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Access to Electronic Thesis

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A comparison of children's in-school and out-of-school use of the internet: The coherence of the inchoate

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"… it flourishes by virtue of its belief in itself, in the possibility of control over what seems essentially uncontrollable, in the coherence of the inchoate, and in its ability to create its own values."

(Alvarez, 1972 p. 254)

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Abstract

A comparison of children's in-school and out-of-school use of the internet: the coherence of the inchoate

This thesis examines and compares the in-school and out-of-school use of the internet by a sample of 883 year seven students from a group of demographically different schools in England. In comparing this usage a number of questions are asked about similarities and differences in behavior and lessons to be learned.

Previous research and recent writings on this topic are examined and a theoretical framework is formed that eclectically draws on a number of sources, including postmodern authors. Similarly, a mixed methodology is used incorporating an online survey of students, group interviews and analysis of computer logs.

The main research question for this thesis was phrased as: How do year seven children use the internet both in-school and out-of-school? This question was broken down into subsidiary questions.

It was found that informal learning using the internet often appears as being self-motivated with a strong sense of ownership both of content creation and social networking. It is often generated by a real purposeful need by the children themselves often with the assistance of their peers.

Schools should be places where literacy in new media can be developed. The sample of schools in which children were consulted in the research represents a broad set of demographic profiles across England. Although the sample was restricted to children at year seven, responses from other year levels may have shown a different set of responses as children's patterns of usage change. This is especially likely with respect to the ownership of social networking sites as older children may be more inclined to use the internet for communications and to behave in a more independent manner.

All the students included in the sample were from schools with good internet provision and it also appeared that children were generally immersed in the internet in their out-of-school contexts. In this sense, perhaps the internet is a non-issue for them, being such a natural part of their lives that it holds no awe or surprise. The concern is that school and home practices will diverge to the point where school internet use becomes increasingly irrelevant in the lives of children.

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Chapter 1: Introduction

In order to arrive at what you do not know
You must go by a way which is the way of ignorance.

(T.S. Eliot, Four Quartets, East Coker)

In writing the introduction to this thesis, I have used Eliot's words to help me to focus attention on my research into children's use of the internet and, whilst exploring some serious issues, to not overestimate the expertise I had within my chosen topic at the outset of this project. The reflective, internal landscapes of the Four Quartets against which the poet throws his ideas have helped me to contextualise the internet, the landscape of my thesis. Four Quartets is a philosophical, poetical study based upon reflections on the places alluded to in each of their titles. The overarching theme of the entire piece is the nature of time and the human condition. These dual reflections of time and humanity, when taken in the poetical context and language of Eliot's works, also provided me with a helpful (if tenuous) metaphor for the internet. Also, as I have had little experience with research on this scale, much of what I have attempted is for me, uncharted territory. Like the above inhabitant of East Coker, when I began I did not know where I was going or the method by which I would arrive. And as the internet itself is amorphous, rhizomic and shifting, this further problematised the journey.

Preface

In developing my thesis from its embryonic, initial proposal, I have used the broad framework outlined by Wisker in her chapter on writing a research proposal (Wisker, 2001, p. 46). In writing the proposal, I used this framework for developing ideas relating to an investigation into patterns of internet

usage by year seven (11 and 12 year old) children in England. Her suggested framework consists of an indicative title, aim and focus of the study, context for the research, theoretical perspectives and interpretations, research methodology and methods, research design and ethical considerations and I found this a very useful way of framing the proposal. Subsequently, I have set out to compare children's in-school and out-of-school internet behaviour using the above framework as a scaffold for the thesis itself, and this is also reflected in its final structure. By 'behaviour', I am referring here to their patterns of usage and the manner in which they appropriate the technologies for their own purposes. The investigation has focused on a comparison and discussion of both similarities and differences across these behaviours, and the examination of whether schools could learn from home practice and/or vice versa. I hope that this thesis will contribute to the discussion about how the internet can not only be better integrated into the school-based practices of teaching and learning, but how it can change the way in which we see education as an institution being potentially altered by the use of digital technologies. The impact that my research could make may be to challenge the way in which the internet can be introduced and used in schools. I believe that one of the outcomes of this thesis will be to make a difference to the way we see the role of the internet in education. I also believe that this issue is important because of the way in which the internet is now embedded in our culture, and elements from postmodern ideas with respect to culture (especially regarding the internet, itself a symbol of postmodernism) is inevitably incorporated into this work.

The place of the internet in education has grown and continues to grow both in importance and prominence, influencing and interacting in many ways with large parts of the curriculum, as it is increasingly seen that "internet literacy and, more broadly, digital literacy are prime objectives" (Freedman, 2005, p.3) of government and educationalists. Certainly the requisite infrastructure for the provision of ubiquitous internet access in the United Kingdom is growing, and it was recognized some years ago by the Department for Education and Skills (now the Department for Children, Schools and Families) that

> broadband [internet access] makes it possible to connect learning communities and meets the information needs of parents, whilst enabling children to continue their learning beyond the school gates (DfES, 2003, p.3).

For several years now, this has been a priority of the government. Explicitly, "the government wants everyone to have access to the wealth of cultural, scientific and intellectual material to be found on the internet" (DfEE, 2001, p. 1). It has been clear government policy to expand and extend the use of the internet in education. Current policy states that "the commitment is there from government to provide broadband connectivity to all schools in England" (DfES, 2003, p. 14) and this remains a high and vigorously pursued priority as can be seen in the *Leading Next Generation Learning* programme (BECTA, 2008).

Researcher Positionality

The proposed general area of study for my research is clearly located in the arena of Information and Communications Technology (ICT) in education. As Blunkett has stated, "…very little research in the social and educational field

is or can be entirely value free" (Blunkett, 2000 p. 14) and in my case this is completely true. I am immersed in my research topic in both my professional and private lives and for the past 20 years it has been my principal area of work and interest. It is difficult, if not impossible to tell this story impartially. As Carr says, "There is no telling it as it is. There is only telling it from a theoretically partisan point of view" (Carr, 2000, p. 441). I am also a keen advocate for the discerning use of ICT in education and my values have inevitably affected the manner in which I have approached this thesis. At the time of writing, I am the Director of Educational Development and Technologies for an educational charity, comprising 25 schools and I have been fortunate to have been able to use these schools and their students in my research. One of our foci for improving student learning and improving teaching has been through the use of ICT in the schools within our group. There have been many developments both in the growing sophistication of technology itself and in its application, and I was interested not only in how ICT may have contributed and is contributing to the changing nature of learning but how it may be changing patterns of usage, especially since the rapid development in the past ten years of Internet-Protocol (IP) based technologies and their sometimes gradual and sometimes sudden appearance in various manifestations in education particularly and society generally. Current debates around personalised and independent learning, learning platforms, social networking opportunities and other emergent ideas of how children engage in their own learning (Green and Hannon, 2007) adds an additional level of relevance for me. However, I also need to acknowledge a positionality with respect to the students, teachers and head

teachers with whom I was to interact during the course of my research. As a senior member of my organisation (and the respondents who were part of it) I was aware that my position may have affected the way in which the data were collected and the way in which I interpreted them. I also acknowledge my predominantly pro-ICT stance and the values and beliefs that I bring to the study. A brief biographical note may further clarify my positionality, my values and biases that I brought to this research.

Biographical Note

I was born in Beckenham, Kent in 1957. My father was a British soldier and my mother was a German farm-girl. Although neither received any post-secondary education, my mother was recognized as being bright at school and it was only the Second World War which prevented her from pursuing her education further. We spent the early part of my childhood living in a basement flat in Brixton, London where my parents cleaned the upstairs doctors' surgeries in exchange for accommodation. In 1965 we immigrated to Australia as assisted-passage immigrants ("£10 Poms"), where after an unhappy period in a migrant hostel we moved to the outer eastern suburbs of Melbourne and settled into a new, middle-class life in our own home. My father worked first as a salesman and later as a sales manager, eventually becoming an administrative director of a commerce association. My mother stayed at home and spent many of her middle-years in states of anxiety and depression, characteristics which I also developed in my third and fourth decade, eventually contributing to my marriage of 20 years breaking down. During this time, however, we raised two sons and I held down respectable

positions in the education sector, pursuing my interests in ICT and education. I believe that both these interests are traceable to a belief in learning and technology as potential tools of emancipation, coming as I do, from economically challenging beginnings. After completing an undergraduate degree in medieval English literature, I obtained postgraduate qualifications in education and computing and taught in primary schools, special schools, further education colleges and universities. Following a career opportunity, I returned to England (the place of my birth) in 2000 and eventually was offered my current position in employment. I also met Claire. We married, had twin boys and I settled into a happy life raising the children, working and undertaking my doctorate. The sense of having completed another stage of my journey in life has also injected me with a renewed vigour and helped enable me to take the risk of pursuing a substantial project such as this thesis, a task which was simultaneously and personally challenging, optimistic and risky.

Values and Principles

Given the turbulence of my life, my family history and the necessity of adapting at key stages of my development, I have come to view myself as a perpetual learner and adapter, now trying to recognise the complexities of the issues involved in undertaking research such as this. Throughout this journey of research I have attempted to engage critically with the unfolding issues, values and ideas as I discovered them. I believed that this was important, especially in the area under investigation, which is controversial, uncertain and necessarily incomplete within the constantly evolving

landscape of the internet. This landscape and the characters that inhabit it presented additional challenges for me, and although I have attempted to always engage in critical reflection, I understand that this critical reflection may have resulted in a conflict of ideas which I have tried to resolve, or at least identify.

As I have spent periods of time in my life in spatial and therefore temporal dislocation (England/ Australia/ England) I have become increasingly aware of the tyranny of distance and time and the role that technology may play in overcoming this. Certainly my view of the internet is coloured by its ability to make distances seem shorter and the world a smaller place with synchronous and asynchronous communications technology further helping to overcome a sense of isolation and loneliness. This underpins much of my interest in the internet as an area of study.

Area of Study

Lankshear and Bigum call for "research that provides rich and theorized accounts of cultural practices that enable and encourage educators to experience them from the inside, as participants" (Lankshear and Bigum, 1999, p. 465) and I hope that this thesis may contribute to the discussion on how and why ICT is being used in the classroom, the home and other learning spaces by examining the internet-based practices of students from the inside. As far as possible, I have approached the research as a participant, not as an outside researcher.

Several researchers have already sign-posted the need for further research into children's use of the internet. A Department for Education and Skills

(DfES) report states that "there is…a need to examine pupil's own knowledge, beliefs and capabilities" (Cox et al, 2003, p.27) with respect to the use of ICT, especially the internet.

After careful consideration, I did however decide not to examine or undertake research involving online safety, or issues related to either inappropriate internet use or similar sensitive issues. This was partially because of the added ethical complications that such research would involve, and also because organisations such as the *Child Exploitation and Online Protection Centre (CEOP)* and *ChildNet International* are already involved in considerable research and resource development in this area. Indeed, the widely publicised report from the *Byron Review* (Byron, 2008) also deals extensively with issues relating to children's online safety.

In examining the internet as a subject of research, I found Markham's framework for seeing the internet as a vehicle for communication, a physical network of computers and a context for social construction (Markham, 2006) extremely useful. She describes how the internet can be conceptualised as a tool for communicating, a place for communicating and a way of being in the world. It is an attractive subject for research because of its existence simultaneously and paradoxically both within and beyond space and time. By way of explanation and when viewed mechanistically as an actual computer network, in a sense it has no centre in the way that a conventional client/server network does. Whilst at the same time being ubiquitous, it is also constantly online and active across all time-zones. It is the network of computers and humans that never sleeps. Its extraordinary capacity for the facilitation of communication is showing that "in an informationalistic world

new patterns of communication and regulation emerge and old patterns vanish" (Zetterman and Lindblad, 2001, p. 1). The traditional client/server model of computer networks, rooted in its space and time is challenged by the increasing use of IP-based technologies and the flexibility and power that they bring.

Despite my enthusiasm for the subject, this does not mean, however, that I have taken an uncritical approach to the internet. Lovlie has warned that "the internet has exacerbated the problem of what is worth knowing and what worth doing in education" (Lovlie, 2006, p. 13) and the role of the educator and the importance of reading critically were also examined with this in mind, along with the problems that the above-mentioned characteristics may bring. Lovlie's inference that the internet challenges the nature and value of knowledge is a helpful reflection for teachers, parents and policy makers. This issue is also explored by two books published in 2008, which drew my attention to, amongst other things, the internet and the nature of knowledge. Whilst cautioning against its darker side, Leadbeater says of the internet that "it ought in principle to give us untold capacity for solving shared problems by allowing us to combine knowledge and insights of millions of people" (Leadbeater, 2008, p. 3).Shirky goes further, stating that "when people care enough, they can come together and accomplish things of a scope and longevity that were previously impossible" (Shirky, 2008, p. 142).

The Internet

In this thesis I have used the term *internet* as a generic description of the World Wide Web and other IP-based applications such as online games, e-

mail and instant messaging. By December 2007, the internet comprised more than 108 million websites. The sheer scope and power of this organism is worthy of reflection. As Naughton says, “the truth is that the Net is wonderful in what it can do for us, and terrifying in what it might do to us. Yeats got it about right: a terrible beauty *has* been born” (Naughton, 2002, p. 45).

The illustration below is a static two-dimensional image map of the Internet (Lyon, 2005). This map is built from a database using two different graphing engines. Although it is a literal representation of the physical connectivity of the internet it also illustrates its beautifully chaotic and organic nature. It also works as a spatial metaphor for the internet. As Weinberger states, “our experience of the Web is fundamentally spatial” (Weinberger, 2000, p. 35).

Figure 1: OPTE map of the internet

The scope of the amorphous, internet phenomenon, coupled with the increasing speed of broadband provision means that it could be seen that "we live in a high-tech accelerator. As a result what we crave is slow, human, personal experiences as well as excitement" (Leadbeater, 2002, p. 171). Ironically perhaps, the social networking that is facilitated by so-called Web 2.0 software facilitates these human and personal experiences as seen in personal, social and interactive websites such as www.bebo.com, www.myspace.com and www.facebook.com. Indeed, the first two websites were the most searched for terms of 2006 using Google's search engine (BBC, 2006a). Lankshear and Knobel provide a useful definition of Web 2.0 that explains

> in contrast to the 'industrial' artefactual nature of Web 1.0 products, Web 2.0 is defined by a 'post-industrial' worldview that focuses much more on 'services' and 'enabling' than on production and sale of material artefacts for private consumption (Lankshear and Knobel, 2006b, p. 43).

Thomas and Brown discuss the World Wide Web in terms of being more than just a collection of websites, the interconnections helping to re-imagine the internet as a social as well as a technological network (Thomas and Brown, 2007). For the purposes of this thesis, I have also used the *Pew Internet and American Life Project* definition of 'social networking' as "…sites where users can create a profile and connect that profile to other profiles for the purposes of making an explicit personal network" (Lenhart, 2007, p.1). Clearly, Web 2.0 sites such as Bebo, Myspace and Facebook fall into this category with their capacity for connecting people in a number of different contexts. Other sites such as the video-sharing www.youtube.com and the photograph-sharing www.flickr.com are also growing in popularity. Davies

examines in detail the use of Flickr as a means of reconfiguring everyday life through challenging the boundaries between our public and our private lives, and examines the way in which literacy practices manifest themselves as social practices (Davies, 2007). The 2007 Ofcom research document on the communications market reported that Bebo, MySpace, Facebook and Youtube are all in the top ten websites by time spent (Ofcom, 2007, p. 8). As long ago as 1999, Joo was making an urgent appeal for the re-shaping of the internet as a human, rather than merely computer network (Joo, 1999). Social networking is perhaps contributing to the realisation of this.

It is the internet in its out-of-school and social contexts such as these that provides such a fascinating tool for so many young people. The 2007 Ofcom report also states that more than 75% of 11 year olds claim that they own collaborative or social technology devices such as internet-enabled computers, games consoles and mobile phones (Ofcom, 2007, p. 2). Morville enthuses that "ambient findability describes a fast emerging world where we can find anyone or anything from anywhere at anytime…findability invests in the individual." (Morville, 2005, p. 6). But this ambient findability may also mean that, as predicted by Baudrillard "we live in a world where there is more and more information, and less and less meaning" (Baudrillard, 1994, p. 79). I return to this statement later. This also echoes Lovlie's comments above and predicts the evolution of the internet into a vast and dynamic repository of information where the organisation of data is increasingly shared, collaborative and unsettled. It also can be seen as a prediction of an unstructured world of chaos and change. This is not least because it can also be seen as a platform for playful and interpretative

explorations of identity, an aspect that Land and Bayne characterise as being postmodern (Land and Bayne, 2004).

As well as being a driver for change, various aspects of the internet are also a reflection of some of the things that children do naturally in their offline or 'real' world. This is recognized by authors such as Granic and Lamey who see that "…the Net is a uniquely self-organizing innovation which requires individuals' participation with technology in order to develop" (Granic and Lamey, 2000, p. 104). As a corollary to this, Hardey notes that, especially with respect to social networking,

> the internet does provide a medium in which individuals engage in a communicative process of building up trust, of self-disclosure, and of exploring the other in relation to one's own reflexively constructed needs and desires (Hardey, 2002, p. 581).

Behind both these observations we see that there has been a development in the way we observe technology moving towards humanity. The 'terrible beauty' of the internet referred to earlier is reflected in all these comments. There is an air of inevitability embedded in these views as well. Lien speaks of how

> The central issue, then, is not to determine whether one says yes or no to the Web, whether one asserts its importance or denies its effects, but to account for the fact that it is spoken about, to discover who does the speaking, the positions and viewpoints from which they speak, the institutions which prompt people to speak about it and which store and distribute the things that are said (Lien et al, 1998, p. 19).

These observations help to explain some of the reasons why I have undertaken this research and why it is that I have consulted young people about their practices; it is to help give them a voice on how they use the internet whilst examining their use of the technology in their school and

social lives and through this, to see what lessons we can learn as adults and as educators.

Most children and young people in England have access to the internet. 12-17 year olds have the highest levels of usage amongst young people. The 2007 Ofcom report argues that usage really began to increase significantly with the advent of Web 2.0 in 2004/05. It proposes that this was fuelled by the coincidental development of affordable media capture devices and the growth of home broadband (Ofcom, 2007, p. 37) through which children can enjoy games and creative activities as well as completing school work and engaging in out-of-school educational activities, although a key enabler to children using the internet effectively is also seen to be parents' usage at home (Livingstone, Bober and Helsper, 2005).

Part of the literature review for this thesis has been to examine the existing research around these applications and perceptions, but I recognise that it is also appropriate to acknowledge the work of researchers who have a grander vision for internet use and proclaim that

> …the internet has the potential to alter the global popular landscape and it is important to bring forth some explanatory arguments and theories that provide a way to think about the transformations being produced by the internet (Mitra, 2003, p. 12).

In a similar vein, some writers have spoken of the transformational role of technology, but in the context of the internet and education this is often seen as being more subversive in the sense that

> … the internet surpasses the restrictions of fixed locations such as schools and opens up a new world of understanding and knowledge. Participants in cyberspace may come and go, but the websites will remain (Hendricks, 2004, p. 3).

Voices such as these emphasize the importance of the internet as an agent of perpetual change in the emergent transformation of knowledge and communication.

Focus

In examining issues regarding children and learning, I chose the internet as the major focus of study because not only does it provide unprecedented potential access for children to information and communication resources, but it also challenges many of the assumptions about the way they seek information, communicate and learn. The field for my research is year seven students in schools, as from the outset of this project I believed that this year level represented the bridge between primary and secondary education and may provide some evidence as to how children in both phases of education use the internet both formally and informally for learning and communicating.

Hernwell believes that "children in this postmodern age are the active users of media of the second media age, where they at the same time can be receivers, readers and producers of messages or information" (Hernwell 1999, p. 1) and this thesis examines some of the various ways in which this may be seen in children's use of the internet. Hernwell's words also anticipate the emergence of social networking in recent years. Leander and McKim state that "websites create social networks that are related to and quite different from those produced through the circulation of bodies and texts in schools" (Leander and McKim, 2003, p. 237) and this was also a potentially controversial, focal point for some of the questions to be asked. It was my intention that the stories to be told by the children would relate to

out-of-school as well as in-school experiences as this was an area of particular interest, and this also provided the opportunity to observe online literacy practices. Increasingly, online literacies afford networking, collaboration and social practices as explored by writers such as Carrington (2006), Davies (2007), Green and Hannon (2007), Knobel and Lankshear (2005), Lenhart (2007) and Marsh (2006). This is especially important given the growth of internet provision in education. The expansion of social networks for young people is further evidence for this, given that compared to the recent 12% growth generally in online communities of practice, it is reported in the media that there is a 295% increase in 2005 in community websites such as MySpace for young people (BBC, 2006b).

As well as increased access and usage, there is some evidence to suggest that literacy practices have been changed by the internet. Merchant describes how "children's awareness of the different characteristics of digital texts shapes their on-screen writing" (Merchant, 2005, p. 59). Certainly ICT and especially the internet are authentic and genuine spaces for the engagement of children. Valentine and Holloway have seen how "children's use of ICT is embedded in their lives. Their on-line identities, relationships, and spaces are no less 'real' than those encountered off-line" (Valentine and Holloway, 2002, p.316). This perceptive view of children's engagement with online experiences demonstrates how the internet is a natural part of their lives.

Although as discussed above, parental influence on children's use of the internet is important, the experience of parents is not necessarily the same as the experience of their children. Writers have described how "by their own

admission, parents do not have the same technological knowledge as their children" (NCH, 2006, p. 4). I believe that this is true. Whilst we as adults are sometimes impressed and overawed by technological advancements, to children, the "digital natives" (Prensky, 2001, p. 15) of this research, they are just a natural part of their world as the data collected in this thesis show.

