what this is, as "digital native" characterisations seem to imply. This again implies a more collaborative, reciprocal, equitable approach to teaching and learning roles than traditional transmission models.

4. The Superhumans Facebook page can be seen as a sort of collaborative blog. Its construction suggests two pedagogic principles similar to those observed in other blogging contexts:

    a. Play and playfulness. Much of the interaction was characterised by humour and playfulness. The students often posted what they described as, for example, "hilarious" pictures. They also "played" with different technologies including Powerpoint, digital cameras and video-editing software in the process of composing their texts.

    b. It has been argued that blogging involves learning in an important and distinctive way: "read-write-think-and-link" (Richardson, 2006 cited in Davies & Merchant, 2009 p88). My students appeared to operate in this way as they constructed their multimodal ensemble. Blogging, and by extension Facebook can be used in the classroom to co-construct knowledge and develop critical literacy (Davies & Merchant, 2009).

5. The students were motivated by being involved in a project in which they had a degree of self-determination. The project was also meaningful to them, in that they set their own aims, outcomes and actions. They worked towards solving "real-life" problems, like changing the College's official attitude to Facebook, and their audiences' attitude to dyslexia. They valued being able to work in "a more grown up way." This type of learning, solving personally meaningful real-life problems has been shown to be effective and appealing to dyslexic students (Mortimore, 2003; Reid, 2009). Working on meaningful real-life problems engendered a sense of agency. Just as importantly, it empowered the students; partly as a result of their work, the College is re-evaluating its attitude towards the use of social networking from curriculum learning. This project suggests that Facebook can be used to foster active critical learning in dyslexic A-level students, to give students a sense of agency as well as genuine power.

6. If we view formal education as a sort of apprenticeship for employment and later life, then another principle suggests itself. Linked to the principles of solving meaningful real-life problems and teacher-as-facilitator is the idea that, to motivate active, critical learning amongst apprentices and "budding professionals" (Willett, 2009), teachers should seek to create communities of exploration (Coffield, 2008). When permitted to explore a subject they find motivating, with few constraints, students may be able to develop critical understanding of that subject. The challenge for teachers is facilitating such exploration when faced with prescriptive curriculum demands (Somekh, 2007). One aspect of specialist dyslexia tuition and academic support is that it is less constrained by the formal curriculum, and so is potentially one arena where such exploration could be encouraged. A more radical and inclusive approach would be the structural transformation of pedagogy (Somekh, op.cit) so that all students were immersed in rewarding, rich, exploratory learning environments which help promote critical awareness.

7. Teachers should seek to develop critical literacy, including critical digital literacy, in their students. This will involve building on existing practices and knowledge, whether obtained through formal or informal education, and identifying "barriers and enablers" to participation in new literacies (Willett, 2009 p.21; also Davies, 2009). My reading of Facer (2011 p.69) suggests that the critical literacy students will need in the near future for social and academic success has three elements:
    a. Discernment: The ability to judge the quality of information, its relationship to other information, and to personal goals and interest. This will include appreciating the power relations embedded in texts (Dowdall, 2009).
    b. Multiliteracy: To appreciate the affordances and limitations of different technologies, materials and modes of communication for representation and comprehension, and to be able to work fluently across these.
    c. Responsibility: In a world where information is ubiquitous, students must learn to consider the consequences of the ways in which they manage, circulate and control the information flows in their networks.

8. The evidence from this study suggests that the participants were able to build on their existing knowledge and practices in order to co-construct critical understanding of dyslexia, literacy and selves. They were able to recruit learning this learning to help motivate engagement with, and promote understanding of, difficult academic texts they would most likely have otherwise avoided. This evidence echoes Leander's (2009 p.149) call for a "parallel pedagogy", drawing on old and new media texts to develop critical understanding of both. Such a pedagogy would entail recognising the interplay of literacies and identities. In this way, teachers could capitalise on, and foster intrinsic motivation to engage with potentially difficult texts. They would need to ensure students have access to a range of appropriate texts, and critical awareness of different types of text and their own abilities. The important role played by face-to-face discussion in my

participants' learning suggests that as part of their framing activities for enabling productive exploration, teachers should attend to the affordances of digital media for encouraging classroom talk geared towards productive learning (Rojas-Drummond & Mercer, 2003). Helping dyslexic students, or others with perceived literacy difficulties, positively reframe their ability to read would be one potential way of mobilising these principles.