The relationship between ICT and children, however, is not entirely new. Over 20 years ago, Turkle discussed the relationship between young people and computers and observed how

> with adolescence, there is a return to reflection, but this time reflection is insistently about the self. The question of the first stage, What is this machine?, What can I do with it?, gives way to Who am I? (Turkle, 1984, p. 138).

This has turned out to be prescient with respect to the social networking opportunities of the internet, a subject to which Turkle herself would turn ten years later. She has turned her attention to the role of the internet in helping to define and develop identity. Turkle describes how "the internet has become a significant social laboratory for experimenting with the constructions and reconstructions of self that characterize postmodern life" (Turkle, 1995, p. 180). The concept of the internet as a laboratory is a compelling one, especially in the context of my research, where I am seeing it as just that, an organic laboratory in which interesting literacy and social practices emerge.

To return briefly however to the issue of technology and literacy, it can be seen that literacy practices and ICT are inseparable from the culture within which they are embedded. Carrington argues this forcefully when she describes

> the texts we produce, the technologies we draw upon to produce them, and the ways in which we use them once they are produced, are a nexus between the influence and priorities of broad background contexts and the more localised experiences of the everyday (Carrington, 2006, p. 2).

It is this idea of the internet as everyday and ordinary that was, ironically, so fascinating for me. The excitement and imagination with which the above writers describe learning and the internet compares with the more sober view of education agencies however, who often take a quite mechanistic view of ICT. The Qualifications and Curriculum Authority (QCA) outlines the expected usage of the internet in Unit 6D of the Year 6 Course of Study for ICT.

> In this unit children learn to use large sources of information, such as those found on the internet. They will use, skim read and take in information to be able to own it for themselves and interpret it with others. At times they will be critical of content and may be able to check for different viewpoints. Children will present the research information in a form suitable to the needs of their audience. It is important that teachers search the internet first for suitable sites. Without this, children can spend many hours in fruitless searching, without any reward (QCA, 2000, p. 1).

Although these aims may be sound in terms of the functional use of the internet as a large database, there is little here about the internet as a facilitator for communication, collaboration and creativity. It appears now as a somewhat austere and unimaginative view of the internet, not acknowledging the new practices developed in using the internet for both knowledge production and communication.

It is also worth noting a broader issue that also emerges from this; the way in which the internet means different things to different people. Rice and Katz have described how "…some of the digital divide may be due to differences in interests and priorities among individuals in the same ethnic and

socioeconomic group" (Rice and Katz, 2003, p. 600). This raises another issue which is largely beyond the scope of this thesis and is one which relates to equity of access, inclusion and what is spoken of in the literature as the 'digital divide'. Runnel speaks of how the "digital divide is not only about accessing the environment with cables and computers, but it is also about accessing resources and services available on the internet" (Runnel, 2002, p. 1). In turn, this raises the issue of how people see the internet. Some writers take a prosaic view of the internet, resurrecting the argument that ICT is 'just a tool', stating that

> The internet provides people with a technology that allows them to engage in activities that they have already had ways to engage in but provides them with some added efficiencies and opportunities to tailor their interactions to better meet their needs. However, there is nothing fundamentally different about the internet that transforms basic psychological or social life (Tyler, 2002, p. 204).

This is a viewpoint that I did not share. I believed that the issues were more complex and not related just to efficiencies and opportunities but to the creation of new meanings and practices both in formal learning and also in informal learning and the subcultures within which these sometimes exist. With respect to these internet subcultures it may be argued that

> If the dominant culture provides the semantic codes by which groups attempt to transmit and reproduce themselves, then subcultures represent a challenge to this symbolic order in their attempt to institute new grammars and meanings through which they interpret the world, and new practices through which they transform it (Kahn and Kellner, 2003, p. 1).

I believed that something new was happening here and that, as Lankshear and Knobel state

> …certain literacies can be identified as 'new' in a historically significant sense to the extent that they are constituted by what we

> call 'new technical stuff' and 'new ethos' literacies constituted by a new mindset (Lankshear and Knobel, 2006, p. 1).

This new mindset brings with it new considerations when researching in this area, and it is towards the difficulties and challenges associated with this that I then turned.

Difficulties and Challenges

A major methodological approach that I have taken in this thesis focuses on the use of online tools. Hine (2004) suggests that caution needs to be taken when choosing and using online methods of research, pointing out that the same care needs to be taken as when using traditional research methods. Hewson et al (2003) also raise the issue that online survey methodology is a recently developed methodology and is constantly under refinement and requires careful monitoring. Both these points are important considerations to be constantly borne in mind when designing, implementing, evaluating and decommissioning an online survey, one of the main methods of my research.

It is noted in the literature review that already there is significant research that provides evidence for certain patterns in the use of the internet by young people. Livingstone and Bober especially have many interesting comments to make including the observation that

> For some the internet is an increasingly rich, diverse, engaging and stimulating resource of growing importance in their lives; for others it remains at present a narrow, unengaging if occasionally useful resource of rather less significance (Livingstone and Bober, 2004, p. 414).

Although evidence for this observation has emerged naturally from the research and has been noted, the boundaries of the proposal have

embraced significant discussions of issues relating to equity of access, in order to avoid having the thesis left open to criticism regarding inclusivity.

Another problem relates to the getting of data in the out-of-school experience and research of this topic is problematic within this context. Sefton-Green supposes that "it is probably impossible to find out how all children and young people might be learning with ICTs out-of-school" (Sefton-Green, 2004, p. 30). My research was aimed at a very specific group of children with a specific application of ICT, i.e. internet-based; although I believed that his point was well made and makes the job of the researcher more difficult. He goes on to suggest that "we need to know how learners transform knowledge learnt in these domains to other educational experiences" (Sefton-Green, 2004, p.31). It was my intention to explore this with respect to the internet, especially in the out-of-school context.

Following on from the previous points, specific difficulties involved in conducting this research have centred on the potential inequalities across the country, especially with regards to access. Steyaert notes that "not everybody has the same efficiency and effectiveness in operating technology" (Steyaert, 2002, p. 208) and this cuts across socio-economic as well as geographical boundaries. These inequalities have been reflected in the sample from which I drew my respondents.

Other practical difficulties included the need to justify the appropriateness of the proposed methods, as well as coming to grips with a methodology with which I have had previous little experience. To assist in overcoming these difficulties, I have attempted to make the focus relevant, specific and

manageable, and the main research question framed appropriately. I have been prepared to defend my approach from a number of quarters. On a very practical level, an additional difficulty was keeping the momentum going for over two years and ensuring that respondents were engaged over a considerable period of time. On a related issue, ICT is a rapidly mutating and developing area and digital innovation and inventions have occurred inevitably over the period of the research that have been too late to be incorporated within the main body of the text.

There is a final health warning to close this introduction. As indicated above, I have used online surveys and computerised qualitative data analysis tools as part of my methodology. There are significant concerns in using computer programs to analyse qualitative data. Given my innate enthusiasm for ICT, I have been mindful of tempering this enthusiasm with common sense. The words of caution from Silverman have always been with me in this respect:

> a technical fantasy seems to have emerged, uncomfortably close to quantitative work, with a language of counting, hypothesis testing and causal analysis that is alien to the interpretative freedom supported by qualitative approaches (Silverman, 2005, p. 205).

I strongly believe that this thesis has embraced this interpretative freedom. To further clarify and contextualise the research and to state and examine the research questions themselves, I turn to a discussion of the setting in more detail.

Chapter 2: Research Setting

What might have been is an abstraction
Remaining a perpetual possibility
Only in a world of speculation.

(T.S.Eliot, Four Quartets, Burnt Norton)

I felt that there was a certain amount of risk involved in approaching this research setting, as there were no grand theories or narratives that were accepted as the immutable canon upon which further research into the use of the internet by young people might be based. Again, it felt like a strange landscape where nothing was fixed and everything was contestable. However, I started by defining the research question.

Research Question

The Practical Assessment, Research and Evaluation (PARE) guidelines of 1997 suggests that there are three main criteria for the development of a research question and its associated survey questions: relevance, selection of the proper respondents and ease of answering (PARE, 1997). I have considered carefully each of these criteria when framing both the main research question and questions contributing to the data collection. The three areas can be further elaborated upon as follows:

- Relevance: questions will be relevant to the research and will have a reasonable chance of obtaining useful data.
- Selection of respondents: the questions will be relevant to the respondent and the respondent will be capable of answering them.

- Ease of response: questions will be simple to interpret and answer, and will not create discomfort or inconvenience to the respondent.

As explained in the methodology section, I have used a number of elicitation techniques including an online questionnaire and an interview framework. Among the types of questions that have been avoided in both the online questionnaire and the interview framework are those that require respondents to consult stored data, would make them feel uneasy, would reflect negatively on them, or would make the process of responding unpleasant. At the top level of questioning, the main research question (and the one upon which other questions are based) for this thesis was:

How do year seven children use the internet both in-school and out-of-school?

A number of subsidiary questions to the main research question were developed. These questions were carefully developed and chosen because they helped provide further detail to the main research question, and also they had relevance to my professional work. They also allowed the comparison referred to in the title of this thesis to be examined from a number of perspectives i.e. by highlighting similarities, differences, the importance of any differences and lessons to be learnt. The chosen questions were:

- *How is out-of-school internet behaviour of year 7 students similar to in-school internet behaviour?*

- *How does out-of-school internet behaviour of year 7 students differ from in-school behaviour?*
- *If the behaviour of year 7 students differs, is this important?*
- *Do schools have something to learn from home practice (and vice versa)?*
- *Is it possible to generalize from research such as this?*

In formulating these questions I have attempted to adopt the much-discussed postmodernist notion of the "estrangement of the familiar" (Maclure, 2006, p. 4). In this thesis, and in the context of the internet, the framing of the research questions are intended to further estrange that which already may be seen as strange and becoming stranger still. The internet as I have already described is a strange, amorphous, postmodern phenomenon and this concept is explored further in the theoretical framework.

Boundaries of the Research

As the general area for study is quite broad, it has been necessary to make some value judgements about what to include and what to exclude in this thesis. IP-based technology was chosen specifically as a subject of study rather than other ICT-based learning technologies because of its unique and ubiquitous place in social, home, learning and work places. Contextually, the research was conducted in schools that are located in a number of urban and rural locations across England, and in a variety of socio-economic settings. I have arbitrarily described these socio-economic settings in terms of the e-society classifications as developed by University College, London. This e-society project has developed a detailed, nationwide household

classification based on levels of awareness of different ICTs, levels of use of ICTs, and their perceived impacts upon human capital formation and the quality of life (Longley, 2006). Using their classifications and the postcodes of the school catchment areas, I have been able to assign to each of the research locations a classification based on this project. These classifications may be found in Appendix G of this thesis. The locations for sampling were chosen because of ease of access, relevance to my work and because I believe they may provide a microcosm of diverse education communities across the country. Year 7 was chosen as the target research group because this group also may help to capture patterns of usage of students coming out of year 6 in primary schools. I was also prompted by the observations made in the *EU Kids Online* report on what is known about children's use of online technologies and where research gaps have occurred in Europe. The report notes that in 2007 there was a shortage of research into patterns of internet use for this age group (Hasebrink et al, 2007a, p. 41).

The research was conducted in 17 of the schools in our charity which are located across England and to which I had ready access in my professional capacity and which were enthusiastic to participate. As implied above, these represent a diverse mix of demographics and socio-economic status. A computer-based online questionnaire designed using Zoomerang © was used in addition to a structured group interview method. The actual sample size and the sample itself consisted of year seven students (n=883) from within the group of schools. The decision to use anonymised data collected using an online questionnaire was made to help preserve children's

anonymity, to enable ease of data collection and to ensure some continuity in the way in which children were presented with the questions and the mechanism by which they could respond. By making the survey fun and non-threatening, a more honest and detailed response was hoped for. The opportunity to gather statistics on children's internet behaviour through remote monitoring technology (Websense ©) has also been taken.

One of the primary reasons for choosing an analysis of children's usage of the internet is that there is a difference between those who grew up in the context of digital literacy and those older people who come to digital learning from a background of socialisation in physical space. Lankshear and Bigum say that the difference is that "one affirms the world as the same but just more technologised: the other…asserts that the world, because of the operation of these new technologies, is radically different" (Lankshear and Bigum, 1999, p. 458). My research has also considered this in the light of the language children use when speaking of the internet in their survey responses.

Significance

The ImpaCT2 study commissioned by the DfES in 2002, with its use of mapping methodology makes some generally useful comments on young people's use of the internet that are explored within the literature review (Somekh et al, 2002). It is also interesting to note that in previous research, when the use of IP-based technologies is examined, most children reported preferring using communications technology rather than information technology (Livingstone and Bober, 2005, p.2), the provision of broadband

technology into homes and schools especially bringing with it a wealth of literacy opportunities through the use of e-mail, weblogging, social networking, moderated chat and the proliferation of instant messaging on the World Wide Web. This thesis attempts to draw on what has already been written and includes a literature review in which the work of key researchers in the field is discussed.

Building on already published research findings, there were two major procedural questions that needed to be addressed when examining the potential significance of the research. These were:

- Why is the study being undertaken?
- What does the study aim to learn or determine?

These questions can be addressed in terms of describing how children view the value of the internet for learning and other purposes. This is especially relevant when looking at recent ways of describing the use of the internet in education such as *ambient findability* which describes a world where we can find anyone or anything from anywhere at anytime (Morville, 2000, p. 6). It was only several years ago that the received wisdom of internet use by young people was "to narrow down your search as efficiently as possible" (Davies, 2002, p. 31). This may not necessarily be reflected in common internet practice today, although I was not specifically looking to explore this issue in my research questions.

A conscious decision was made to translate the broad overall questions into measurable elements with more precise questions. The descriptive main

question requires the use of measures of internet use. These measures have included the schools' filtering and caching software (Websense ©) to generate reports on internet usage to supplement the computer-based questionnaires. This is described more fully in the methodologies section.

In identifying the target population and samples, I have explicitly included only those children who have used the internet as respondents to be interviewed. Ironically, the fact that they have used my online survey instrument made them internet users, anyway. In compiling the questions to be included in the questionnaire, the number of questions developed have been more than the number actually used, thereby forming a pool from which the most appropriate were selected. This was undertaken during an early stage of the research project.

In addition to the work of Livingstone and Bober quoted earlier, my research builds upon other findings, and also the methodologies used in research into the use of ICT by young people (Valentine, Marsh and Pattie, 2005). Recent research into the use of recently emerged applications such as wiki, blogging and podcasting has also informed my investigation (Lankshear and Knobel, 2006, Marsh, 2006).

The Learner

The research was primarily situated with year seven students in secondary schools and examined their perceptions and usages of the internet. In undertaking this research I have been conscious of not trying to predict children's future appropriation of the internet, but rather to describe and

reflect upon their current practice. I was reminded of a novel by G.K. Chesterton entitled 'The Napoleon of Notting Hill' in which he describes a game he calls "Keep Tomorrow Dark".

> The players listen very carefully and respectfully to all that the clever men have to say about what is to happen in the next generation. The players then wait until all the clever men are dead, and bury them nicely. They then go and do something else. (Chesterton, 1904, p. 1).

This sentiment has been more recently echoed in research by Biriotti where he describes how

> inventions that people imagined would take flight have often made minimal impact, while those that no one was even taking seriously can explode into our collective consciousness…Text messaging meanwhile came from nowhere to conquer every teenager's heart (Biriotti, 2006, p. 2).

In examining children's internet behaviour I was also conscious that the culture of school may be different to the culture of home. Indeed, my research examined these differences. The internet at home potentially gives more freedom than is commonly associated with formal schooling and its associated requirement to reach prescribed standards. Some writers believe that "the age-related SATS test…has led to a reduction of the freedom of children in terms of what they learn at school" (James and James, 2001, p. 216). In terms of out-of-school behaviour this compares with

> …the 'children of the internet age', many of whom have never known a life without home computers, games consoles, mobile phones and online connectivity. They are accustomed to more 'on-demand' delivery of services (Ofcom, 2006, p. 15).

On the one hand we see an increasingly controlled school environment of examinations and accountability, whilst on the other hand we see reports of increasing levels of freedom out-of-school, although of course this is a moot point and many authors, including Valentine, see children as actually having

restricted freedoms in the world, with the internet being one place that allows them "to create representations of their own lives" (Valentine, 2001, p. 322). One might hope that recent curriculum changes at the national level may free children and teachers to take a more creative approach to formal learning and teaching using technologies (Boston, K. 2007).

There were also some surprises to be found in comparing out-of-school behaviour to in-school behaviour where schools are seen as needing to respond to the way children are learning outside the classroom (Green and Hannon, 2007, p. 10). The children who took part in my research were born in the 1990s and are probably part of the first generation who cannot remember a time when they first used a computer. Also, they were born about the time when the World Wide Web was invented. Combes is adamant in her assertion that the 'Net Generation' is very real, stating that "there is no question that young people today inhabit a world where a range of convergent, digital technologies are a transparent part of the information landscape" (Combes, 2006, p. 406). Certainly Green and Hannon go on to argue that children of this age don't seem to need much teaching in using technology, and everyday use of social networking and instant messaging sites are all part of their healthy social lives. Thomas muses that "…the level of skills children achieve in the pursuit of active and committed citizenship in virtual communities may exceed expectations of teachers in schools" (Thomas, 2005, p. 37). This may well be true. Although this is a generalised statement without a specific reference point, it may represent a commonly held perception. Generally, there appears to be widespread agreement amongst many authors about the impact of ICT on children. Marsh sees that

"childhoods are changing rapidly in the wake of innovations in digital technologies" (Marsh, 2006, p. 9). Some writers however, exercise caution and believe that "schools are good at closing and controlling futures. What the young will have done with their 'insiderness' 50 years, hence will depend on what we (outsiders) do now" (Lankshear and Bigum, 1999, p. 462). This is speculation of course and was proposed several years ago. It is also viewing the subject from an adult perspective. Adults, including erudite authors, have inevitable values and beliefs when describing or positioning the internet. Children perhaps have less bias, having grown up in the internet era. They are less likely to complain, as Weinberger does that "…the real problem we face with the Web is not understanding the anomalies but facing how deeply weird the ordinary is" (Weinberger, 2002, p. 18).

In my research, I was eager to hear what children had to say for themselves as "…few independently-conducted surveys directly ask children (rather than adults speaking for children) about their internet use" (Livingstone and Bober, 2004, p. 8). However, as Chesterton and Birioth suggest above, predicting the future for young people is a risky business, although we can talk about possibilities and potential opportunities. Indeed, Marsh says that "Web 2.0 applications have the potential to transform classrooms into sites of active learning in which the students themselves become the experts" (Marsh, 2006b, p. 19). Other authors also have clear ideas about the positive potentials of the future. Valentine et al speak of

> … the fact that technology, identities and peer-group relations transform and are transformed by each other might be regarded by children as offering a range of positive possibilities, rather than presenting a threat to their identities (Valentine et al, 2002, p. 312).

The possibilities extend clearly into the area of children's learning.

Learning

As well as the learning environment of the learner being seen in a different light in the context of the internet, the notion of knowledge itself is challenged by the internet, especially in the context of an informal setting. Livingstone invites us to

> ask children how they work out what to do and where to go on the Internet, and they describe a combination of informal guidance from co-participants in front of the screen and a process of exploration and experimentation in the online environment itself (Livingstone, 2002, p. 233).

Young says that "it is imperative that we do not limit our understanding of what occurs in this environment to preconceived notions of learning that may not necessarily fit or reflect Internet-mediated experiences" (Young, 2005, p. 10). This is an attractive observation but contrasts somewhat with other writers who take a more positivist view of ICT and learning. Valentine et al argue somewhat from a different standpoint that "…re-directing children's use of ICT towards educational purposes must be a priority" (Valentine et al, 2005, p. 97). The central point in this statement for me is the assumption that there is currently little or no direction of ICT towards educational use. Either way, there is no denying that the ecology of education is intertwined and inextricably linked with technology.

The ubiquity of technology however, could suggest a destabilizing of traditional ideas of learning and literacy. Carrington speaks of how "…computer and other digital technologies are firmly embedded in the textual

landscapes in which children and young people develop literate habitus and competence" (Carrington, 2005, p. 479).

Lonsdale and McCurry go on to suggest that "…literacy can no longer be assumed to be either a universal or unitary concept, nor can literacy policy continue to be linked to the demands of a globalised economy" (Lonsdale and McCurry, 2004, p. 14).

Many writers on the subject of learning and the internet make suggestions in which teachers are encouraged to rethink approaches to learning.

> Studying online memes that aim at promoting social critique can help educators to rethink conventional approaches to critical literacy that often operate at the level of text analysis without taking sufficient account of the social practices, ideas, affinities and new forms of social participation that generated the phenomenon under examination (Knobel and Lankshear, 2005, p. 20).

Coiro too believes that learning on the internet is different and that definitions of learning need to reflect these differences (Coiro, 2003, p. 464). As well as examining how technology has impacted on education, some writers have attempted to define technology in terms of learning. Kress writes of how "technology is socially applied knowledge, and it is social conditions which make the crucial difference in how it is applied" (Kress, 1998, p. 53).

Wellington describes usefully some characteristics of learning in different settings, and compares school and home use. He describes schools as being characterized by conformity, sequence, measurement and control. He describes the characteristics of ICT as being personal, individualized, flexible and explorational and he describes home learning characteristics as being

voluntary, individual, unstructured and unsequential (Wellington, 2001, p. 237).

Some writers describe learning itself as being a concept profoundly changed by technology. Hernwell has written about how

> …interaction and communication in a digital arena , can be seen as a kind of zone of proximal development where children meet and exchange experiences in a new kind of learning arena (Hernwell, 1999, p. 6).

Other writers such as Higgins see the internet as being the tool with which learning takes place.

> Thinking with the internet is where the internet itself is the tool (rather than just the medium of communication)…thinking about the internet is where pupils (and teachers) reflect on the internet itself (Higgins, 1998, p. 1).

These writers all agree, however, that ICT has an effect upon and changes perceptions of learning. Changes in approaches to learning are also helping to move educational practice towards online spaces. The Horizon Report of 2008 states that "the renewed emphasis on collaborative learning is pushing the educational community to develop new forms of interaction and assessment" (New Media, Consortium, 2008, p. 5).

Spaces for Learning

Lave and Wenger developed the social constructivist theory of Communities of Practice in terms of how some learning takes place (Lave and Wenger, 1991). In this context, and with respect to new technologies, both the learner and the learning environment itself are influenced by the internet as new communities of practice based upon the technology emerge, incorporating new modes of communication and new ways of building and sharing

knowledge. Use of Web 2.0 social software such as wiki (Hawaiian for "quick" or an acronym for "What I Know Is….") are seen as positive agents in communication and collaboration. Grant predicts that

> …wiki software could have the potential to support knowledge-building networks, and to be a useful tool in the shared repertoire of communities of practice engaged in collaborative learning (Grant, 2006, p. 9).

The full impact of this on schools is yet to be seen. In these new, collaborative spaces too, knowledge is seen in a different light where

> increasingly, the internet is a working space within which knowledge can be co-constructed, negotiated, revised over time; where disparate students from diverse locations and backgrounds, even internationally, can engage one another in learning activities (Le Cornu et al, 2001, p. 1).

These too, are opportunities yet to be fully explored in formal educational settings.

In the context of ICT tools and ICT practices, this raises the interesting question of whether the technology or the practice comes first. Ito believes that "…technical forms arose out of a historical trajectory of evolving social practice and cultural value" (Ito, 2004, p. 5). The virtual world certainly can be seen as an expression of the global nature of communications in recent times, although the concept of virtuality may be challenged as being more tangible than we may previously have viewed it. Hernwell has an opinion on this too, where he states that "being a social arena for interaction, the virtual is just as real as any other experience" (Hernwell, 2005, p. 11).

Writing in 2000, Tambini predicted that by 2010, the use of the internet by young people would be around e-mail and websites. Web 2.0 type applications (as described on page 18 of this thesis), with their culture of

social networking was not considered, as indeed they had not yet been invented (Tambini, 2000). The virtual, social and collaborative spaces of Web 2.0 may be new but they have their ancestry in earlier spaces. Grant has spoken of Web 2.0 in these terms where

> in recent years we have also seen the growth of what has been termed 'social software' …to describe technologies that facilitate group communication, internet discussion forums, social networking sites such as MySpace that allow people to represent and create social relationships (Grant, 2006, p. 1).

In this way, Web 2.0 is seen as a natural development of existing social practices. The internet and its spaces can thus be seen as part of a long cultural tradition that did not come out of nowhere, and where

> …the antecedents of the 'virtual museums' of cyberspace, and perhaps even of the World Wide Web itself can be traced, not just to the serious pursuits of Big Science or Art, but also to the entertainment technologies and public spectacles of the 19th and 20th centuries, and the domestic and frivolous pleasures that these offered to a highly participative audience (MacLure, 2006, p. 12).

These spaces however, require a new way of looking at communities of practice in which

> …to make plausible judgements about social practices on the internet we need to know a lot more about what people actually do there than we know at present, and we need to look for patterns of practice and purpose and 'production' that go far beyond our current knowledge (Lankshear, et al, 2000 p. 23).

When seen in this way, we can view these spaces as being still (and perhaps perpetually) emergent. But even the ownership and membership of these spaces need to be viewed differently in the context of these emergent internet technologies. Drawing on Foucault, Davies sees fundamental concepts such as 'public' and 'private' as being unsettled. She sees that

> heterotopias…challenge traditional binaries such as the public and the private; a feature I have found outstanding in many web sites, with publicly displayed intimacies and personal revelations. One can often come across web sites which seem to speak to closed communities, but which might quaintly request passers by, as the only entry procedure, to sign a guest book, or, more officially, to complete a registration form. The sense of a thousand closed communities, yet on world-wide display (Davies, 2003, p. 2).

Perhaps the existing, assumed values and rules of social practice are being radically overhauled. Some authors see a completely separate clear distinction between online and offline networks and communication. Leander and McKim state that "…websites create social networks that are related to and quite different from those produced through the circulations of bodies and texts in-schools" (Leander and McKim, 2003, p. 237).

Other writers see online spaces as erupting spontaneously to meet a collaborative need. Ito and Okabe describe the use of mobile messaging, where "…we argue that youth mobile messaging has worked to construct alternative kinds of intimate 'places' or settings where youth can be in touch with their close peer group or 'full-time community'" (Ito and Okabe, 2006, p. 5).

The research in this area and the ideas that emerge from it are not however totally dominated by visionary, enthusiastic embracing of the internet. Some writers take a more cynical view, at variance with my own pro-ICT positionality. Lamb and Poster talk of their view where "ironically, the more connected people are in the network society, the fewer traditional relationships they seem to cultivate- more connections but less connecting?" (Lamb and Poster, 2002, p. 14). Although I disagree with the perceptions of Lamb and Poster, there are some potential tensions to be recognized. Power

relationships are also discussed in the literature where it is seen that "…web-based technologies and the pressure to engage with them, can be seen as part of a wider set of social and cultural practices, goals and power relations" (Weiner, 2004, p. 11). I found that a helpful way of looking at this was to see the online and the offline as being organically entwined, feeding and supporting each other. Indeed, Vieta claims that "…the self online and offline is usually located within the same, socially situated, albeit multidimensional, lifeworld" (Vieta, 2004, p. 29). This view certainly feels about right as a descriptor.

These online/offline relationships within the communities of practice can be profound places for collaboration, literacy practices, communication and the evolution of culture. Huffaker speaks of how

> the characteristics of weblogs such as the personal space it provides and the linkages with an online community create an excellent computer-mediated communication context for individual expressions and collaborative interactions in the form of storytelling and dialogue (Huffaker, 2005, p. 5).

In education, however, there is also an institutional perspective and at this point in describing the research setting, it was interesting to reflect on where the institutions of education see themselves with respect to these technologies and indeed, on a more formal and institutionalized basis, government and government departments also have a view on the emerging technologies.

Government and Policy

The Home Office and the Department for Education and Skills (now the Department for Children, Schools and Families) acknowledge the importance

of the internet to children for communication, homework and games (DfES 2005). The department emphasises a number of points it believes need to be considered in the use of internet by students in-schools, specifically:

- learning objectives related to internet use
- appropriate use of language
- appropriate use of graphics
- time taken in class
- unproductive use of the internet

The government policy at the time of writing (2008) clearly recognized the importance of the internet both at school and in the home, stating in its 2008 consultation document that "when computers are used for educational purposes, pupils with home access perform significantly better than those without" (Ashbridge, 2008, p. 4). However, as can be seen above, the list from 2005 has a disappointing air of pessimism about it as nearly all the points are described with a sense of negativity.

Education departments do, however also recognize the creative potential of internet technologies to enhance collaboration and some official documents go on to describe enthusiastically how

> learners can take part in active and creative learning with others through simulations, role-play, remote control of real-world tools and devices, online master classes, or collaboration with other schools or organisations (DfES, 2003, p. 9).

British Telecom also gives itself a voice on the issue of government and policy, stating that

> …the real challenge for governments, law enforcement agencies and the industry as a whole, as well as parents, guardians and teachers is

> to find the right balance of caution and warnings while allowing children a growing freedom to reach out and discover for themselves (BT, 2006, p. 20).

Within the context of the research setting, therefore it can be seen that the use of the internet by young people is a contested area. From this starting point it is now relevant to examine the literature in more detail.

Chapter 3: Literature Review

For last year's words belong to last year's language
And next year's words await another voice.

(T.S. Eliot, Four Quartets, Little Gidding).

In this section, I was reminded by Mr. Eliot that there is always something to learn and that new ways must be found for engaging new discourses. However, what may be learnt in the area of the internet and learning may also prove to be fleeting and transient, mutable and contested. It is a rapidly changing field, controversial and perpetually emergent. It also calls into question what is meant by learning. The purpose of this literature review was to identify theories, research and ideas related to the internet as a field of study and I have attempted to establish what prior research related to my research question has been published, and considered what theories, concepts and models have been used by others in similar areas of study. I have also briefly identified and discussed methods that have been used by previous researchers and identified the further contribution that my piece of research could make.

In compiling this literature review I have addressed the two themes of home usage and school usage and have tried to examine a number of issues relating to:

- What is already known about children's use of the internet
- The important landmark works
- Methods and methodologies previously used
- Theoretical and conceptual frameworks previously used

In doing this, I have attempted to draw the literature together loosely by comparing similarities and differences, discussing changes over time and summarising main commonalities. This is mainly a thematic review, clustering around the two themes and grouping similar authors. Although much of the literature has been reviewed elsewhere in this thesis, I have chosen to concentrate this section around children's home usage of the internet and their school usage of the internet as these two themes are of particular interest and relevance. In writing this literature review, I found myself, when reviewing the earlier literature, in agreement with Livingstone and Bober who, in their 2004 research concluded that "…a sustained public debate on the nature and provision of the opportunities for internet use for children and young people is lacking" (Livingstone and Bober, 2004, p. 413). The themes that I have explored in this review related specifically to home usage of the internet and school usage of the internet. In examining both these areas, I have also been mindful of Livingstone's comments that with respect to the internet, "children's leisure can no longer be clearly separated from their education" (Livingstone, 2002, p. 3).

Home Usage of the Internet

Although there is already a substantial body of literature examining the general use of ICT by children within school and out-of-school, there is a much smaller body of work specifically relating to the internet. With respect to home use of ICT by students, a DfES study in 2005 found that it:

- improved their ICT skills
- provided more options for what they learn and how they learn it

- supported homework and revision
- provided better motivation and more efficiency
- connected learning at school with home
- made learning 'fun'.

(DfES, 2005)

Wellington argues that one of the lasting "truths" in educational research of the last three decades is that the influence of the home and family background on a child's ability and achievement is at least as great as that of school (Wellington, 2001, p. 233), and this is as relevant to ICT experience as it is to any other sphere or domain.

Research funded by the Economic and Social Research Council and published in 2001 drew from a similar sample size (n=855) to that which I have used in my research, and looked at a similar range of demographic profiles (Facer et al, 2001). Their findings indicated that children's use of the internet at home was crucial to their learning and that further research should be undertaken to explore this. Valentine and Holloway also used a similar sample (n=753) in their study of children's use of computers and the internet in both school and home environments (Valentine and Holloway, 2001b). They concluded that some children suffered varying degrees of technophobia and that these fears about the technologies were related to their performance within school, their ability to control the technology and their social identities. In a study by BECTA on ICT and motivation, researchers concluded that "Research provides substantial evidence that ICT can have a positive effect on students' enjoyment and interest in

learning" (BECTA, 2003, p. 1). There is, however, little research on the use of the internet by young people and children prior to 2002. For example, Foley's study on characteristics of internet users in the UK did no analysis of internet users younger than 18 (Foley, 2000). In 2002, the National Grid for Learning (now defunct) commissioned research into ICT usage by young people and found that 73% of young people used the internet at home, school or elsewhere. This was represented by:

- 56% access at school
- 45% access at home
- 72% total access from home or school
- 1% additional access from other sources

(NGFL, 2002).

A similar Australian study found that children mostly use the internet at home and at school for (in descending order of importance):

- homework
- playing games
- e-mail
- instant messaging
- news or sport
- downloading music
- online radio/television/movies and magazines

It also found that children are increasingly accessing the internet for the first time at an early age (Netratings, 2005). These findings are supported by American research by DeBell and Chapman (2003) who also saw that in the

USA, home is the most common location for internet access with homework, games and e-mail being the most common activities undertaken by young people (Debell and Chapman, 2003). This is also consistent with the findings of the British *Digital Beginnings* report (Marsh et al, 2005). Also in the United Kingdom, BT claim that, consistent with the Australian findings, "some 90% of children use the internet to help with homework" (BT, 2006, p. 2). Also in the United Kingdom, Livingstone and Bober found very similar patterns, with 90% of children who were internet users, using it for homework, 71% using it for e-mail and 70% using it for games. (Livingstone and Bober, 2005).

Two years earlier, the trend was similar with Hayward et al finding that

> the most popular reason for accessing the internet among this group [Key Stage 2] was in order to play games, followed by doing schoolwork or school projects. Use of the internet to support hobbies and interests and for e-mail was also reasonably widespread (Hayward et al, 2003, p. 26).

With respect to this type of internet usage at home, the level of parental supervision was reported as being quite high and although perceived inappropriate use of social networking software may be seen as a danger, it is popularly reported that 87% of children are supervised while using computers at home (BBC, 2006b).

Home usage levels of the internet have been quite high for some time now and as early as 2002 it was claimed that "internet questionnaires suggest that pupils used the internet more outside school than inside school across the whole age range" (Somekh et al, 2002, p.6). Livingstone and Bober have also conducted research into young people's (9-19 year olds) use of the

internet, examining both the nature and the quality of internet use. They found that:

- 90% used the internet for homework
- 94% used the internet for finding information for other things
- 72% used the internet to send and receive e-mails
- 70% used the internet for online games
- 55% used the internet to send and receive instant messaging
- 45% used the internet to download music
- 21% used the internet to access chat rooms

(Livingstone and Bober, 2004, p. 21).

But there are also some other ideas that may help add perspectives to these data. There are two types of continua described for informal learning, or what could be seen as out-of-school behaviour. Sefton-Green has examined these and describes how

> the first contrasts formally organised learning with casual or disorganised, accidental learning…The second ranges from formal settings (schools) through intermediate kinds of learning spaces (Sefton-Green, 2004, p. 6).

These observations imply that formal and informal learning occurs in both formal and informal learning spaces. This is a useful way of seeing internet usage in the school and out-of-school and one upon which I have reflected later in an examination of my data.

It must be acknowledged that the physical provision of internet access is also important. Some writers have made various postulations about internet provision in the future and Fernlander and Timm especially predict that

> it seems probable that the provision of internet cafes is likely to be a more effective way of enhancing social inclusion in disadvantaged areas than schemes depending on people having access only at home (Ferlander and Timms, 2004, p. 9).

With increasing levels of wireless provision at the municipal, trader and household level, a scenario such as this is certainly plausible and may influence children's patterns of usage in the future.

With respect to the issue of literacy and internet usage, there are some interesting findings within the literature. Jackson reports that children who use the internet more are reading more generally (Jackson et al, 2006). This is consistent with my findings as described in the later sections of this thesis. Some researchers go further and uncover children's sometimes surprising use of the internet. Hagwood especially describes how

> research addressing the uses of new media and online technologies is often situated in relation to youngster's lives. It's not uncommon to read about a 2-year-old's interaction with computerized story-books or a 5-year-old web designer (Hagwood, 2003, p. 387).

It can also be observed however, that there are more children online now than there were in the recent past and that this will have influenced the nature of online spaces and the way in which they are populated and are used. In the same way, the proliferation of social networking spaces reflects the users and their culture. This increase in culturally constructed online spaces can also, lead to a rethinking of their formal and informal use, and phenomena such as these can lead us to view literacy in different ways. Davies describes how

> digital technologies are supporting many individuals to become more visually literate; that is we are becoming more aware of our world by reading visual clues. Online Affinity Spaces allows us to share new ideas and new ways of seeing and to bring cultural understandings

> together with others, where they can be re-examined, used and transformed in the image making practices of others (Davies, 2005, p. 20).

It can thus be seen that a variety of authors have contributed creative and interesting ideas to the debate on children's home internet use.

School Usage of the Internet

Much of the current research about the internet in schools specifically relates to teaching, although much of this research is American, as is much of the content of the internet itself. Holloway and Valentine state that "…far from being a placeless 'virtual' sphere, the on-line space used by British children…was often, though not exclusively, an Americanized place" (Holloway and Valentine, 2001, p. 158). Notwithstanding this observation, and certainly within the United Kingdom, teachers as well as students see the internet as a valued resource. It was also interesting to note that Holloway and Valentine's observation was made in 2001, and that there are now more UK children online. Also, the proliferation of social networking spaces by definition means that there are more local websites (as each social networking site is "owned" by and is therefore local to the individual user). As far back as 2000 (RM, 2000) there has been evidence that 83% of teachers wanted to use the internet more in their teaching and believed that it added value to children's learning.

A significant proportion of the research on internet use in education focuses on its role as a repository of information. Pritchard and Cartwright (2004) have focused on this perspective and have argued that

> activities that encourage focus, and a consideration of what is already known, what is actually being sought, and what is going to happen to the information once it has been located help develop discerning users of information (Pritchard and Cartwright, 2004, p. 30).

Other authors go further, and speak of the internet as requiring a new understanding by teachers. Bramall noted several years ago that

> the full realisation of the educational promise of the use and understanding of the Web interfaces requires specific forms of engagement and more importantly reflective understanding (Bramall, 2000, p. 82).

This is as true in 2008 as it was then. Those with a focus on performativity and academic attainment have a different perspective and see the internet and ICT generally in terms of academic results. BECTA observed that "…on average, schools with good ICT resources have better achievement at Key Stage 2 than schools with unsatisfactory ICT resources" (BECTA, 2001, p. 10). Certainly, agencies that invest public resources into the use of the internet in education see their return in investment in terms of academic results.

Organisations such as BECTA take a more performative view of teaching, ICT and the internet than most academic research, although some university-based research still focuses on results-driven contexts for the use of the internet. Watts and Lloyd state that

> …classroom internet and web-based systems are seen to allow learners to focus on subject matter as the teacher moves through the classroom and facilitates interactions and discussions (Watts and Lloyd, 2003, p. 57).

Although this may be true, a deeper analysis of children's usage may have revealed more.

Some recommendations that were of particular interest to me in my research have been made by Owen et al who have discussed what they believe teachers should do with respect to ICT in general and the internet in particular. They believe that teachers should:

- make provision for learning outside of school
- collaborate with people who have knowledge outside school
- encourage collaboration amongst children
- set harder challenges
- allow personalised learning
- consider ways in which schools can enhance learning outside school

(Owen et al, 2006, p. 52)

I also considered that these points were extremely relevant to the data that I was collecting for my research, and beyond that, very relevant to my professional work and the context within which my sample group operates.

There has been much debate on digital exclusion, access and the social effects of the internet. Wang et al have argued that "…greater computer/internet usage raises concerns about the possible isolating effects on children" (Wang et al, 2005, p. 1). But a greater concern may be on those who do not have access, including those who self-exclude. These are the young people who have turned away from the internet. There needs to be a "policy emphasis on those who are 'not interested' or have 'lost interest' in the use of the internet" (Devins et al, 2003, p. ix). Access at school, however is of greater popular concern. The BBC bluntly reports that pupils in England do not get enough access to the internet at school (BBC, 2006b). However, it

is unclear in their reporting whether this refers to just physical access or whether there is something more that lies beneath the surface as a number of factors could contribute to this perception. For example, Doherty finds that "…an individual's use of IT and the internet is affected by the support that is, or is perceived to be, available to them" (Doherty et al, 2003, p. 14). Lahti and Marjorama take this line of thinking even further where

> …we argue that in order to develop a coherent account of the teaching/learning processes in virtual learning environments we recognize the need to consider both the importance of the scaffolder and the significance of group processes (Lahti and Marjomaa, 2003, p. 2).

Although a detailed discussion of access and inclusion is beyond the scope of this thesis, it is worth noting within the literature that

> …the ongoing expansion of internet access, along with continuing institutional change, requires that we move beyond that paradigm if we are to document and explain important dimensions of digital inequality as internet penetration continues to increase (DiMaggio and Hargittai, 2001, p. 16).

The online social networking that is facilitated by the popularly labelled "Web 2.0" is currently (2006-2008) at the forefront of many debates on the internet. Web 2.0 embraces elements of both local and specialist knowledge that need further investigation as they have implications for access of information and inclusion within communication. Bernstein's comments on knowledge have some resonance here as he describes how

> …the contrasts and oppositions between specialist knowledge and everyday local knowledges (as if the latter were not specialised) produced limiting, often homogenising, descriptions in which the social basis of these forms was inadequately conceptualised (Bernstein, 1999, p. 169).

Again, access can be seen in the context of knowledge and how it is seen and used in social settings.

Selwyn describes how the primary issue between English, internet-using students and their schools is not about physical access, but is about the restrictions imposed by the schools on the users by the filtering and caching software. He finds that, although giving rise to some frustration, students were sanguine about the limitations of internet use at school and generally willing to accept the parameters set by the schools' internet security system (Selwyn, 2006).

Having described above some of the issues relating to access and inclusion, I thought that it was worth quoting Livingstone and Bober in this section who describe how "…most statistics concerning children and young people's experience with the internet concern access rather than use" (Livingstone and Bovill, 2001, p. 3). In this thesis I was primarily concerned with the latter. Livingstone, however, goes on to say that

> …research on children and the internet must go beyond access to examine the nature of internet use- its nature and quality, social conditions, cultural practices and personal meanings. By contextualizing internet use within everyday life, research seeks to counter the technologically determinist assumption that the internet is external to, and so has an impact on, society; rather, it is longer, multidimensional processes of social change that shape the introduction of technology- in the family and childhood, leisure and lifestyles, work and education and social values (Livingstone, 2003, p. 159).

This was also useful for the context of my research, and the way in which Livingstone articulates the issue above was extremely helpful as she describes the internet in terms of children's everyday life.