When planning to incorporate new media, teachers would be well advised to heed Facer's (2011 p.64) forecast that we will soon take for granted the ability to convey ideas through virtual and material three-dimensional models just as easily as in writing. Such developments in haptic and tangible technologies have the potential to play to the cognitive and kinaesthetic learning strengths of many dyslexic people. Developing critical literacy is therefore not simply a question of developing an expanded skill-set; it is a component of creating a more inclusive, fairer education system by levelling the playing field for dyslexic students.

7.5 Strengths and Limitations of the Study

7.5.1 Strengths

1. In conceiving this research, I had the ambition of locating dyslexia within the framework of the New Literacy Studies and the logic of multimodality. In doing so, I wanted to respond to the criticism that there has been little "attempt to integrate models of dyslexia with either radical perspectives of literacy or social models of disability" (Herrington & Hunter-Carsch, 2001 p.114). By adopting a New Literacies perspective I believe I have offered a successful integration of these factors.

2. The methodology and methods used enabled me to capture and analyse much of the rich complexity of the students' interactions with, and arising from, the Facebook social network. The combination of dynamic screen capture and protocol analysis in particular represents an innovation in method that could be used in other studies with any range of research participants to explore learning through Facebook and other web 2.0 spaces.

3. The project design was successful not just as an empirical investigation. As is appropriate to action research, there were meaningful outcomes for the participants in terms of changing identities and practices. These outcomes were reframing of individual dyslexic identities, influencing the perspectives of significant others, developing a sense of agency, taking greater control over learning and bestowing genuine power to influence change within their own institution.

4. Capturing much of the rich complexity of the setting has highlighted the difficulty of maintaining the online/offline distinction, suggesting the need for re-conceptualisation. It may be more helpful to think about digitally mediated networked publics or affinity spaces (Boyd, 2008b; Gee, 2004; Merchant, 2009)

7.5.2 Limitations

1. Herrington & Hunter-Carsch (2001 p.14) in fact called for a "*broad based* attempt to integrate" (emphasis added) models dyslexia, radical perspectives on literacy and social models of disability. This implies some sort of concerted effort producing a sizable body of literature, of which a single study can only be a part. I am not aware of any such broad based attempt at the moment.

2. Although innovatory, the combination of dynamic screen capture and protocol analysis was not without limitations and weaknesses. In particular, there was an undesirable yet unavoidable lag of several weeks between the Wink videos being made and the students providing their protocol analysis commentaries. The low frame-capture rate also resulted in a loss of detail.

3. Although I was able to capture *much* of the setting, the students asserted that they did significant work co-constructing with friends and family outside the classroom. I was not able to capture any of this activity as it was not evident on the Superhumans page. This represents a gap in the data.

4. As dyslexic A-level students, my participants represent a subset of a minority population. They are high-achieving and academically able. This makes them an unrepresentative sample. The situated nature of the setting and my theory of it must be taken into account when evaluating my findings and the applicability of the research.

7.6 Implications and Directions for Further Research

1. Much more research would be needed to develop a broad-based attempt to reconcile models of dyslexia, radical perspectives on literacy and social models of disability.

2. The dynamic screen-capture / protocol analysis method could be fruitful in other settings. Useful research might examine ways of improving the method, perhaps by reducing or removing the lag between capturing video and capturing the accompanying audio, or increasing the level detail in the video recordings.

3. Facer (2011) argues that schools need to recast themselves to adapt to changing intergenerational relationships and networked students. The claims my participants made about the learning they did with friends and family outside my classroom suggests that useful future research could take account of intergenerational relationships and networked students by extending the setting to include friends and family.