Some authors also revealed a range of interesting practices where communication is inextricably linked with literacy. Merchant describes how "…using the internet for communicating with a remote audience can add a

new dimension to classroom literacy" (Merchant, 2004, p. 342). Recently, Lankshear and Knobel have described new literacies as a practice of remix (Lankshear and Knobel, 2006) where text, sound and video are mixed and remixed in a way similar to the current music technologies used in sampling, hip-hop etc. This has been made easier by recent technological developments and is witnessed by the volume of user-generated content being uploaded to the internet. The 2007 Ofcom report reports that during 2006-2007 on a daily basis, 3,744,000 new photographs were uploaded to Flickr and 65,000 videos were uploaded to Youtube. Assuming an average video length of 30 seconds, a year's worth of new video appeared on Youtube every fortnight (Ofcom, 2007, p. 40).

There is not universal agreement, however, on perceptions of internet use by young people. Gibson and Osberg (Gibson and Oberg, 2004) found that teachers believe that, in descending order (albeit in a pre-Web 2.0 world), students use the internet for the following:

- searching for information
- exploring for a topic
- communicating by e-mail
- creating multimedia projects
- viewing demonstrations on the web
- participating in online chats
- publishing on the web

However, 2004 is relatively speaking a considerable time ago in the history of the internet and although there are some similarities, my research also

highlights some differences that are explored later. Issues relating to children and their use of the internet are likely to vary both demographically and over time. From a similar time as Gibson and Osberg's research and in comparison with their views, Kent and Facer look at home use of the internet by year 8 students (Kent and Facer, 2004) and found the following to be the most popular:

- playing games
- browsing for fun
- writing on the computer
- fiddling around looking at different things
- looking up things for school
- sending e–mails
- drawing or playing with images

Burnett and Wilkinson have put their own interpretation on children's use of internet (Burnett and Wilkinson, 2005) and have found that by using the internet children are able to:

- use the internet in purposeful ways
- recognise that texts change and continue to change
- obtain a critical perspective on the texts they encounter
- adopt a problem-solving attitude to finding and reading web-based texts
- draw from visual and verbal elements in making meaning

Those with a more sceptical view on the use of the internet by young people found that "…adolescents with high Web experience become more critical,

less confident and less enthusiastic than adolescents with low Web experience" (Dinet et al, 2003, p. 543).

In comparison with this view, however, Marsh et al (Marsh et al, 2005) found that:

- young children are immersed in ICT from birth
- parents think that children lead well-balanced lives with appropriate use of technologies
- parents are positive about use of technologies by children
- parents support children's use of technologies

There is also research to show that there are benefits from informal internet access by young people as reported previously by Burnett and Wilkinson (Burnett and Wilkinson, 2005, p. 164).

With respect to the internet itself as a vehicle for communication, Livingstone and Bober found that

> …in the main, young people approached the vast potential of the internet rather conservatively, communicating with people they already knew and accessing a modest range of sites connected with interests they already had (Livingstone and Bovill, 2001, p. 10).

This was still true in recent times for social networking spaces. With the advent of the social networking software that is often characterized as Web 2.0, Sefton-Green found "children using the virtual as a means of cementing close peer group relationships" (Sefton-Green, 2004, p. 23) and that there is increasing interest in social networking between organizations as well as individuals. The infrastructure to support this is in place and BECTA has stated that "…broadband connections and dedicated web pages can support

progression and help to ensure coherence between a large number of primary schools and their partner secondary schools" (BECTA, 2004, p. 4). However, BECTA goes on to argue in a later document that "there is no national data available on learners' use of collaborative learning technologies" (BECTA, 2005, p. 38), again showing their caution in this area and their focus on measurable results.

Despite BECTA's claim about the dearth of data, there are increased levels of research into some types of digital collaboration and communication. Cox et al have found that "…there is a growing body of research into pupils' use of the internet for sending and receiving e-mails, for using chat rooms and for creating websites" (Cox et al, 2003, p. 35). With respect to more recent technologies however, as recently as 2006 it was noted that "We are a long way from the use of blogs, wikis and other interactive technologies being common place in the classroom" (Honeyford, 2006, p. 12), implying that although these technologies have a place in informal spaces they may also have potential equal relevance in formal spaces.

However, some authors are already starting to promote the social networking elements of the internet. Within the context of online identity, Davies has described the internet as a playground . She describes how

> I see the internet as providing a place for play, for staging teenage drama, for experimenting with voices and identities, for asking questions of themselves, of each other and the world (Davies, 2005, p. 174).

This useful metaphor for the internet places it in a dichotomous playground, both formal and informal. Burry et al also have some interesting comments to make on the internet as a place for collaboration. They argue that

> working together remotely on a collaborative design project within a wiki is a much more effective way to communicate, develop ideas, create, collect and access shared documents than using electronic mail, mailing lists, web logs, instant messaging or chat (Burry et al, 2005, p. 9).

Again, the twin concepts of communication and collaboration are seen as important elements. It appears that the appropriation of collaborative online spaces by young people has been significant. Use of free-to-use websites for social networking by young people (especially Bebo and MySpace) had grown by 295% in 2005. (BBC, 2006b). This is not to argue that online collaboration is anything new. Certainly in a broader context, online social networking has been recognized for some time. In 2002, Timms found that "there is now a considerable volume of research supporting the conclusion that the use of the internet by local communities is an effective means of enhancing community identity" (Timms, 2002, p.8). There were positive signs too around this time on the use of the internet in general. With respect to online communities, "…surveys do not in the main support arguments about the pervasive negative or paradoxical effects of the internet" (Katz and Rice, 2002, p. 174). There never was, and still does not seem to be any inherent, systemic 'wrongness' in online communities. Certainly, young people are technologically equipped to participate in these online communities with15% of 13-15 year olds claiming to own their own webcam (Ofcom, 2007, p. 66). Indeed, the proportion of 15-24 year olds using the internet for interactive activities such as social networking or playing games was higher in 2006-2007 than for any other age group (Ofcom, 2007, p. 81). Although games console use peaks at the age of 11-12, 15-24 year olds rate the internet most highly for communication and entertainment when compared with other age

groups. Certainly, each age group values the internet less as it gets older (Ofcom, 2007, pp 91-93), although as alluded to above with children, use of the internet and mobile phones increases with age, with the proportion of 12-15 years olds using these technologies regularly being twice that of the 8-11 year old age group.

But, as always, we are yet once more on the threshold of a new era in ICT. Again, as is so often the case, Livingstone and Bober provide useful concluding remarks:

> The importance of the internet depends on a child's age, among other factors. Whereas younger children have grown up with it, older teenagers remember the times before the internet existed and, perhaps, have a different approach to this technology (Livingstone and Bober, 2003, p. 28).

The concept of my sample group being part of the first generation of students not to know what it was like before the internet makes this group unique when compared with previous generations. As an aside, the rapid way in which children intuitively, and through experimentation learn how to use the internet is dramatically illustrated in the experiment where an internet kiosk was placed in a public area in a New Delhi slum. Once available, the kiosk was used immediately by children who were able to access the internet usefully within a few days. The children had little or no previous exposure to computer technology and no knowledge of spoken or written English. Interestingly, adults (men and women) did not make any attempt to learn or use the internet in the kiosk (Mitra and Rana, 2001, p. 230). Although experiments such as this generate useful and interesting anecdotes, theories are difficult to find as the area is still relatively new, but after my review of the literature it was to the task of finding a theoretical framework that I turned,

although it should be noted that the following chapter continues to review the literature where appropriate.

Chapter 4: Theoretical Framework

I am not eager to rehearse
My thoughts and theory which you have forgotten.

(T.S. Eliot, Four Quartets, Little Gidding)

In postmodern terms, it was with a degree of caution and trepidation that I approached the concept of a theoretical framework, knowing that a grand narrative would not be appropriate, either in terms of the research or in terms of the subject matter. A theoretical framework for my piece of research was a daunting task but one that was necessary to underpin the thesis. As Silverman says, "Even if you decide to eschew grand theories, that itself is a theoretical choice. In this sense, there is no escape (nor should there be) from theory" (Silverman, 2005, p. 51). It is widely argued that technology should be underpinned by a philosophy or theory. Conlon has even stated that

> …technology without philosophy is blind. Unless it is harnessed to a clear vision of change then chip by chip, the technology could take us into a future that we would never willingly have chosen for ourselves (Conlon, 2000, p. 116).

I accepted both these points in my own search for a coherent philosophy. It has long been acknowledged that philosophy and theory have an important role in the appropriation of technology, even if this is part of a potentially dystopian vision. I have tried to be reflexive, both in the reading of existing literature and in the research itself, and in incorporating this reflexivity, I have attempted to appropriate in a simplistic way some of Derrida's notions of the text, both integrating and going beyond the existing literature (Derrida, 1978)

but this has been intellectually difficult. However, by building specifically on Derrida's ideas (and with especial regard to his concept of *deference* in which the meaning of words is perpetually deferred by reference to other words), I have also tried to understand Usher and Edward's interpretation of the textuality of texts regarding the context of my thesis (my situatedness), the pretext (my language and signification when speaking of ICT in education) and the subtext (my professional paradigms) of both the existing literature and my own writing (Usher and Edwards, 1994). Context of language is very important, as is the context of internet use and I have also been aware of Lave and Wenger's concept of situated learning, with learning as a social process with respect to the internet (Lave and Wenger, 1991), especially with respect to informal use such as social networking.

Attempting to form the theoretical framework for this research has been messy, drawing from a number of theories and combining them in the research in what can be described as "an eclectic mode of engaging with theoretical perspectives" (Wellington et al, 2005, p. 60). In fact, the articulation of the background of ideas and theory has been more problematic than the methods and methodologies, as these have most strongly influenced the judgement and insight required in the discussion. In Smith's article on educational research, he points out that "whatever rules of method are stipulated, their application will still require judgement" (Smith, 2006, p. 509), and I am mindful of this useful advice. Any judgements made have been influenced by my values and assumptions outlined in the introduction.

In seeking a theoretical basis or framework for the research and looking for a relationship between theory and data the writers of postmodernism certainly provided a valuable basis from which to start. I returned to Baudrillard's statement of 25 years ago that "we live in a world where there is more and more information and less and less meaning" (Baudrillard, 1981, p.79). This clearly anticipates much of the debate surrounding the use of the internet. Butler also describes how "the internet is at present a typically postmodernist phenomenon- it is (currently) a non-hierachized, indeed disorganised collage" (Butler, 2002, p.117) and Sellinger also sees that "the internet is a post-modern phenomenon…unlike school, it has no history" (Sellinger, 2004, p.149). These comments resounded generally with what I saw as the chaotic and mutable nature both of postmodernism and of the internet. There is also relevance here to educational research itself in a postmodern context. Maclure describes postmodernism's gift to educational research as being "the uncertain hope of shaking things up, asking new questions, deranging the familiar" (Maclure, 2006, p. 2). Uncertainty and derangement are both concepts that gave me hope with this research, and certainly they have some relevance to the organic development of the internet and future discussion of how it is used by young people.

The virtuality and mutability of the internet also resounded with postmodernism and the way in which children's learning can be viewed. Lyotard, in a sense predicted this in the 1970s. He mused that

> it is reasonable to suppose that the proliferation of information-processing machines is having, and will continue to have, as much of an effect on the circulation of learning as did advancements in human circulation and later, in the circulation of sounds and visual images (Lyotard, 1979, p. 4).

I have also simplistically drawn on Bourdieu's model, and argued that the internet can be seen in relation to both horizontal and vertical discourses as described by him (Bernstein, 1999). Fields or social arenas of internet collaborative use are organized both vertically and horizontally. This means that these arenas are not strictly analogous to traditional social categories, and are often autonomous, independent spaces of social play, something that is very much characterized by Web 2.0 applications. Marsh explores this in depth, warning that unless policy developments address the way literacy practices are transformed through new technologies then the "potential to transform literacy pedagogies for a multimodal, multiliterate world and an emergent knowledge economy" (Marsh, 2007, p. 279) will be dissipated. Using these and other sources I have drawn together what I see as an eclectic theoretical framework for the thesis.

Knowledge

Knowledge and matters relating to epistemology are deeply connected to the development of ideas around the internet and learning and some writers believe that the learner's attention should be focused on deep comprehension of the conceptual content of learned material on the internet (Shafir and Etkind, p. 2006). Hernwell makes similar points about cognition and the internet.

> ICT, understood as a function rather than an object, makes it possible not just to perceive and experience the digital arenas of the internet, but also makes it possible to be in these arenas. In this interpretation of ICT and the internet, it affords children the possibilities to perform actions and to express herself in ways that up to then have been practically impossible. The technology is, therefore, not just an external tool. It is also a function that changes the conditions of human, on both a mental and a cognitive level (Hernwell, 2005, p. 7).

Ideas such as these would not sit comfortably with some of Rousseau's visions of learning. In the mid-18th century he declared "Let the child's vocabulary, therefore, be limited; it is very undesirable that he should have more words than ideas, that he should be able to say more than he thinks" (Rousseau, 1762, p. 47). This viewpoint stems from a time when formal learning was founded primarily in text. Now multimedia, text, hyperlinked objects, digital images, video, sound, colour, animation, speech and virtual reality are part of both experiential formal learning as well as informal learning. Experiential learning, especially has a greater importance in education today and has close connections with internet usage. Gee has observed that "…deep learning involves, first and foremost, activity and experience, not facts and information" (Gee, 2005, p. 13). Children's constructivist use of social networking and other functions of the internet certainly supports this.

Plato's ideas of knowledge, reality and belief can be rethought in terms of the internet. Plato, in his *Republic* observed that "Knowledge stands to opinion as the world of reality does to that of becoming, and pure knowledge stand to belief and reason to illusion as knowledge stands to opinion" (Plato, 1955, p. 283). Many authors, however have argued that now "…the internet and related technological innovation have changed the way knowledge is viewed" (O'Hara, 2002, p. 64) and that concepts such as knowledge, reason, belief and opinion are not as clearly defined as once they were. Certainly, I believe we are in the midst of a rethinking of the nature of knowledge.

Our views of ICT are being examined using different paradigms as well. Aviram and Tami have seen how

> views of ICT and education can be characterised in light of two parameters which together form a matrix. The first parameter- the horizontal axis in the resulting matrix- concerns mainly *approaches* one adopts regarding the aims and/or the nature of the computerization of education. The second parameter- the vertical axis in the resulting matrix- refers to *attitudes* one adopts regarding the nature and extent of the changes in prevailing schools conceived as necessitated by the introduction of ICT to education (Aviram and Tami, 2001, p. 2).

Both approaches and attitudes are important factors in the use of the internet. No longer is ICT (and the internet especially) being viewed as a value-free instrument or 'just a tool'. It is recognized that

> it is a balanced and dialectal approach that on the one hand conceives ICT as the epitome of new inevitable and irreversible culture involving new cognitive, emotional, organizational social and economic structures (rather than a set of neutral tools). On the other hand, it conceives ICT as being double-edged when judged in light of basic desired social and educational values (rather than as the automatic manifestation of 'progress' or 'advancement') (Aviram and Comay, 2001, p. 1).

The new approaches have hopefully made themselves felt in this study of the internet and children's practices and learning.

Even in the early days of the internet, the 'difference' of the World Wide Web was being recognized. Nunes very quickly identified that

> …internet has no frontier because its territory has already been comprehensively mapped; the connections between nodes precede the attempt to explore this terrain, meaning every 'journey' in cyberspace is a repetition and a retracing of steps. Internet has no provision for 'undiscovered country', only the simulation of such, like a planned treasure hunt (Nunes, 1995, p. 4).

In this context, even the related ontology of the internet is seen as different. Nune goes on to describe how "One never discovers on internet; one only uncovers" (Nunes, 1995, p.4). I see this ontology of the internet as not now being as useful as it may have been at the time it was written. Now, I see the

internet as rhizomic, spontaneously being created and in a sense creating itself as new connections , both technological and social, are made.

As time has passed and the internet has evolved further, the boundary between the internet and the user has become blurred. In 2001, Marshall described how

> … the communication medium that characterises our age, the internet, allows the self to be not only decentred, but also multiplied without limit. The personalities we project and the characters we encountered online are all composed of information (Marshall, 2001, p. 43).

Within this context we can see how both hard and soft aspects of knowledge are incorporated in the internet. Kimble et al speak of how

> harder aspects of knowledge are those aspects that are more formalised and that can be structured, articulated and thus 'captured'. Soft aspects of knowledge on the other hand are the more subtle, implicit and not so easily articulated (Kimble, Hildreth and Wright, 2001, p. 221).

Both these soft and hard elements are important in our understanding of the internet and of how people use it. Waddington has appropriated the works of Heiddeger in discussion of the ICT in general and the internet in particular. He has interpreted Heidegger in such a way as to imply that ICT is different from previous technologies because human beings have only recently developed an ability to think in the mode of challenging forth (Waddington, 2005, p. 572). The internet has forced us to think in new ways about identity, knowledge and ourselves.

However, even at the dawn of the World Wide Web, the impending changes were apparent. At a time when the internet was nascent, Usher and Edwards were describing how "…the very practices of science are metamorphosing

under the impact of language-related developments" (Usher and Edwards, 1994 p. 159). In this context it is however, also worth noting that the nature of language is a philosophically contested area. In addition to Derrida's ideas as previously noted, MacLure also brings us back down to earth with the observation that "writing…is a poor substitute for speech, no more than the sign of a sign" (MacLure, 2003, p. 109). Deferred meaning is a poststructuralist concept, and one which is also analogous to the hypertext of the internet where hyperlinks are perpetually referential and meaning sometimes become lost or distorted as the user travels from page to page.

Postmodernism

As mentioned earlier in this chapter, I found a mutual attraction between the internet and the ideas of postmodernism, just as nearly a decade ago Zinkhan, Concher and Gupta (Zinkhan et al, 1999, p. 69) found a link between what characterises postmodernism and what motivates people to use and construct the World Wide Web i.e. the manipulation and construction of multi-layered, multi-faced, multi-media images.. There is a link between "…the Net [and]…the postmodern themes of perspectivism, multiplicity and decentralization" (Granic and Lamey, 2000, p. 105). A simple online search using www.google.com of 'internet' and 'postmodernism' generates over two million hits. The use of these terms together is sometimes used in a positive and sometimes in a negative way. Rarely within the literature is there a claim to a value-free discussion of either. Durham challenges us to " …celebrate the postmodern culture of the simulacrum as an anticipation of the utopian…or, on the contrary, denounce it as an invitation to nihilism" (Durham, 2000, p. 189). Notwithstanding this

somewhat extreme binary, there is something to be mindful of here. It would be a mistake, however to think of postmodernism and the internet as always being two simultaneously and mutually complementary phenomena. I see them as useful ways of describing and illuminating each other.

Postmodernism is not necessarily defined within a particular period. Eco has argued that "…postmodernism is not a trend to be chronologically defined, but, rather, an ideal category- or, better still, a *Kunstwollen*, a way of operating" (Eco, 1985, p. 66). The literal translation of *Kunstwollen* as *will to art* had a coherence for me with descriptions of the internet. Both words had a sense of being something constructed, associated with a wish or desire for being.

Some writers, however correlate the internet and postmodernity chronologically. Horrocks has argued that

> the postmodern crisis is occurring not because technology threatens the value of humanism, but rather because technology has revealed the outcome to which these values must inevitably lead (Horrocks, 1999, p. 30).

Butler, in his turn has described how "the internet is at present a typically postmodernist phenomenon- it is (currently) a non-hierachized, indeed disorganised, collage" (Butler, 2002, p. 117). Both these descriptions rang true, especially in the context of informal use. Weinberger goes further, stating that "the web will always be a little bit broken. We are too" (Weinberger, 2002, p. 76).

Perhaps the most attractive description which linked conceptually both postmodernism and the internet together for me were the words of Chapman who could easily have been describing the internet when he describes how

> Postmodernism, although many definitions have been offered is about the fragmentation of knowledge, including a sophisticated awareness on the part of many persons that texts are never complete because they are human constructions involving the selectivity of material. The notion of a grand narrative of human, neat, precise, and complete, has been usurped by a multiplicity of competing narratives, messy, subjective and incomplete (Chapman, 2005, p. 1).

These could certainly be the narratives and constructions that describe the internet. Indeed, the ideas of postmodernism have some credentials in approaches to educational matters generally. Atkinson talks about how,

> as one of the most powerful contemporary approaches to educational and social inquiry and political critique available to the sociology of education, postmodernism is a rich resource (Atkinson, 2000, p. 94).

Chapman's description of postmodernism helps contextualise for me the location of the internet in society generally, and in education particularly. Additionally, Trend's comments on the significance of the level of interactivity allowed by the Internet are useful, especially when one considers that "…technologies like the internet can be understood and used by agents with postmodern subjectivity" (Trend, 2001, p. 78).

Power

It is difficult to write about the internet, knowledge and postmodernism without discussing power. At a simplistic level, Kershaw has already discussed how "…on the internet…power relations become less obvious…and perhaps more sinister" (Kershaw, 2001, p. 11).

Lyotard saw a link between technology and power as well, although his discussion predated the common use of the internet by nearly 20 years:

> The scenario of the computerization of the most highly developed societies allows us to spotlight (though with the risk of excessive magnification) certain aspects of the transformation of knowledge and its effects on public power and civil institutions-effects it would be difficult to perceive from other points of view (Lyotard, 1979, p. 7).

However, Kershaw's sinister view of power and the internet is balanced by Heng who observes that

> While the internet serves as an interesting example of unintended consequences of social action, it also supports the postmodernist position that power does not flow from a single power centre to all the peripheral points; rather it flows from the peripheries in capillary forms (Heng, 1998, p.6).

This rhizomic view of the internet as a democratic web of power contrasts with the traditional phallocentric model of a computer network with its all-powerful central file-server and its subordinate client workstations. The very metaphors of computer networks with their forests, tree-structures and root domain contrast markedly with the cloud and web metaphors of the internet. The internet's postmodern (non) structure is in stark contrast with the rational, structured, corporate network. Livingstone assists with another useful metaphor, comparing the 'roots' of a traditional network and knowledge base with the 'routes' of the internet, turning the 'rooting' in time and space into the 'routing' of travel and discovery (Livingstone, 2002, p. 226).

Additionally, in her paper on the development of a theoretical framework on power and the internet, Van Couvering suggests that both the content and form of the internet need to be taken into account as the distinction between the producer and audience of content blurs (Van Couvering, 2003). This is

particularly true in social networking applications and perceptions of what is 'real' and 'virtual' online.

The Internet and Hyperreality

Reality, virtuality and hyperreality are all concepts that are often explored in discussions of the internet. In the years immediately before the invention of the World Wide Web, authors had seen that

> our world has become truly infinite, or rather exponential by means of images. IT is caught up in a mad pursuit of images, in an ever greater fascination which is only accentuated by video and digital images (Docherty, 1993, p. 194).

This could be easily said, in a critical way, about the internet in 2008. An interesting question to be asked here is how these images are seen as being real, not-real or hyper-real. Reality and virtuality have indeed been sometimes seen as opposites. Appignanesi and Garratt have proposed that

> the crux of postmodernity is that there are two 'presents'. One is a 'spectre' present, a Virtual Reality techno-media simulacrum that makes the other 'real' present appear borderline, fugitive, elusive" (Appignanesi and Garratt, 1999 p. 170).

Distinctions about what may be real or hyperreal are perhaps blurring. Baudrillard's notion of hyperreality being the simulation of something that never really existed can be challenged in the ever-developing sophistication of the internet and its online worlds (Baudrillard, 1994), where it can be argued that the distinction between real and virtual (especially in social sites such as www.secondlife.com) is blurred.

However, often within the literature the internet vision is seen as bleak or negative. Butler and Ford describe how

> This new kind of information dense culture is part of what Baudrillard calls hyperreality. We are in an age where our perceptions of the everyday world overlap with and are shaped by models of our world.

> There is a growing sense of inauthenticity about the world that surrounds us because it is increasingly constructed rather than natural (Butler and Ford, 2003, p. 28).

I did not find this to be a helpful way of viewing technology and Sassower hints at an alternative way of viewing where he describes how "The closer scientists get to the reality they study…the farther away they seem to drift from simple answers to ontological and metaphysical questions" (Sassower, 1995, p.104). In this thesis I was trying to distance myself from the technology and get closer to the participants and the human elements of interaction on the internet.

Horrocks in turn describes how,

> In a postmodern world, reality is sometimes alleged to have receded or been replaced by 'hyperreality', a universe of images and codes that produce the real in their own terms (Horrocks, 2001, p. 42).

Sometimes, the writers adopt an approach which is reminiscent of elements of science fiction as well. In my opinion, a good example of this is the work of Boyd et al where they describe how

> In computer-mediated communication, the performance of identity occurs primarily not though direct experience of the body but within the constraints of digital representation constructed by interactive systems (Boyd et al, 2005, p.1).

Having made the above flippant observation about science fiction, I had no doubt that concepts of time and space change when speaking of the internet. Davies has described how "the internet unsettles straightforward definitions of spatiality, and it is partly this, which makes internet literacy practices exciting and unique" (Davies, 2005, p. 14). These conceptualisations of the internet again help to locate it in a postmodern context.

There are also questions that are raised on where we are and who we are. Collins writes about Bourdieu's theories and describes

> Bourdieu's …concept of habitus-variously defined as embodied social structure, as schemes of judgement, perception, and action derived from one's position in society, and as pre-conscious second nature, that is history forgotten (Collins, 2000, p. 69).

Certainly habitus as a concept which binds individuals to larger groups resonates with both the intention and the effect of social networking elements of the internet. Other authors also describe the internet as being related to a quality or state of existence. Sandbothe states that

> The actual and fascinating potential of the internet…is that it makes possible decidedly pragmatic forms of temporality by providing the formal technical prerequisites for determining the conditions of presence (Sandbothe, 1998, p. 8).

Zembylas and Vrasidas provide some useful ideas too where they describe how

> The development of a pedagogy of discomfort in the context of online learning can promote understanding and tolerance of difference. In the educational arena, the construction of decolonizing pedagogies in cyberspace must go hand in hand with developments in ICT. The use of ICT is filtered through these pedagogies and creates spaces for the production of new stories about life and learning, involving struggles over identity, meaning and the self (Zembylas and Vrasidas, 2004, p. 122).

We can see that engagement with the internet not only encompasses issues relating to knowledge and literacy but also identity and meaning. Walker especially illustrates this in her description of the way "…that the internet shapes- but does not determine- the form and use of identity statements" (Walker, 2000, p. 118). In my opinion, the internet is a postmodern phenomenon with respect to changes in thinking about learning, reality and identity. It's non-linear and chaotic yet spontaneous (dis)organization is

postmodern in both spirit and application. It stems from no grand narrative, is anarchic yet democratic and changes with the user. It is encyclopaedic yet contested, ubiquitous yet elusive and emancipatory yet subversive. It is like Yeats' terrible beauty. It is also something that is an integrated and seamless part of young people's lives and a subject that is worthy of study in this context. Many of the findings from my research will be related to existing theory and to issues that have been identified from the literature review. Consistent with findings already made by Livingstone (Livingstone, 2002), I will discuss the impact of children's leisure activities on their formal education. I will discuss the time children spend on the internet both at school and at home. I will see how the influence of home on a child's development is at least as great as at school (Wellington 2001) and from my data I will discuss how home supervision and clearly articulated rules are correlated with richer, more highly engaged activities (both leisure and school-work related) compared with unrestricted use. I will agree with Somekh et al (Somekh, 2002) that children use the internet more at home than at school. I will also agree with Sefton-Green's observations (Sefton-Green, 2004) that formal and informal learning occurs in both formal and informal settings and that many of these types of distinctions are changing.

I will also agree with Davies' findings that online experiences help children in becoming more literate (Davies, 2005). My findings on the role of the school in supporting these literacies are also in agreement with the ideas of Lahti and Marjomma (Lahti and Marjomma, 2003) where the school can be seen as a scaffolder and facilitator of group processes, and this has an important role in supporting children's positive use of the internet. I also found myself

agreeing with the ideas of Livingstone (Livingstone, 2003) that the internet should not necessarily be seen solely in terms of an external phenomenon that impacts on society in a deterministic way but something that is shaped itself by its usage by children and others.

Theories relating to the internet are coherent with some of the ideas of postmodernism. I see that the internet and postmodernism are characterised by influences that are chaotic, non-hierarchised and mutable. I agree with Hernwell (Hernwell, 2005) who describes the internet as a function, rather than an object, a postmodern description of it that sits comfortably with other postmodern characteristics of the internet such as decentralisation (Granic and Lamey, 2000), the revelation of the values of its users (Horrocks, 1999), its non-hierarchical nature (Butler, 2002) and its nature of being incomplete, contested and subjective (Chapman, 2005).

I have seen how power is distributed and is manifested in the internet, where power relationships on the internet are less obvious (Kershaw, 2001) than elsewhere and I find agreement with Lyotard who spoke of how the technological transformation of power would affect power relationships in the future (Lyotard, 1979). In my discussions with children about their internet usage, it is apparent that they feel the locus of power sits with them. This is consistent with existing theories about power flowing from the peripheries in capillary form rather than from the centre (Heng, 1998).

In the following sections some of these ideas are illuminated through the use of an eclectic methodology.

Chapter 5: Methodology and Methods

You are not here to verify,
Instruct yourself, or inform curiosity
Or carry report.
(T.S. Eliot, Four Quartets, Little Gidding)

With reference to the above quotation, it was probably relevant for me to ask myself what my role was in this thesis. Was I theorist and philosopher, scientist and objective witness, change agent and emancipator or choreographer and co-ordinator? At the risk of making pretentious claims, I saw myself as being none, yet all of those things, as my research spilled out of the contextual constraints of the thesis and into my professional, social and personal lives (as if they could ever really be separated). In reality, I primarily thought of myself as an informed story teller, using techniques from traditional quantitative methodologies (surveys) as well as qualitative methodologies (interviews) and using other tools that were useful at the time. Perhaps I was a bricoleur or 'jack of all trades and master of none'. There is a precedent for this. With respect to both qualitative knowledge production and evidence-based research "…bricolage is typically understood to involve the process of employing these methodological strategies as they are needed in the unfolding of the research situation" (Kincheloe, 2004, p. 2). I had no allegiance to a particular methodology and have used what seemed appropriate at the time.

As my research was focused on a comparison between children's in-school and out-of-school internet usage, I chose to collect data directly from the children by consulting them through an online survey and a series of group interviews.

Computer-based questionnaires were chosen in addition to interviewing methods to further enrich the data gathered and certainly it would seem that this method was relevant to the question being addressed in this research. The use of interviewing as a technique was decided upon for those questions that potentially could elicit a more narrative or anecdotal response than could an online survey. This approach is also consistent with recommendations on consulting young people in schools by the Economic and Social Research Council who advocate

> …that while useful data comes from seeing the weight of opinion on a particular issue in questionnaire results, the richest data- the data that gives teachers the greatest insight come from interviews or carefully handled group discussions" (Rudduck and Flutter, 2001, p. 4)

The interviews were conducted in small groups for both expediency and also to encourage collaboration and discussion. A major consideration here was the reliance placed upon information supplied by the children. The interviews themselves were recorded onto analogue tape with the children's and schools' permission and then transcribed, anonymised and securely destroyed. The transcripts were a verbatim record of what was said and did not annotate voice tone or pronunciation as the manner of speech was not the focus. A sample transcription of an interview may be found in Appendix J. To help support the data provided through the interviews and questionnaires, anonymised logs of internet use were examined and analysed using the schools' filtering and caching software (Websense ©). This software was used in all the schools being researched. As well as providing filtering and caching facilities, Websense © also provides a set of reliable, transparent and useful statistical reports on both websites accessed and websites blocked. Schools configure the software to suit their own circumstances and

sites which are blocked by one school are not necessarily blocked by another. Likewise, two websites which fall into the same category (e.g. sport, music or games) may be treated differently according to their content. The standard reporting screen is illustrated below.

Figure 2: Websense © filtering and caching

The research approach I chose included simple, aggregated and classified statistics of internet usage using Websense © and a more detailed ethnographic approach in the commissioning of the surveys and interviews, their subsequent analysis and their discussion. The survey and interview questions were structured not only to elicit a specific response but to allow students' stories to be told using their own voices.

The survey questions were asked online and included, amongst others, open-ended, binary-choice, scaled-response, and unscaled-response questions. The structured questionnaire generally had a combination of

these types of questions and screen shots of the survey may be found in Appendix D. The summary for each of these question types are:

- Open-ended: these were tightly focused and limited to the scope of the research although there was also the opportunity for stories to be told.
- Binary: these were used for obtaining factual or interpretative information that falls into the yes-no, true-false category.
- Scaled-response: these elicitated alternative responses that increase or decrease in intensity in an ordered fashion.
- Unscaled-response: these questions asked respondents to choose from one or more options from a list.

Specifically, the techniques included free and paired comparative techniques of systematic elicitation as described by Denzin and Lincoln (Denzin and Lincoln, 2000). Surveys, stories and quantitative data were used as I took the role of bricoleur as described previously and which O'Leary also describes as being one who uses a range of methods and methodologies as needed to solve a variety of problems (O' Leary, 2004). At an early stage I did not wish to commit to a purely quantitative or qualitative approach as I felt that these were unhelpful binaries.

This approach is supported by Gubrium and Holstein who, in their publication on 'Postmodern Interviewing' state that key elements of this approach are the interpretative aspects of fieldwork and interviewing, allowing to a certain degree the respondents to speak for themselves (Gubrium and Holstein, 2003). Harrison too sees a postmodern perspective being useful for researching the use of the internet in education. He suggests that a

"postmodernism perspective helps us to deal with ambiguities, multivalent conceptualisations of truth, and potential methodological conflicts" (Harrison, 2006, p. 90). This is to not to suggest that I have deliberately tried to obfuscate my methodologies. Some of the questioning has indeed been quite straightforward. For example, in my survey there are questions that required statistical or quantitative analysis (e.g. "do you have the internet at home?") as well as those that require a more qualitative approach (e.g. "what are your favourite websites that you visit at home?").

During this analysis, however, I have been mindful of not attempting to arbitrarily classify experiences, ontologies and behaviour as I believe these could lead to inevitable tensions between the respondents' intention and my interpretation of their data. As described in the introduction, my personal and professional positionality have influenced the judgements that I made. I am also reminded of the relationship between power and knowledge as described by Foucault (Foucault, 1980) and have been careful to implement the surveys and interviews in a sensitive way, whilst remaining aware of the responsibility that the power assumed by the researcher confers. An important part of Foucault's discussion of power and knowledge is based upon the premise that those with power have specialist knowledge. The converse, of course can be equally true. Both perspectives call for ethical judgements to be made.

Ethics

In examining the issue of ethics, I had a responsibility for moral integrity in the conducting and presentation of this research and I have asked myself

several rhetorical questions regarding the ethics involved in this research journey;

- Did I need to know what I was researching?
- Did my methodology/methods relate to the research question?
- Did my research make things better?
- Was I prepared for potential unintended consequences?
- Did I regard the people being researched with humanity?
- Did my language acknowledge their humanity?
- Was I going to sensitively access the research population?
- Was I asking them things I would not want to be asked (Golden Rule)?
- Was I being manipulative?
- Was I sensitive to social power?
- Was I honest?

As stated, these questions were rhetorical and the appropriate answer is clear in each case. But each question underpinned the whole thesis, especially in the methodology, the presentation and the discussion of the findings. Specific documents relating to the ethical clearance process are provided in the Appendices A-D of this thesis. The University of Sheffield School of Education ethical procedures were followed and all necessary documentation was completed and approved.

There were certain legal constraints and ethical obligations in conducting this research. Specifically, there was a need to be mindful of the Data Protection Act and other relevant legislation. Target schools had been identified and

anonymised, and all students within the targeted age group were invited to participate with an option of withdrawing at any time without explanation if they so wished. As a matter of course, permission from the schools' head teachers was sought, and appropriate explanation and discussion provided. Ethical issues on using technology for examining the internet logs were also dealt with sensitively, ensuring that all necessary permissions and safeguards were sought and all parties were fully informed of what was being done and why. Ethical and practical issues on interviewing students were also addressed and documented, and group interviews were conducted under the supervision of a teacher. Other ethical assurances have been undertaken and included:

- Informed consent of head teachers and children to participate, including issues relating to withdrawal from the process;
- Maintenance of confidentiality including security of data and subject anonymity;
- Maintenance of privacy including ownership of research findings
- Provision of debriefing and feedback procedures where appropriate
- Adherence to Netiquette conventions
- Ensuring of practical safeguards including online libel, spam, viruses and copyright issues
- Acknowledgement of potential online power inequalities between myself and the respondents
- Safe disposal of personal data

- Responsible management of specific information about students to the schools.

However, the ethics issues underpinned the need in this research for children to have a voice, in this and in other areas where their interests are potentially affected. The United Nations Convention on the Rights of the Child is described in the British Educational Research Association Revised Ethical Guidelines for Educational Research (2004). Article 3 requires that "…children who are capable of forming their own views should be granted the right to express their views freely in all matters affecting them, commensurate with their age and maturity" (BERA, 2004, p. 7). This is another good reason for surveying and interviewing the children directly. In collecting, analyzing and presenting the research data, I have used a number of online methods, which are outlined in the following methodology section.

It was interesting to note that, several months into my research, a piece of investigation into a comparison of children's online activities across Europe was published. This research usefully suggested that "the fundamental ethical questions posed by new technologies are not new and thus internet research cannot be separated from a broader social milieu" (Hasebrink et al, 2007b, p. 33). However, this is not uncontested. A contrasting view of ethics with respect to internet research suggests that indeed there are new ethical questions and that "challenges and possibilities of intellectual enrichment are awaiting us at the intersection of ethics and epistemology" (Vedder, 2001, p. 132).

Methodology

The framework for the methodology is eclectic as described above, but draws upon ethnographic and other approaches using specific questions, open ended questions and discussion points in both the survey and the interviews. With respect to whether my approaches are 'subjective' or 'objective', I agreed with Rowbottom and Aiston that "one need not adopt either of these approaches, but can mix and match individual components of each, and even adopt a quietist stance on some" (Rowbottom and Aiston, 2006, p. 140). On balance, considering this issue and with respect to my research, all elements are subjective to some extent. I have however, attempted to be fair and accurate in my judgements.

With respect to choosing the most appropriate methodology I also agreed with Wellington et al that

> rarely is there only one way to go about things and most research topics could be approached from a range of different theoretical and philosophical positions and could be investigated by using most of the available methodologies and methods (Wellington et al, 2005, p. 99).

Notwithstanding the above quotation however, there is an emphasis on qualitative methods within this thesis. This was also supported by the perception that internet behaviour is an observed phenomenon within the context of research and that "the purpose of qualitative inquiry is to understand observed phenomena" (Jones, 1999, p. 35).

Following on from O'Leary's earlier observations, he goes on to say that "…the whole quantitative/qualitative divide makes little sense" (O'Leary, 2004, p. 14). He additionally remarks that

> if you remove yourself from the assumptions of the quantitative/qualitative divide, your ability to develop eclectic yet logical methods that value all forms of data increase dramatically (O'Leary, 2004, p. 15).

In this context, I have embraced the methods that seem useful. Wellington also helpfully remarks that "it is often forgotten that some of the data collected in a survey can be 'qualitative' in nature" (Wellington, 2000 p. 101) and in the case of my survey, this is certainly true.

I have given considerable thought as to whether to regard myself as an intrusive researcher and Bassey's comments are helpful insomuch as "…when researchers collect data discretely, and maintain a low profile in relation to the ongoing action, I take the view that the designation 'non-intervention' research is appropriate" (Bassey, 1995, p. 60). I was certainly not taking a low profile, however, and by contrast my research was indeed interventionist and I acknowledge this in my methods and my discussions. This makes the level of sensitivity with which the research instruments were wielded and with which the respondents were treated even more important as my research carried with it significant levels of responsibility.

Analysis

The techniques adopted in this research include surveys, interviews and data logs. The tools chosen for analysis have included Weft ©, which was selected as a computerized, Qualitative Data Analysis (QDA) tool because of its simplicity and suitability for use with qualitative data (Fenton, 2006, p. 33). I have not however relied on this QDA tool to produce 'results' as such, but rather to provide clues from which judgements could be made. This is important within the context of Smith's remarks that "whatever rules of

method are stipulated, their application will still require judgement" (Smith, 2006, p. 3).

In implementing the various methods, I have attempted to adhere to the framework as outlined by Mann and Stewart where they state that

- data should be collected for one purpose only
- people should have access to data about themselves
- the existence of the database should be publicly known
- data should be protected against risks such as loss, unauthorised access, modification or disclosure
- data should be collected in the spirit of free speech
- data should not be communicated externally without consent

(Mann and Stewart, 2000)

There have been some techniques adopted within the survey that were chosen for purposes of systematic elicitation. These have included free lists, paired comparisons (relationships between items) and other techniques. I have also adopted some techniques for analysing data which include, to a greater or lesser extent componential analysis (study of meaning) and to a limited extent, taxonomies (continually dividing into categories). These were used as part of the 'work in progress' although they will not explicitly appear in the presentation and discussion of the findings. Likewise, specific methods that I have adopted for analysing free form text within the surveys and interviews included key words in context and word counts.

These too were part of the working data and were incorporated in the presentation and discussion. The Weft © QDA tool (Fenton, 2006) was used

to some extent to draw these data from the findings using the above techniques and was also used for both coding and analysing texts in the sampling, finding themes, building codebooks and marking texts.

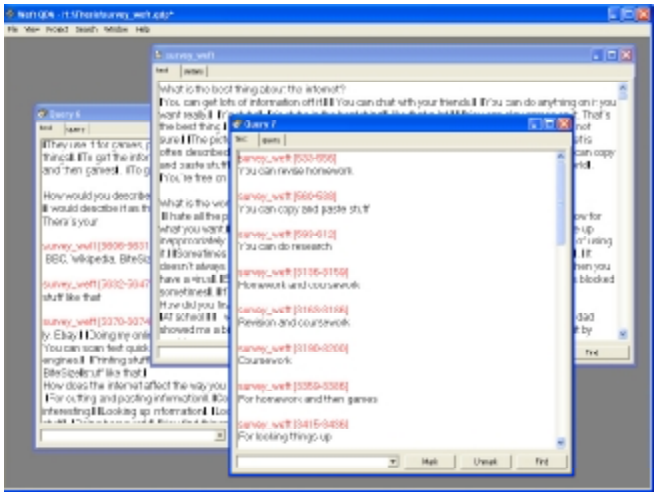

Figure 3: Weft © Qualitative Data Analysis

Weft © was used for coding the interviews using key words that were chosen as representing the spirit and intent of the respondents' comments and from there to perform a contextual analysis of the coded words and simple aggregated word counts. The key words that I chose as being most representative of the themes apparent in the texts were *accuracy, learning, games, negatives, instant messaging, search engines, research, fun uses, information, homework, social networking, video, pictures* and *music*. These were chosen to represent the key themes that emerged from the interview transcripts as being representative of the key ideas and topics the students were discussing.