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Appendices

A. Baseline Interview schedule

B. Sample observation notes

C. Sample video transcript

D. Wink Protocol Analysis script

E. Anonymised participant consent forms

F. Student-made video on DVD: *"Scrabble was invented by Nazis to piss off kids with dyslexia"*

Appendix A: Baseline Interview schedule

1. This project is about finding out how a Social Networking site might be used to enhance education for students like you at the College. How often do you use SN sites at the moment?
2. What sorts of things do you use SN for at the moment?
3. Why do you use it for those particular things?
4. The College likes to be seen to encourage students to use ICT for their studies. Do you think ICT helps your learning at the moment? If so, what sort of things does it help with?
5. Up until now, students with dyslexia have often used specialist technologies to help overcome some of their difficulties: Dictaphones, special spellcheckers, specially made mindmapping, speech recognition and wordprocessing software, and so on. Have you ever used this sort of specialist technology? What did you think of it? How important do you think this sort of technology is now? And in the future?
6. I did a survey last year, and the most popular technologies for dyslexic students at this College seemed to be texting and the Internet, especially YouTube and Facebook. We've talked a bit about FB. What do you think about texting and YouTube? (do you use them? Why (not)? How? Advs/Disadvs. Likes/dislikes)?
7. Why do you think they're so popular with other (dyslexic) students?
8. Traditionally, education has relied a lot on reading and writing. What is your attitude to
    a. Reading? (Why do you feel like that about it?)
    b. Writing? (Why….?)
9. How much reading do you have to do now for your studies?
10. How much writing?
11. How do you feel about doing this reading and writing?
12. What reading and writing do you do outside of your studies?
13. Texting and Facebook make you read and write. How do you feel about this sort of reading and writing? (Probe differences / attitudes)
14. What do you think your teachers think about the way you:
    a. Use texting to communicate?
    b. Use Facebook?
15. Students can now access YouTube in College, but only the videos and not the comments that go with them. Do you think the College is right to let students use YouTube (why?)?
16. Although we have access for the project, all other students are still barred from Facebook on the College network. What do you think about this?

17. You’re not supposed to text or use your mobile in lessons either. What do you think about this? Should the College be trying to make more use of mobiles instead of restricting them?
18. Do you think Facebook and similar sites could help your learning (why/not)?
19. How do you think technology might influence education over the next few years?
20. Are there any changes you’d like to see in the way technology is used in Ed?
21. Are there any aspects of what we’re going to do that you’re particularly looking forward to?
22. Do you have any other ideas for things we ought to include in the project?
23. Do you have any doubts about the project? What might help overcome them? Is there anything else you’d like to say?

Appendix B: Sample Observational Notes

	Josh	Charlotte	Daniel	Chloe	Mohammed	Code
0-5	I begin the meeting by discussing the mindmaps produced in response to Dick's (07) q's from last week. Josh volunteers info about a friend who goes to a college where they have Facebook groups for each class to help them keep up to date with their work. The rest of the group are quiet during this point, listening attentively. Then I ask for contributions to the Q we missed last week: Why do we think the actions are important? The students are keen on using famous role models. They know about Einstein and we have a short discussion about what he was good at and what he struggled with, to illustrate the pattern. When I ask why posting relevant info is important, the students are keen to conform with the ideals of being researchers					
5-10	Makes the point that famous people examples show D does not necessarily mean failure Says the group needs to post informative info to help me with my thesis; also so that people find out about D Let people know there's no cure or "magical elixir"	Says that they can help show D is not something to be embarrassed about Famous people can show that D people can still attain their goals. Wants to show that the group can be "good guinea pigs" and "keep on task" Wants people to find out "key factors" about dyslexia	Does not make a contribution during the first 5 mins but is listening Makes the point that info needs be relevant to not discredit the group	Does not make a contribution during the first 5 mins but is listening Echoes J's point that people will stop looking if info is not relevant Thinks that info from the student perspective is less boring, more relevant and down to earth	Does not make a contribution during the first 5 mins but is listening	Using role models for positive identity work Wanting to be perceived positively by others Wanting to share knowledge with others Creating public understanding of dyslexia
10-15	Thinks Facebook can help everyone, and links this to his own forgetfulness and the need to disseminate the same info quickly	Also wants to find out how other students feel about dyslexia, how it help/hinders them Suggests study groups on Facebook	Wants to gain trust to be able to use Facebook		Has still not made a contribution	Seeking understanding through others' perspectives Seeking control of own learning process