In using all of these tools and methods described in this section, I have used the guidelines from Cohen et al to highlight a number of potential concerns, including the need to avoid:

- leading questions
- highbrow questions
- complex questions
- irritating questions
- use of negatives and double negatives
- too many open-ended questions

(Cohen et al, 2003).

Questionnaires and Surveys

Questions within the survey were constructed so that respondents were motivated to complete it, questions were readable, respondents understood how to answer them and returning the questionnaire was easy (SPSS ©, 2004). This is consistent with the guidelines accompanying another data analysis package, the Statistical Package for the Social Sciences ©. There is a sound precedent for the use of online surveys in the area of internet and learning, and internet-based questionnaires have been successfully used with children in the ImpaCT2 study (Somekh et al, 2002).

Throughout the design of the surveys and interviews I was mindful of the questions asked by Wisker, which I treated as being rhetorical in the context of this section as they are specifically answered elsewhere:

- What are you looking for?

- What do you seek to investigate?
- What will you consider the relationship between?
- What will you contribute to?
- What will you change?
- What difference will your research make?

(Wisker, 2001, p. 46).

With respect to the small group interviewing, several groups of year seven students supervised by teachers were chosen. The schools were chosen arbitrarily but with a broad demographic profile and schools nominated the respondents themselves. A list of questions for both the interviews and the online survey will be found it Appendices D and E.

Zoomerang © was used for the design, delivery and analysis of the online survey. It enabled the survey to be implemented quickly and securely. It was used for analysis using filtering and cross tabulation tools. The survey was developed using a child-friendly look and feel, incorporating easy to use functions such as drop down menus and buttons. It also enabled me to view reports in real-time, and to download data to spreadsheets for further analysis.

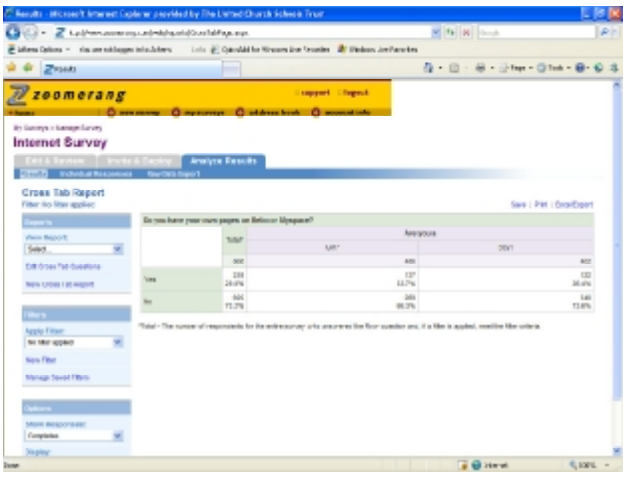

Figure 4: Zoomerang online questionnaire

Internet Research

The survey related to this thesis was conducted entirely online. Silverman has observed that

> the feature of internet technologies has several pragmatic advantages for the qualitative researcher. Complications regarding venue, commuting, and scheduling conflicts are less restrictive when interactions occur on the internet. As with the distance-collapsing capacity of the internet, the elasticity of time is often taken for granted in our everyday interactions (Silverman, 2004, p. 103).

He goes on to say that "the researcher's own conceptualization of the internet will influence how it is woven into the research project, with significant consequences on the outcomes" (Silverman, 2004, p. 120) and also notes that "The internet is both a tool of research and a context worthy of research" (Silverman, 2004, p. 97). I agree with Silverman and see the internet as a collaborative, organic phenomenon affecting and being affected by interactions. The use of it for online surveys is highly efficient and adds another perspective.

There is something fundamental about the role of the internet in society and this is recognized by the erudite writers on educational research. Silverman comments on how " the internet allows focus specifically on the building blocks of culture at the basic level of interaction" (Silverman, 2004, p. 113). This refers not just to theory, but to involvement in the internet as a living and evolving practice. Silverman also remarks that

> if we accept the basic premise that reality is socially constructed through language, the internet allows us to study this social construction in progress as a real, enacted process rather than a theoretical premise (Silverman, 2004, p. 114).

There are also very real, practical considerations in the use of the internet as a tool for data gathering and analysis. Mann and Stewart write about how

> a web-based survey has the advantage that it appears identical (subject to the browser used) to all respondents. The survey can be given an attractive appearance utilising text formatting, colours and graphics. It is also easy for respondents to complete, typically by selecting responses from predefined lists or entering text in boxes and then simply clicking a 'submit' button when finished. The data received by the researcher are in a completely predictable and consistent format, making automated analysis possible without the editing that may be necessary with text-based e-mail (Mann and Stewart, 2000, p. 70).

My online survey was designed and constructed to incorporate all of these principles and in fact is implemented exactly in the way described by Mann and Stewart.

They also go on to say that "Web-page-based surveys offer significant advantages in terms of reach, speed and economy" (Mann and Stewart, 2000, p. 71). It also relevant, however to go a little deeper in examining the internet and some authors have asked questions about epistemology. Jones asks "Is any experience on the internet a new knowledge or just a transfer of

existing knowledge into a new form?" (Jones, 1999, p. 31). This is not an easy question to answer and depends upon the perspective and values with which you approach the question. In the case of my thesis, the use of the internet is such an integrated part of children's lives that their use of the internet and transferral of their knowledge are inseparable.

Certainly, the internet is a mutable and amorphous phenomenon. Shirky says that "trying to express implicit and fuzzy relationships in ways that are explicit and sharp doesn't clarify the meaning, it destroys it" (Shirky, 2003, p.7). This gives some comfort, but makes the job of presenting a coherent argument more difficult. Accepting Shirky's comments, however, there is little doubt that the internet opens up new opportunities for researchers for online information processing and data retrieval. Silverman has also commented that

> …communication is increasingly mediated by information technology. Originally, telephone calls were a great impetus to research. Somehow, without visual clues, people managed to communicate with each other. Researchers investigated how we create an orderly structure here with stable expectations of the rights and obligations of, or instance, 'caller' and 'called'. More recently the internet has been a crucial medium of largely text-based communication. Dependent upon ethically appropriate access, this has opened up a whole new field for ethnographic investigation of textual data including homepages, chatrooms and e-mail correspondence. (Silverman, 2004, p. 118.)

Denzin and Lincoln add to this debate as well, with comments that

> …e-mail surveys achieved response rates similar to those of mail surveys but yielded better quality data in terms of item completion and more detailed responses to open-ended questions (Denzin and Lincoln, 2005, p. 721).

In reflecting upon the comments of both Silverman and Denzin and Lincoln, I saw myself as using the internet for this purpose whilst at the same time as

using it for research, I was also researching it as a subject in its own right. Lankshear and Knobel make some helpful observations in this regard when they discuss how

> Many internet applications, and weblogs and chat in particular, have an interesting reflexivity for researchers of new literacies, because they can be used as instruments and other kinds of resources within the very process of researching new literacies (and anything else for that matter) (Lankshear and Knobel, 2004, p. 17).

This is tempered slightly by Papastergiou who argues that

> Most students' mental models of the internet are confined to the user's side and to what the user sees while using the internet, including the user's computer, the interfaces of internet client applications and web content (Papastergiou, 2005, p. 356).

Notwithstanding this, children who grew up with the internet may see these things in a different light, as was manifested in the transcriptions of the group interviews.

Group Interviews

The interviews in all the schools were conducted under similar circumstances and in a similar format. Typically, I would arrive at the school in my role as Director of Educational Development and Technologies, having previously negotiated a convenient time and ensured that the head teacher, the hosting teacher and the respondent students had been briefed. I would be escorted to a meeting room by the hosting teacher and the students would be brought in. At all times the teacher would be present during the interview. After introducing myself and the purpose of the visit I would explain the project and reiterate that their involvement was entirely voluntary. I would ask their permission to tape record the interview and tell them the interview was about

to begin. Tapes were securely erased after transcriptions were completed to help preserve anonymity. Where references were made to other students' names, these were anonymised during the transcription process.

Virtual Ethnography

Silverman has a view on virtual ethnography and states that

> a study becomes ethnographic when the fieldworker is careful to connect the facts that s/he observes with the specific features of the backdrop against which these facts occur, which are linked to historical and cultural contingencies. (Silverman, 2004, p. 12).

I have tried to connect the responses on internet use from the respondents with the internet itself, making the internet both one of the subjects of the research, and the vehicle by which the internet is undertaken.

The underlying principles of virtual ethnography, however are best outlined for my purposes by Hine (Hine, 2000) in her eponymous book on the subject. In this context, my thesis has attempted to incorporate each of Hine's points, all of which are relevant to my research as indicated in the parentheses below. Hine outlines these principles with my interpretation in the context of my thesis in brackets:

- Problematisation of the use of the internet (children's in-school and out-of-school use)
- internet as both culture and cultural artefact (how the internet is part of children's lives)
- concentration on flow and connectivity rather than location and boundary (children's use of social networking)

- exploration of boundaries between virtual and real (children's use of the internet to create their world)
- spatial and temporal dislocation (children's connectivity with the internet in different time zones and places)
- virtual ethnography as partial ethnography (incorporation of quantitative methods to supplement qualitative methods)
- respondents can be both absent and present (the use on online surveys and interviews)
- it is an adaptive ethnography which sets out to suit itself to the conditions in which it finds itself (programming the survey to suit the respondents and the research context).

I have incorporated each of Hine's principles into my own research by adapting them in the way I have described above. By not accepting the internet as a known and immutable phenomenon and by problematising its status as both object and function, I have examined it as an elusive, fluid and connecting phenomenon with shifting boundaries of time, space and virtuality. This has led me to consider the challenge of making valid and reliable judgements about something that itself seems furtive and elusive.

Validity and Reliability

Traditional quantitative, statistical concepts of validity and reliability are potentially exposed to different meanings within my research as it is partially qualitative and partially quantitative. At a very simplistic level, I equated validity with truth and asked whether or not I was telling as truthful a story as possible from within my own positionality and given the perspective from

which I viewed the subject matter (i.e. immersed within it). In this sense validity was not so much be *the* truth, as *my* truth and hopefully the respondents' truths as well. I found myself in agreement with Greenbank's call to

> …reject claims that research is able to uncover the 'truth' by adopting a value-neutral approach, preferring instead to accept the existence of different realties due to the influence of values on the research process (Greenbank, 2003, p. 798).

I have also tried to apply Greenbank's disciplines of exposing my values, adopting a grounded approach and using triangulation of data as well as adopting a reflexive approach in order to achieve a type of validity and reliability. Reliability can be equated with consistency and replicability and in this context I was looking both for consistencies in the responses from schools and also patterns from which we might learn. The question of how to ensure validity of qualitative research was, however not through triangulation of data or through respondent validation but through:

- not making inaccurate correlations
- finding other cases to compare it with
- working with small data sets to find generalizations
- seeking out inconsistencies
- using simple aggregate statistics

Both the surveys and the interviews attempted to uncover the respondents' own truths whilst looking for consistencies in responses. This was my aim in terms of both validity and reliability.

Sample

The sample of schools used for all elements of the research was one to which I had access professionally and is located across the whole of England in a variety of places including inner city, suburban, rural and regional centres. This access has been significant, and I have been fortunate to be allowed access to such a broad range of schools. Indeed, this can be seen as one of the unique contributions of this study. The schools were chosen because of convenience of access and because their varying sizes, socio-economic and educational profiles provided a broad enough range for the purposes of this research. There is a skew towards schools with good internet access and a curriculum that recognizes the importance of the internet. However, with respect to personal use of the internet, the sample is broadly representative of what might be expected across a range of demographic profiles. I should also note that as a senior member of our organisation, the schools may have felt pressured to participate, although at all times I stressed that participation was entirely voluntary (although, perhaps inadvertently I therefore put even more pressure on them). The names of the schools have been anonymised by being randomly allocated the name of a Melbourne (Australian) suburb for easy reference. A list of these anonymised names may be found in Appendix F. A further note on the categorisation of data involves an arbitrary and expedient decision. For the purpose of easy categorization of websites researched in the Websense © log and the online survey a simple description of the websites has been given rather than the actual web address for easy of reference (e.g. *search engines* instead of www.google.com).

It is worth noting that the children consulted as part of the sample were broadly demographically representative in terms of gender, race, socio-economic status, academic achievement and ability. Some contemporary research raises the question of representation, as earlier studies of internet usage are now seen to have been skewed towards technically proficient males (Robinson, 2007, p. 107). I have tried rigorously to be representative in my choice of children consulted and to have listened carefully and attentively to their voices.

In describing 'the voice of children', Byron describes usefully some internet behavioural characteristics of those children in the age group corresponding to my sample (Byron, 2008, p. 44). She characterises children of this age (11-12) as moving from internet discovery to internet exploration and excitement, with usage growing and starting to peak. She describes how these children, whilst still using the internet for fun activities, are starting to seriously use it for homework and research and are using it increasingly for socialising online with their friends. This is also consistent with the Ofcom 2008 report on UK children's media literacy (Ofcom, 2008)

Chapter 6: Presentation of Findings

The knowledge imposes a pattern, and falsifies,
For the pattern is new in every moment
And every moment is a new and shocking
Valuation of all we have been.

(T.S. Eliot, Four Quartets, East Coker)

Caching and Filtering Statistics

Having identified and described the schools and children taking part in this research (more detail on which may be found in the Appendices F and G), a baseline reading was taken from Websense © for each school to determine the most commonly visited categories of websites. This was done partially to validate what the students themselves said and to also to provide additional descriptive data for triangulation.

The table below lists in order the most popular, visited websites across the group of schools during the first term in the 2006-2007 academic year. The listing is based upon the number of hits or requests for visits that the website category receives and is not indicative of the time spent at the website. There are also no descriptive data indicating how the categories are broken down.

The list orders the most popular type of visited websites across the schools during the sample time (autumn term 2006-2007) as measured by frequency of visits by year 7 students by the caching and filtering programme, Websense ©. All the schools involved in this research were aware that the data were being collected and indeed collaborated on and facilitated the process. These categories are arbitrary, although I recognise that many of these are unsettled and shifting in meaning. For example, since the data

were collected (2006) until the time of final drafting (2008), many social networking sites (as defined earlier in this thesis) now include video sharing, music sharing and game playing. The proliferation of different kinds of social networking has been significant in the two years between 2006 and 2008.

Websites Visited (%)	
Search engines	36
News	14
Educational games	12
Social networking	7
School website	5
Study guides	5
Information technology	4
Instant messaging	4
Sports	4
Wiki	3
Fashion	2
Music	2
Images	1
Anti-bullying	1
Total (%)	**100**

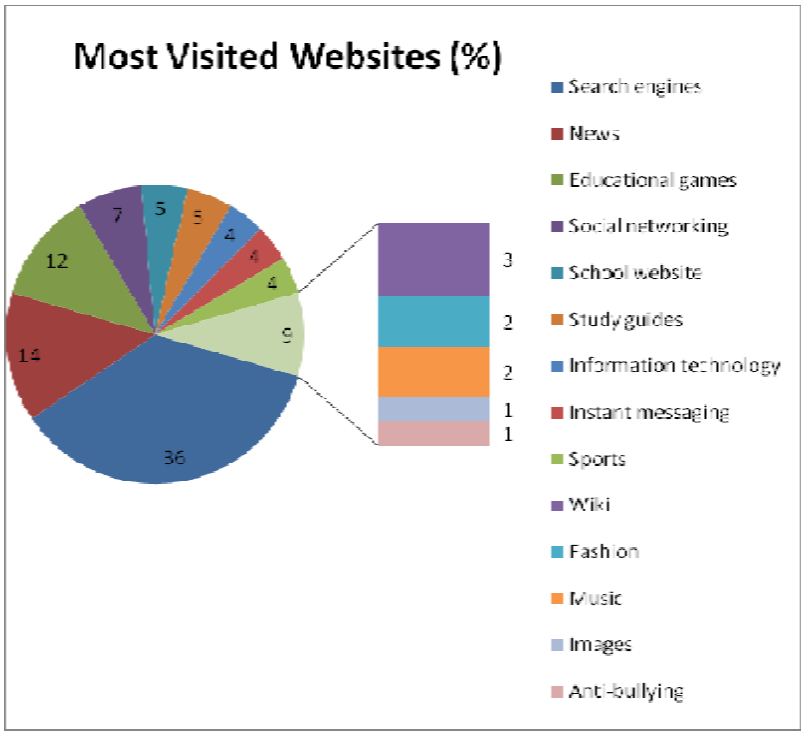

Figure 5: Most visited websites

Analysis of Filtering Statistics

Websense © generates a number of useful reports including ones such as the example below which shows the most common websites visited in one month at a particular school. All of the drop-down menus offer alternative configuration options. For the purpose of this thesis I have used simple aggregated statistics showing the most common website categories visited.

Figure 6: Websense reports

The reports show that 36% of websites visited were search engines, 14% were news websites, 12% were educational games and 7% were social networking sites. A note of interest is that schools implement varying blocking and filtering policies in their implementation of the product and that many attempts to access game and social networking sites may have been blocked.

Overview of the Online Survey

Having taken the baseline readings from Websense © I then implemented the online survey. Having collected and analysed the data in the survey, I developed an interpretation of that which I found. The online survey told me that although the potential number of respondents were 51% girls and 49% boys, the actual respondents were 47% girls and 53% boys, indicating that boys were more willing to undertake the survey. I found that although 83% of students have the internet at home, most students spend up to one hour on the internet at school each day, the most common category being up to half an hour. 17% spend more than two hours on the internet at home each day,

the most common category being about one hour. This represented a significant proportion of children's waking out-of-school time.

Most students spend up to half an hour at school each day reading books or magazines, the most common category being less than half an hour and most students spend up to an hour out of school reading books and magazines. This too is a significant proportion of their time, although students are more likely to spend time reading print-based materials than using the internet out-of-school hours. However, more students spend more than two hours out-of-school using the internet than spend more than two hours reading. The internet is more likely to be a time-consuming activity than reading.

30% of students had social networking sites such as Bebo or Myspace. These social networking figures are lower than I might have expected. This was possibly because of the students' age, with older teenagers being more inclined to use these particular technologies. 75% of students have their own e-mail address. 75% of students say that their favourite place for using the internet is at home. Very few students with the internet at home preferred using it at school.

In descending order, the online survey found the following activities to be the most popular. These findings are consistent with other researchers' findings as discussed in the literature review (e.g. Livingstone and Bober (2004), Gibson and Oberg (2004) , Kent and Facer (2004)).

81% spend at least some time using the internet for playing games.

75% spend at least some time using the internet for homework and revision

72% spend at least some time using the internet to look for information.

66% spend at least some time using the internet for instant messaging.

66% spend at least some time on the internet just browsing for stuff.

61% spend at least some time using the internet for downloading music.

44% spend at least some time using the internet to make music or videos.

42% spend at least some time looking at websites their teachers told them about.

37% spend at least some time sending e-mails at school.

35% spend at least some time using the internet for making webpages.

35% spend at least some time sending private e-mails.

32% spend at least some time using the internet for looking at things to buy.

24% spend at least some time looking at the school's website.

23% spend at least some time listening to or looking at podcasts.

23% spend at least some time in a chatroom.

Even though ownership of social networking sites was lower than I might have anticipated, 40% of students prefer talking to people on the internet whilst 32% of students prefer finding out about things on the internet. 27% of students listed other activities such as playing games, listening to music and watching videos as being their favourites. This is consistent with the

Childwise report of 2008 (Childwise, 2008), which found a rise in internet use amongst young children, driven by an increasing use of social networking sites and other forms of communication.

Findings on rules pertaining to students' out-of-school use were interesting with 52% of students saying that they can use the internet whenever they want. 30% of students said that they can use the internet only after they have done their homework, whilst 28% said that they can only use the internet if they ask. 23% said they can only use the internet at certain times whilst 12% said that they can only use the internet for school work. 16% of students said that their teachers know what they (the students) do on the internet, whereas 46% say that people at home know what they do on the internet.

Levels of personal confidence in using the internet were high with 66% of students saying that they are good at using the internet, and 51% saying that they are the best person at home using the internet. 66% of students said that either they, or another young person at home is the best at using the internet.

59% of students said that the internet helps them keep in touch with their friends, with 16% saying that they use the internet to make new friends. 68% of respondents said that they use the internet for fun.

In presenting and discussing the data from the computer logs, the survey and the interviews I have attempted to produce a credible account which is honest to the data I collected. I was telling a story and attempting to answer the very important question, 'so what?' In working out how best to tell this story I grouped the data around several key questions. As well as presenting

the quantitative data, I have also provided qualitative data including quotations from both the surveys and interviews where appropriate. In the next chapters, a theory emerged as I discussed the findings in more depth.

Appendix F contains a brief profile of the schools, based on inspection reports, interviews with head teachers and research on the Department of Children, Schools and Families standards sites (www.standards.dcsf.gov.uk). Various levels of detail have been omitted for certain schools to retain anonymity and no references to specific inspection reports have been made which may help identify the schools. The Spatial Literacy study (Longley, 2006) has also been used to provide a very general level of e-literacy profiling for each school's catchment area. It can be seen that the group of schools from which the data was drawn represent broad and diverse demographic profiles.

Implementation of the Online Survey

Through their ICT or form teacher, children were asked to complete the online survey. A screen-shot of the survey may be seen in Appendix D. Children were given the (now-closed) website address (www.zoomerang.com/members/survey_body.zgi?ID=L22STFN9B5V2) during an ICT lesson and were supervised by the teacher whilst completing it, although the teacher was asked not to look at specific responses as the students had been assured of their anonymity. I was not present whilst the students completed the survey, although they were made aware of the purpose of the survey and my role in the research. The advantages of not being there included being able to collect more data more quickly from a

wider range of schools and of minimising any contamination of the process that may have occurred had I been present. A disadvantage is that I had no way of knowing (other than by trusting the teachers) that the surveys had been completed by the targeted group of students without teacher intervention. On balance, I believed that the advantages of being absent outweighed the advantages of being present. Some schools participated more than others, although no pressure was brought to bear on the respondents or the potential respondents. All students knew that completion of the survey was entirely voluntary and they were under no obligation to participate.