	to large gps Learn better when comfortable with friends Can get multiple perspectives on things using FB	"Everyone's always on Facebook" Can get "instant response" but students don't tend to check their e-mail regulary				
13:38	At this point I show the gp page on the IWB and ask the students to identify which actions they feel they have already done, and what they have yet to do. This is largely because I feel that while everyone has made relevant, informative contributions, there is little sense of any peer-learning taking place because they are not overtly responding to each other's posts. I make this point and ask them to respond to each other using the guidelines for posting					
	J responds that he wants invite more friends, linking this to creating more awareness Wants "informational" but informal" posts like his "jumbled words" one from last week	"more posts", relevant Voices need to talk to each other on Facebook to show peer-learning has taken place	Responding to J, defends his post of a pic of a d-joke t-shirt - I support him by saying we've asked for funny stuff	Is smiling at the conv but not joining in Claims to "hate" creative stuff and says she's not creative although "we're meant to be good at it"	Is looking at the IWB and people as they speak, but still not joining in	Accepting guidance from teacher
15-20	Goes to the Superhumans page and his news feed	Uploading her squirrel pic as profile pic. Abandons this to edit the pic	Has the idea of using a claymation vid to summarise what he's learned through the project Looking at the Superhumans page	Checking her Chem Hwk on College e-mail, then goes to Superhumans page	Goes to Superhumans page, then starts to Google dyslexic humour and jokes	Accepting guidance from teacher

Appendix C: Sample video transcript

	Facebook Research Group		Date: 17.12.10	
	Codes exemplified	Developing a shared identity through dialogue; wanting to be understood		
	Dialogue		Action	Interpretation
00:06	Right we're missing some people but we haven't got long so... Start ... we'll have to start yeah. Um ah there's some y'know fuel here to keep you going you know for the next hour er there's a timer on the board so we know how long we've got left. The camera's filming but obviously I'll give you it when you're ready when you... Yeah ... need it. So these are the ideas for the video which you started to develop last week {inaudible} How do you {inaudible} oh yeah You were doing yeah you were working with me. So we've got fifty four and a bit minutes right to turn those ideas into a short right a short video. What do you think sort of the essence is what do you think the main message needs to be for this this video? Just that we can like do what everyone else does and we're not retarded Ok We just we are normal we just can't read very well Or write or spell That's about it or write Very well. Or speak most of the time {laughs}		Indicates sweets on desk and timer on IWB Pushes mindmap towards students who lean in to look at it Smiles; head drops to desk Smiles Talking quietly; rubbing her eyes	Trying to focus and motivate the group, partly through reward and partly through emphasising urgency Wanting to be seen as normal. Distancing selves from 'retards' whilst recognising the association Developing a shared identity through common experiences of literacy difficulties Not being confident talking about learning, despite expert

Appendix D: Wink protocol analysis script

I am going to ask you to think aloud as you watch your video. What I mean by think aloud is that I want you to tell me **everything** you were thinking, from the time the video starts until it stops. I would like you to talk aloud **constantly** right from the beginning until the end.

I don't want you to try to plan out what you say or explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. It is most important that you keep talking. If you are silent for any long period of time I will ask you to talk.

I want to see how much you can remember about what you were thinking at the time. I am interested in what you **actually** remember, rather than what you think you must have thought. If possible I would like you to tell me your thoughts in the sequence in which they occurred at the time. Please tell me if you are uncertain about any of your memories. Just report everything you can remember thinking about at the time.

(Adapted from Ericsson & Simon, 1993)

Appendix E

Anonymised participant consent forms

Appendix F (inside back cover): Student-produced video

"Scrabble was invented by Nazis to piss off kids with dyslexia"