The findings of the online survey were based on the questions themselves and collated in tabular form. There was a slight skewing of the survey responses towards boys, although the gender representation was broadly even. Likewise there was a disparity in the responses from individual schools, largely due to the differences in the size of the student population in the schools, although this was not indicative of significant differences in the response rate. The levels of internet access at home were found to be quite high, and cross-tabulations between this and other data in the survey are explored later.

Time spent on the internet by students at school was mainly between less than half an hour and one hour per day, with quite a high proportion of students however, reporting no usage of the internet at school. Although there were a proportion of students who reported no usage of the internet at home, a majority of students reported up to two hours usage per day with a smaller proportion reporting more than two hours per day. Children reported

quite small amounts of time spent on reading books or magazines at school with most spending less than one hour per day. A high proportion of these students reported spending no time at all reading books or magazines. By contrast, children reported spending up to an hour reading books or magazines out-of-school, although quite a number of them reported spending no time reading out-of-school.

I was a little surprised to see lower levels of ownership of social networking sites than I expected, although since conducting the survey levels of ownership of social networking sites may be higher with the widespread growth of sites such as Facebook during 2007-2008. Although e-mail was not reported in the interviews as being a particular popular means of communication, there was still a strong majority of students who had e-mail addresses although I had not asked the question as to whether these were private or school e-mail addresses.

Unsurprisingly, children overwhelmingly reported home as being the favourite place for using the internet. This is further explored later in this thesis. Children valued the internet as a source of information with a majority using the internet at home for this purpose. Children tended not to use the internet at home for looking at websites recommended by their teachers, preferring instead a more independent and experimental approach to finding information including browsing, using search engines and verifying information from both online and offline sources.

Although nearly half the students who completed the online survey reported never visiting social networking sites, there appeared to be some interest in

visiting them by the remainder of the children. Hardly any of the students reported any significant use of the school's website with a large proportion never visiting it at all.

Although many students never used the internet for making music or video, more than half had at least occasionally experimented in these activities. The proportion of students regularly using the internet for making webpages was quite low, although most had spent at least some time doing so. Given that this is part of the Key Stage 3 curriculum, this is not surprising, although I did not separate out personal and academic construction of webpages in my survey. Given the popular perception that young people have high levels of ownership of digital music players, it is unsurprising that downloading music from the internet was ranked as a popular activity. However, listening to podcasts was not reported as being a popular activity, with most students either seldom or never having had accessed a podcast.

Game playing was also rated as a very popular activity by the students responding to the survey. Many children reported either never or seldom ever having used the internet for looking at things to buy. Instant messaging was reported as a very popular activity by children with many children reporting frequent use, although nearly a quarter reported never having used instant messaging for communication.

Responses to the question about the use of e-mail for communicating with other people at school were mixed, with a broad set of responses, although over one third of children reported never having used e-mail for this purpose. Private e-mail usage was also mixed with a very high proportion of children

never having used e-mail for private use. Most children reported never using chat rooms on the internet with nearly two thirds never having visited one.

A very high proportion of children reported using the internet for homework and revision with three quarters of respondents reporting having used the internet for this purpose at least sometimes. Over half the children who responded to the survey reported using the internet for just browsing for stuff in a random way. Many children preferred using the internet for communicating with friends rather than information retrieval, although other reasons such as game playing were also listed.

Children often had a (probably justified) high opinion of themselves as being the best users of the internet at home. The term "best" was deliberately used, allowing children to construct their own meaning of the term, although some may have interpreted it as "most skilful", others may have interpreted it as meaning "most enthusiastic".

Some key data from these survey results may be more readily compared in the form of histograms:

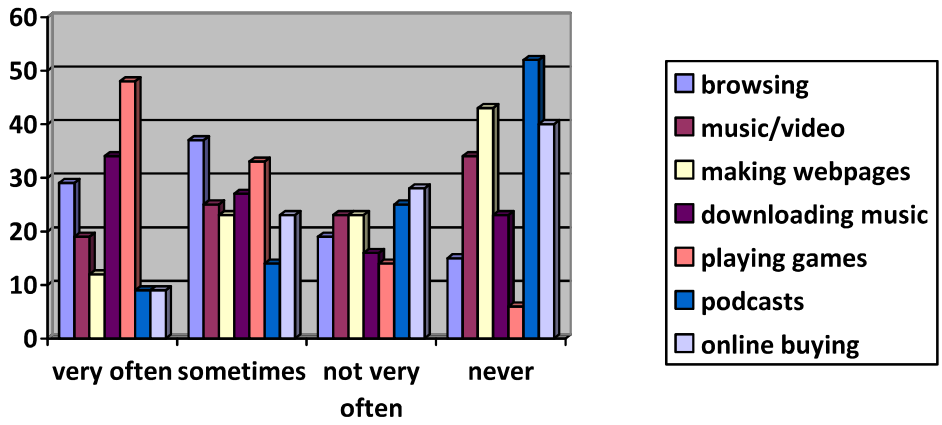

Figure 7: Frequency of internet use for recreational purposes (%)

Figure 7 shows some key data on the frequency of internet use for recreational purposes. As can be seen, playing games rated as the most popular activity. This may be seen as being consistent with the offline activities of children, indicating a coherence between their offline and online interests.

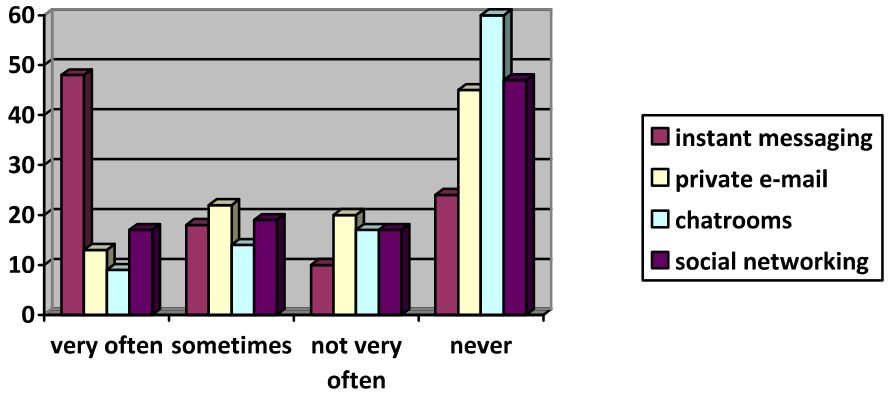

Figure 8: Frequency of internet use for social communication (%)

Figure 8 shows the frequency of internet use for communications and it can be seen that instant messaging for personal communication is the most popular activity with other applications being used far less frequently.

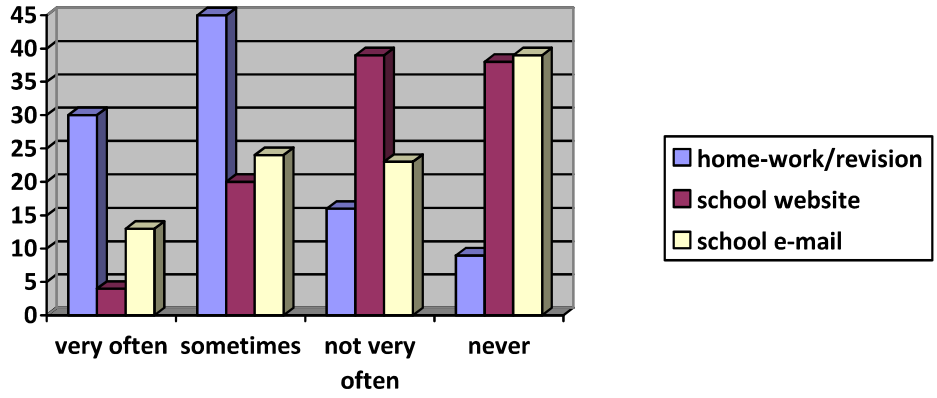

Figure 9: Frequency of internet use for formal learning (%)

Figure 9 shows the frequency of internet use for formal learning with homework and revision rating by far as the most common activity with school e-mail and school website usage being used far less.

In response to online survey question 3, "Do you have the internet at home? If so, which room do you use it in?" the following is a ranking of responses in decreasing order. The summarised data appear in the table and chart below:

Own bedroom	42%
Designated areas (study, office, den)	21%
Communal family spaces (living room, lounge, front room, playroom etc)	19%
Kitchen and dining rooms	8%
Other family members' bedrooms	7%
Smaller communal areas (landing, hall, loft)	3%
Total	100%

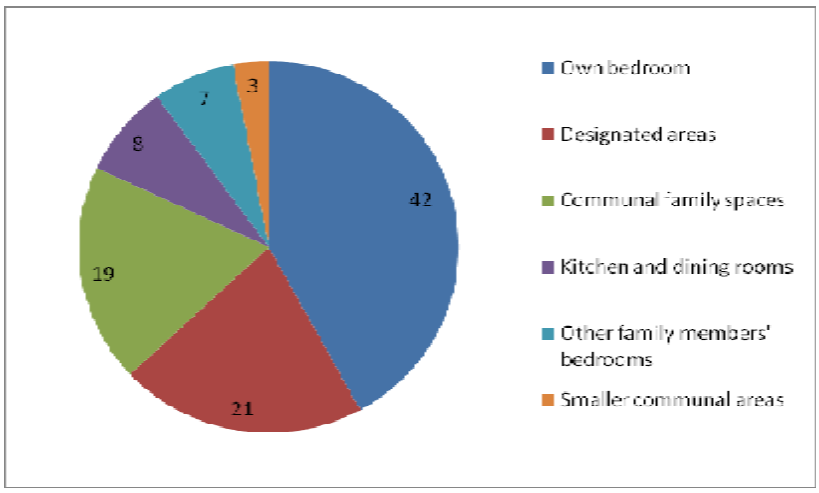

Figure 10: Room in which the internet is used

Figure 10 shows that children are more likely to use the internet in private spaces such as their own bedroom or some other designated space than they are in communal areas such as living rooms etc.

In response to online survey question 27, "What are your favourite websites that you visit at school?" the following is a ranking of responses in decreasing order. The summarised data appear in the table and chart below:

Search engines	25%
Educational	18%
Revision	14%
Don't have any	11%
Hobbies/interests	10%
Games	9%
School	4%
Video	3%

Wiki	2%
Pictures	2%
My favourites are blocked	1%
Instant messaging	1%
Total	100%

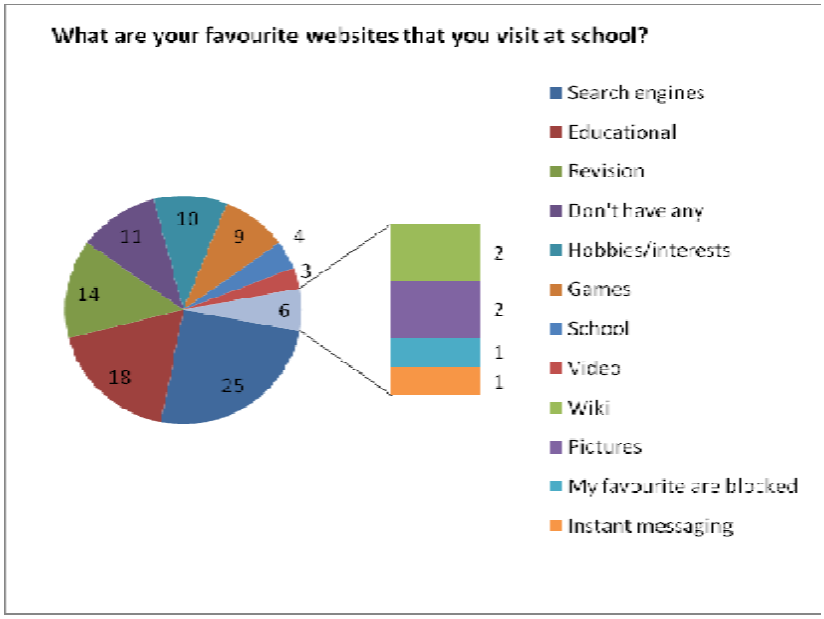

Figure 11: Favourite websites at school

Figure 11 shows the favourite types of websites that children access at school although it is interesting to note that the fourth most common response “don’t have any” perhaps indicating that some children did not see school internet access as being as relevant or interesting as their home usage.

In response to online survey question 28, “What are your favourite websites that you visit out-of-school?” the following is a ranking of responses in

decreasing order. The summarised data appear in the table and chart below:

Video	18%
Games	15%
Search engines	14%
Hobbies and interests	10%
Revision	9%
Instant messaging	9%
Social networking	8%
Pictures	7%
Music	3%
Television and Films	3%
E-mail	2%
Shopping	2%
Total	100%

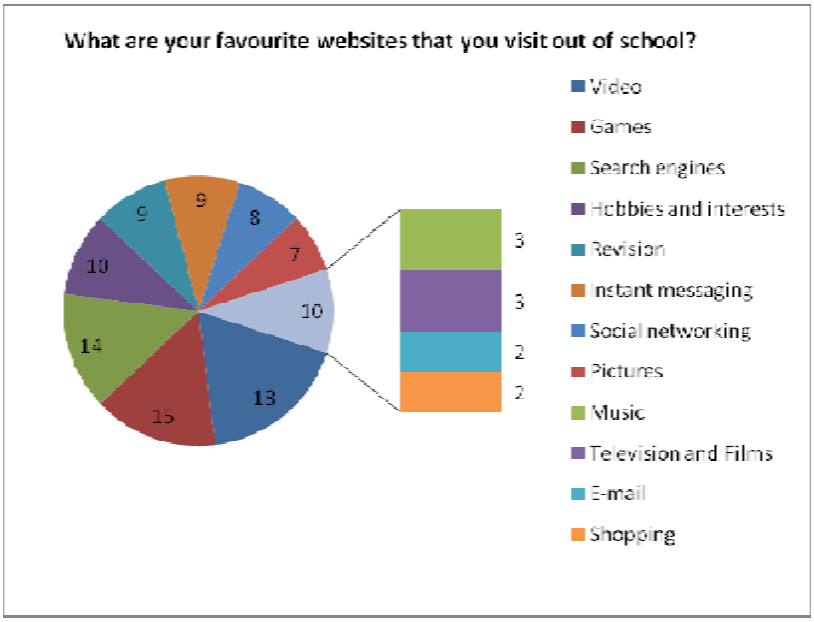

Figure 12: Favourite websites out-of-school

Figure 12 shows children's favourite websites out-of-school and indicates a broad range of favourites.

A further commentary on these data relating to individual questions, grouping and cross-tabulation is now presented.

Cross Tabulation of Survey Responses

I have used cross-tabulation as a means of comparing responses to one question in the online survey with another. A cross tabulation demonstrates the joint distribution of these two variables. I have used cross-tabulations because:

1. They are easy to understand.
2. They can be used with any level of data
3. They can provide greater insight than simple aggregate statistics
4. They are not contaminated by null responses
5. They are simple to produce

By cross tabulating gender with time spent each day on the internet at school, it can be seen that boys tend to use the internet for longer at school than girls, but more boys than girls do not use the internet at all. This access issue appeared to be due to socio-economic issues as they were demographically and consistently related to schools' profiles. There were several other observable gender differences.

Boys were more inclined to use the internet excessively. By cross tabulating gender with time spent each day on the internet out-of-school, it can be seen that more boys than girls do not use it all. However, more boys than girls use

it for more than two hours. It was also seen that boys tended to read less than girls. By cross tabulating gender with time spent each day, it can be seen that girls read more at school and out-of-school than boys. The out-of-school differential between girls and boys is high. Social networking was seen as being more popular with girls than boys. By cross tabulating gender with social networking site ownership, it was seen that girls are more likely to have their own social networking websites than boys. There was, however, little difference between the genders on e-mail address ownership.

By cross tabulating gender with favourite places for using the internet, it can be seen that girls marginally prefer using the internet at home than boys. They are also more likely to use the internet to look for information, use websites recommended by teachers, social networking spaces, the school website and instant messaging. Girls are also more likely to use the internet for making web pages. Girls use e-mail more often for both school and private purposes. Girls are also more likely to use the internet for homework and revision. Boys are more likely to use the internet for playing games, making music and video and for downloading music. Boys are also more likely to look at things to buy. Although most students do not use chatrooms, boys are more likely to use it. Boys are also more likely to spend a lot of time just browsing.

By cross-tabulating gender with usage preference, it can be seen that boys prefer using the internet to find out about things whereas girls prefer talking to people on the internet. This is consistent with the findings on social networking. However, by cross-tabulating gender with out-of-school rules it

can be seen that girls tend to have slightly stricter rules than boys, although boys are more restricted in the times they can use the internet.

By cross-tabulating gender with students' perceptions, it can be seen that boys think that teachers are more aware of student internet activity, whereas girls think that people at home are more aware. Boys have a higher opinion of their own ability than girls do. Boys also tend to think that they are best users of the internet at home. Girls value the internet more for communicating with friends but boys are more likely to use the internet to make new friends. This is consistent with boys' usage of chatrooms.

Although I am wary of generalisations and stereotyping, these gender differences may be seen more easily in tabular form:

Boys	Girls
More inclined to use the internet excessively	Inclined to read more
Enjoy game playing	Enjoy social networking
Enjoy making music	Enjoy seeking information
Enjoy downloading music	Enjoy e-mailing
More inclined to browse	More inclined to use focused research techniques
Greater time restrictions in internet usage at home	Stricter internet usage rules at home overall
Higher opinion of their own internet skills	Higher usage of the internet for communication

By cross tabulating home ownership of the internet with time spent on the internet out-of-school, it can be seen that most of those who do not have access at home have no access to the internet at all out-of-school. However,

those with no internet access at home who do use the internet still prefer "elsewhere" to use the internet, even in preference to school. The role of the internet in school assumed a lower degree of importance in the children's lives.

By cross tabulating home ownership of the internet with amount of time spent reading at school, it can be seen that those with the internet at home are more likely to spend time reading at school and out-of-school. Those with internet access at home are more likely to have their own social networking websites and personal e-mail addresses. They are also more likely to look at their school's website.

Those with no internet access at home are less likely to use the internet for making music and videos, making web pages, downloading music, playing games, looking at or listening to podcasts, instant messaging, looking at things to buy, e-mail, chatrooms and just browsing. They are also less likely to use the internet for homework and revision. Those without the internet at home tend to prefer to use the internet for finding out about things, whereas those with the internet at home tend to prefer using the internet for communicating.

By cross tabulating time spent each day on the internet at school with other responses, it shows that those who spend more time on the internet at school also tend to spend more time on the internet out-of-school. Those who spend no or little time on the internet at school are also likely to spend less time reading at school.

By cross tabulating the amount of time spent each day on the internet out-of-school with other responses, I found that those who spend more time on the internet are likely to have their own social networking site and are likely to spend more time looking at other people's social networking sites. I also found that heavy out-of-school internet usage was related to high use of music download websites, instant messaging and chat room use. Heavy internet use also seems to be related to lack of restrictions on internet usage at home. Those who use the internet moderately (up to one hour per night) are more likely to use it for homework and revision. The heaviest users of the internet tend to see themselves as the best users in their home. I found that children who spent more time at school reading, also tended to read more at home.

By cross tabulating ownership of social networking sites with other responses, I found that those who have their own sites also have higher levels of ownership of e-mail addresses, prefer the home for internet use and are more likely to also use the internet for finding information. They are more likely to be independent users, being less likely to look at sites recommended by their teachers. If they own social networking spaces, children also more likely to listen to podcasts and look for things to buy online. They are more likely to use the internet for homework and revision, although their preference is for using the internet for communication rather than research. They are less restricted in their home usage rules and are less likely to think that their teachers know what they do on the internet. They overwhelmingly regard themselves as good internet users, often seeing themselves as the

best users in their home, but are slightly less likely to think that the internet helps them with their work at school.

By cross-tabulating children's preference for using the internet (either for communication or for research) with other responses I found that those children with unrestricted home use are more likely to prefer using the internet for communication. I also found that those who think that the internet helps them both with their homework and schoolwork marginally prefer using the internet for research rather than communication.

By cross-tabulating responses regarding the rules children have for using the internet out-of-school with other responses I found that most children who can only use the internet at certain times also feel that they are well supervised whilst using the internet at home. Both those who are restricted by the times that they can use the internet and those who have unlimited access, use the internet for fun. Those with unrestricted use also see themselves as the best users.

By cross-tabulating the responses to the question as to who are the best users at home with other responses, I found that those who use the internet to make new friends are much more likely to regard themselves as the best users of the internet in their home. Those who use the internet to keep in touch with existing friends are somewhat more likely to regard themselves as the best users of the internet at home. Those who use the internet for help with homework are marginally less likely to regard themselves as the best users of the internet at home.

By cross-tabulating ownership of e-mail addresses with other responses, I found that most children who have their own e-mail address prefer using the internet at home. Those with their own e-mail addresses are more likely to look at websites recommended by their teachers, use social networking, download and make music, make webpages, play games and access a broad range of IP-based applications. As many of the applications require users to give an e-mail address for registration, this is unsurprising. Those with e-mail addresses have more freedom to use the internet at home, whereas those without e-mail addresses are more likely to be only allowed to use the internet for homework and revision.

By cross-tabulating children's favourite place for using the internet with other responses, I found that those who prefer using the internet at home are more likely to spend more time accessing a broad range of IP-based applications, although those who prefer (or indeed have no other option) accessing the internet at school are more likely to look at the school's websites. Those who prefer using the internet at school are also more likely to prefer finding out about things than talking to other people on the internet, whereas those who prefer using the internet at home also prefer talking to people on the internet. Those who prefer using the internet at school are more likely to have stricter rules at home. Those who prefer to use the internet at school are more likely to regard an adult as being the best internet user at home.

By cross-tabulating time spent by children at home doing research on the internet with other responses, I found that those who very often use the internet at home for research are more likely to look at teacher-

recommended websites. They are also significantly more likely to use the internet for homework and revision.

By cross-tabulating the amount of time spent looking at teacher-recommended websites with other responses, I found that those children who think that teachers and parents know what they (the children) do on the internet are more likely to spend more time looking at teacher-recommended websites. Those with unrestricted use at home are much less likely to look at these websites.

Those children who spend a high proportion of time just browsing on the internet are more likely to have unrestricted use. Children who use the internet for making music or video are also more likely to download music. Those who spend more time sending e-mails at school are also more likely to spend time sending private e-mail. Those children who use chatrooms often are also more likely to prefer using the internet for communicating rather than research. They are also more likely to have unrestricted and unsupervised access at home. They also believe that that they are good users of the internet.

As a final note to this section I found that consistent with the Demos 'TheirSpace' report (Green and Hanson, 2007), almost all children were involved to some extent in creative production using internet-based digital media.

Group Interview Observations

As described in the methodology chapter, the group interviews were another source of qualitative data and helped to validate some of the major findings from the online survey. Observations made that were common to all the interviews are as follows:

All students were willing to be interviewed and contributed during the interview process,

All students were courteous and well-behaved during the interview,

All students were interested and enthusiastic in participating in the discussion.

Wherever possible, we sat either around a rectangular or round table to help make the atmosphere more congenial and conducive to open discussion. Ten interviews were conducted in different schools with groups of eight children. There was a conscious attempt to choose groups which were representative in terms of gender, ethnicity and academic ability. The hosting teacher nominated students based on these three variables. It was quickly apparent that this was a topic that all students, irrespective of their profile, were interested in discussing, partially I suspect as it took them out of a lesson and was a novelty activity for them. No disruptive or subversive behaviour was apparent during any of the interviews. Neither was there any outward manifestation of distress, discomfort or irritation. Their well-mannered behaviour could also of course been the result of being briefed

by the teachers, as I am senior person in the organisation with this possibly affecting the way the children responded to my presence.

Using the Weft © tool for coding the text using the key words outlined in the methodology section and by extracting data from the transcripts, I have identified the following key responses to the questions asked from across all groups. The interviewees are all respondents from the online survey (n=883) and represent 9% of that population.

The following table and graphs are comprised of the key words that were used to code the text and represent in percentage terms the relative frequency that they occurred within the text.

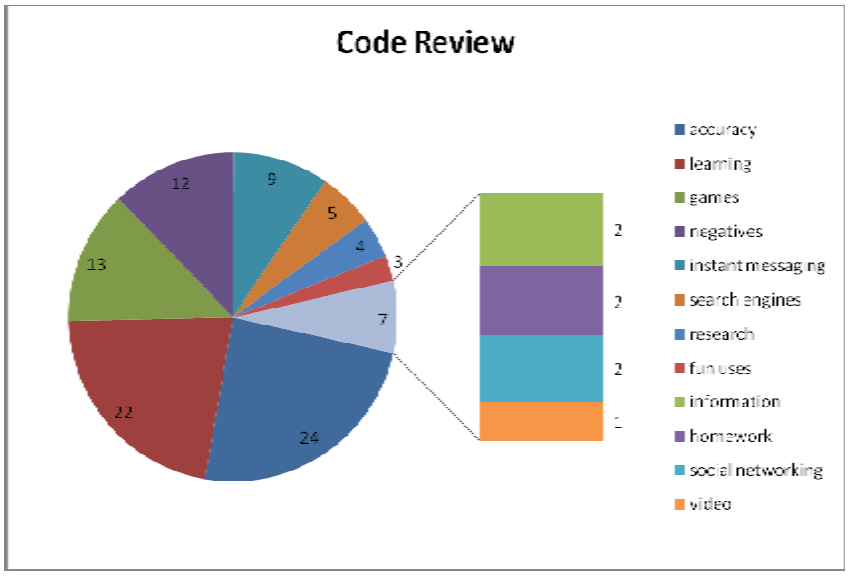

Figure 13: Code review

Code words (references to…)	No: of occurances	%	social	info	games	h'work	research	accuracy	IM	neg	learning	video	fun
accuracy	376	24									29		
learning	340	22						29		14			
games	203	13	5									2	
negatives	192	12							5		14		
instant messaging	146	9								5			
search engines	85	5											
research	62	4				3							
fun uses	39	3		13									
information	32	2											13
homework	30	2					3						
social networking	29	2			5								
video	17	1			2								
pictures	3	0											
music	2	0											
Total	1556	100											

Analysis of Group Interviews

A summary list of questions asked during the group interviews may be found in Appendix E. The following section analyses the responses to the interview questions and provides some sample data. It includes what I regard as a representative sampling of responses from each of the group interviews, highlighting especially those responses which occurred most commonly. By representative, I mean that I have chosen quotations that illustrate the most commonly recurring themes.

What is the best thing about the internet?

Children regarded the internet as a place where one could get information and do research. They saw it as a valuable resource for homework with the word 'research' occurring often in their remarks. They used the internet extensively for copying and pasting, but generally did not see this as cheating. They felt that it was just like copying from a book except easier and saw no ethical problems with this as a specific activity. They also (girls especially) saw it as a good tool for chatting with friends. For recreation they were enthusiastic about the internet for looking at videos and pictures, listening to music and (especially for boys) playing games. They consistently saw the internet as existing physically in space and they saw it as being unlimited, with free access to everything. They were usually, however, cautious about what they found there. Comments included:

> "You can get lots of information off it." " You can chat with your friends." "You can do anything on it you want really." "Youtube" "Youtube is the best thing…I like that a lot." " "You can play games on it. That's the best

thing." " You can listen to music." "It's unlimited". "There's lots of information if you're not sure." "The pictures". "It helps with my homework". "You can go to different places." "You can find information". "You can revise homework". "You can copy and paste stuff". "You can do research". "You can access millions of sites from around the world". "You're free on the internet".

What is the worst thing about the internet?

The main complaints about the internet followed a consistent pattern. Children were aware of and annoyed by the damage that viruses could do to their machines at home. They were also irritated by pop-ups and the fact that information was sometimes inaccurate, unreliable or out of date. Problems with access were also raised, including filtering software that blocked access to desired sites, and slowness of connection. Some children were concerned about accessing inappropriate material, although this was not highlighted as a major concern by respondents. The word 'inappropriate' was used quite often and although I did not pursue what they meant by this, it seemed that the students understood the context of the word and took the concept seriously. Negatives (except with respect to accuracy of information) usually only came out in response to a negatively phrased prompt such as *Would you have any negative ways of describing the internet?* Left unprompted, answers were usually couched in positive terms. However, children were concerned about spam, and internet chat rooms were perceived as being unsafe, although boys were still somewhat more inclined to use them than were girls. The schools' Websense © filtering and caching software was

seen as being annoying, restricting children's to use the internet. However, most of the time, children felt safe using the internet. Comments included:

"I hate all the popups and viruses and stuff that come up. …… It's too slow." " Always too slow for what you want." "Yeah, the slowness and it's always, like crashing ." "Sometimes things come up inappropriately. Things you shouldn't look at." " I don't like the way things things get in the way of using it." "Sometimes it's blocked". "You can't access it". "Sometimes you get advertising popping up". "It doesn't always give you the answer that you want". " I hate it when it gets blocked". "I hate it when you have a virus". "Sometimes you have trouble with access". "It's slow". "It gets old quickly". "It gets blocked sometimes". "It's too slow and then it crashes."

How did you first learn to use the internet?

Some children couldn't remember when they first used the internet, indicating how integrated it had become into this generation's lives. As mentioned previously, they are part of the first generation never to have known what the world was like without the internet. Children generally learnt by a mix of school, home, and self or peer taught experiences. The breakdown was approximately 50% at school, 40% at home and 10% either self-taught or peer-taught. Comments included:

"At school." " I was taught by my teachers." " Yeah, my teachers." " I learned it in nursery." "My dad showed me a bit but mainly school." "By just going on the computer". "Experimenting" "I learnt it by mucking around with the computer".

Do you think most of what you find on the internet is true?

Children used the internet for finding things out, but were realistic about how much was true. They had a good intuitive grasp of when websites were misleading, pretending or lying, and often they relied on triangulation between the internet, books and asking someone when they wished to verify information being sought. They had a good awareness that the internet is largely unmoderated, and that some of what they read may not be true, accurate or useful. Comments included:

> "It depends on what you're looking for". "It's not true on the internet when they're trying to tell you you've won something". "You have to be careful that they haven't like, trying to sell you stuff or tell you that you've won". "You know when it is wrong or when they are lying." "Not always". "Sometimes it's not accurate". "Most of the time it is true". "Sometimes your teacher tells you one thing and the internet tells you something else, so I go and look at other websites to find the right answer". "No, because some things are made up". "Some things are fiction". "Not always". "Some stuff is not true- anyone can put anything there".

How do you know if something on the internet is true or not true?

Children felt that they could discern the accurate from the suspect by the type of website, including its look and feel. They were suspicious of websites that contained advertising but had varying degrees of faith in wikis including www.wikipedia.com Ambivalent responses to wikis were made, which largely depended upon their personal experience. Negative experiences caused future suspicion about the website. Children generally did not use a

website again if it proved to be unreliable or inaccurate in the first instance. Children were very wary of websites that claimed to give away prizes, and generally knew that if a website sounded too good to be true, then it probably was. Children again were confident in using other sources to verify information obtained on the internet. Many students employed quite sophisticated validation techniques for research by actively seeking clarification from human, printed or digital sources. Comments included:

> "You can tell if it's scientific or fact or if it's just like headlines trying to tell you something". "You can tell the difference with the amateur sites where they try and advertise things". "Wikipedia is usually true but other sites aren't". "If it's too good to be true then it is probably not true". "I don't trust sites that try and pretend to be too friendly". "I go and read a book". "I ask an adult". "I look in a book". "I check other websites". "I compare it with the TV or books". "You need to check in two places".

Why do you think most people your age use the internet?

Children felt that most people their age used the internet for homework, for exam revision and for completing coursework. They also felt that most young people used it for instant messaging, gaming, and for looking at pictures and videos. This reflected their own experiences as illuminated through the online survey. Although they were aware that some people used the internet for inappropriate purposes, they also thought that most usage was harmless, the internet being used for fun, for entertainment and for looking things up. Comments on usage often had the same sequence, especially for boys. Games were seen as a reward for completing work first. Games, research,

homework, revision, MSN, getting pictures and listening to music were many popular reasons given for using the internet. Girls reported generally as enjoying instant messaging and social networking. Boys reported enjoying games, with both genders enjoying looking at online videos. Comments included:

"Homework and coursework". "Revision and coursework." "Coursework". "MSN". "They use it for games, pictures and films". "Some people use it for inappropriate things". "To get the information you want." "For entertainment." "For homework and then games". "To get fun out of it". "For looking things up".

How would you describe the internet?

Children used a number of creative metaphors for describing the internet, including spatial, temporal and anthropomorphic metaphors. My favourite description from the children for the internet was where it was described as being 'the others', not necessarily differentiating the virtual from the 'real' world but rather providing another mode of communication and inquiry, and another vehicle for expressing and identifying themselves. Children generally thought of the internet as being helpful, fun and complex. They usually thought of it as holding all the information in the world. Again, the internet was often described in spatial terms with a spider's web or clouds being natural and predictable metaphors. Comments included:

> "I would describe it as the 'others'" "There is school and your family and that. There's your friends and the internet is like the 'others'". "The internet is helpful". "It's more fun than the actual answers you find". "Something that can help you find almost anything". "It's a complex

place". "The internet is like a big room where you can find things" "It's somewhere really, really big". "The internet is fun". "It has literally everything that we know and don't know".

What do you think the internet will mean to you in the future? How do you think the internet will change in the future?

Children had a surprisingly blasé view of the future of the internet, indicating perhaps that they did not regard it as being anything special, but just an embedded part of their world. They sometimes thought it would be boring in the future. They predicted its growth in size but rarely thought of innovations that might be developed using internet-based technology. Sometimes they said that in the future the internet would be a "machine that knows everything". Many saw the future in terms of the current physical limitations of access i.e. speed, size of the screen. Some saw it as being about "more scientific things". Little mention was made of its potential for social networking by boys, although girls were enthusiastic in discussions. When prompted they seemed to think that they would outgrow the internet and something new would come along to take its place. Comments included:

"It will be boring" "More people will do their jobs on the internet". "We will need it a lot more". "In older years you need exams so you will need it more". "It depends how it changes. It feels different now to when I first used it" " You use it for research for GCSE and to revise for tests." "It will be bigger". "You can use it anywhere". "It won't mean as much to us, because we'll know more". "Each version of the internet gets better and better." "People will add more things to it". "When the internet is in the future it will tell us what to do".

What is the most interesting thing you have done or discovered on the internet?

Young people sometimes viewed the internet as being a distraction, sometimes in a positive but also sometimes in a negative way. Creative applications using pictures, video, hypertext, games and music were also popular. Children also sometimes found that the fallibility of the internet was interesting, providing opportunities for proving information found to be inaccurate or wrong. This was often seen as being a challenge for them. When pressed on what constituted the most interesting use of the internet they gave very specific answers, usually about something they had constructed, such as websites, films and pictures. Common website responses included www.piczo.com, www.flickr.com and www.youtube.com. The unexpected and the serendipitous discoveries were the ones that excited them the most. The internet was seen as being interesting for 'window shopping', with online auction sites such as www.ebay.com being sometimes visited. Instant messaging was also popular. Comments included:

> "When you get distracted but in a good way." "Virtual history tours that makes you feel you are really there like the Egypt ones with the pyramids". "Talking to people". "Getting pictures". "It's fun". "To play games and find pictures". "Make your own website". "Chat to your friends". "That sometimes it's wrong".

What is the most fun thing you have done or discovered on the internet?

Music, games, pictures and videos were almost universally regarded as being the most fun. Some children regarded recreational internet use as a

legitimate 'excuse for being lazy' (as they have described it). Many year seven children use websites such at www.piczo.com for social networking as an alternative to www.myspace.com or www.bebo.com. As Piczo is a 'walled garden' offering significantly higher levels of privacy and therefore protection, this demonstrates children's awareness of careful internet practices and the importance of internet safety. Those who used Piczo were aware of these safety features and cited them as being a reason for choosing it. Comments included:

"Being lazy on it". "Making stuff, like music and websites. Pictures." "Watching movies". "Downloading music". "Yeah, games and pictures". "Games." "Downloading stuff".

What is the most useful thing you have done or discovered on the internet?

Children sometimes enjoyed using the internet for buying things and for researching and searching for things for pleasure. They also very commonly found the internet to be extremely useful for assisting with schoolwork, especially revision and homework. The process of internet research was often seen as more engaging than the actual result. Comments included:

"Oh, for buying things. Definitely. Ebay." "Doing my online favourites" "Research, search engines, dictionaries". " You can scan text quickly, like history texts and play scripts". "Definitely search engines." "Printing stuff". "Homework". "Search engines, BBC, Wikipedia, BiteSize…stuff like that."

How does the internet affect the way you learn?

Children commonly used the internet for manipulating information, such as cutting and pasting. They also used the internet for adding graphics and videos to their assignments. They found that accessing information from a

variety of locations to be very useful and found that this gave them a degree of freedom in the management of their learning that they enjoyed. Some highlighted the issue of using the internet for cheating, which was universally proclaimed to be bad, although what actually constituted cheating was unclear in many cases. Negative distractions were also found to get in the way of learning, although the serendipitous discovery of information was greatly valued. Several good examples of this were described, including the discovery of a virtual tour of the Egyptian pyramids whilst doing research on ancient Egypt. Again, the use of multiple sources to verify information was seen as important, highlighting the sometimes sophisticated research skills of the children. Comments included:

> "For cutting and pasting information". "Colours and movies make stuff more interesting." "Looking up information". "Looking up work at home". "Copying stuff". "Doing homework". "You find things out for yourself rather than just being told". "It helps you cheat and that's bad". "Finding things out when you don't have time in class". "Distracting you but in a bad way". "It makes you more clever". "It's better than books". "You can compare what you find on the internet with a book". "It tells me things I didn't know before". "It helps you learn stuff you'll need in the future". "It helps you check if something is true".

A sample complete transcript has been included in Appendix J as I believe it was highly representative of the responses across the whole group and added value to the data that I collected. The transcript is recorded in the form of a playscript and does not include annotations regarding manner of speech

or intonation as this was not the focus of the research. The names of children referred to in the transcription have been anonymised.

Chapter 7: Conclusion

Either you had no purpose
Or the purpose is beyond the end you figured
And is altered in fulfilment.

(T.S. Eliot, Four Quartets, Little Gidding)

A careful reading of the data analysed from the web logs, the surveys and the interviews revealed an interesting story of children's in-school and out-of-school use of the internet. This is especially apparent when examining differences in gender and in the way in which children use and perceive the internet as a vehicle for information retrieval and social networking. It clearly suggests that children's use of the internet is embedded in their everyday experience, and is a natural, comfortable and valuable part of their social, private and, to a lesser extent, school lives.

Summary of findings

The children who participated in this research are ahead of the technology itself in some ways, demanding a higher level of performance and efficiency than it is often able to deliver. Issues such as speed, filtering (especially at school), viruses, spam, spy and other malware are seen as an irritation. Restrictions that are placed upon them at school, whether through web filtering, timetabling, access or other issues are, however tolerated and children are phlegmatic about their schools' provision of internet services. By contrast they usually find their access at home more enjoyable, beneficial and helpful to their school-related, recreational, private and social lives.

According to their own report, it seems that children regard themselves as having a well-developed, sound and perceptive sense of the accuracy and veracity of the information that they commonly access from the internet. They are likely to use the design, web address and general 'feel' of a website to assess its potential and likely accuracy. They use their personal experiences when evaluating the accuracy of information obtained from a specific website, and will often self-filter websites that they have discovered in the past to be unreliable, inaccurate or misleading. This is especially true of wikis. Children often evaluate a website by quickly assessing the amount or type of advertising or pop-ups encountered. Websites that include excessive advertising or inappropriate (e.g. gambling) advertising are often avoided by children as they self-censor websites they encounter. This is true of both home and school usage, although at school Websense © will usually filter out inappropriate websites before they reach the students' desktop. Children often indicated that they use effective methods of triangulation or verification when obtaining information of doubtful authenticity. Methods of verification include comparing data extracted from a number of websites, seeking information from an adult or peer or referring to books for confirmation of information.

Unsurprisingly, children used search engines more frequently at school than any other category of website. This was stated by them in their surveys and during interviews and was also validated by the Websense © logs recording their usage. For recreation, in their out-of-school environments they liked playing games, browsing and downloading music and videos. For social communication, across both genders they preferred using instant messaging

as their mode of social communication. Most children reported using the internet extensively for helping with homework and revision, with a preference for using the internet in private areas out-of-school such as bedrooms or other private living and recreation areas.

Both online and offline literacy practices were seen to be strongly related to internet use, with children who reported spending significant amounts of time reading books and magazines also reporting moderately high internet use. The internet was certainly seen by children as forming an important part of their social and educational activities with words such as “accuracy” and ”learning” occurring frequently during the interview group discussions. The internet is clearly valued as a dependable source of information and as a means of social communication.

As has been noted in the presentation of findings, some gender differences in internet usage were observed in the survey. Girls generally indicated that they were more likely to use social software such as instant messaging or social networking sites than boys, whereas boys were more likely to use internet games for recreation than girls. Girls’ usage of social networking generally focused around keeping in touch with existing friends rather than making new ones. Children of both genders reported not only downloading music and videos as favoured activities but also the creation and publishing of music and videos as popular pastimes. They also described how they enjoyed constructing artefacts on the internet such as web pages, virtual postcards and other internet-hosted construction activities. Whilst acknowledging the possible gender stereotyping that these conclusions may infer, girls’ higher use of social networking and boys’ higher usage of games

may be seen as being consistent with both genders' offline interests. This is also supported by the apparent greater likelihood of boys undertaking more risky online behaviour than girls, such as visiting chatrooms.

Unsurprisingly, children generally perceived themselves as having a greater degree of freedom in internet usage out-of-school than in-school. Those children who felt they had the greatest amount of freedom also reported the highest levels of confidence in internet usage. Relatively moderate usage (up to two hours per day) of the internet seemed to be mostly appropriate, being focused on a range of recreational, social and educational activities. Relatively low levels (less than one half-hour per day) of internet use were often associated with low levels of reading generally, whereas relatively high levels (more than two hours per day) of internet use was often also associated with low levels of reading. Usage at the high end was often also associated with unfocused, random use of the internet such as browsing. Those children who reported structured home supervision and the application of some usage rules also reported a balance of recreational, social and educational usage at both home and school.

Notwithstanding children's observations as noted above on the accuracy of information obtained from the internet, there was also a fascination with its fallibity. Children were interested in encountering information that was apocryphal , misleading or just plain wrong and believed they were efficient and adept at uncovering such websites, although they were unlikely to revisit them for research purposes. Children also found the potential of the internet to distract interesting, depending on the context of what they found and were often intellectually engaged by stimulating diversions.

Many of the above observations are supported by theories already referred to in the theoretical framework chapter of this thesis. Butler (2002) and Sellinger (2004) have already been referenced separately as describing the internet as being a postmodern phenomenon. Their separate pieces of research have picked out three key postmodern descriptors of the internet, namely its non- hierarchised nature, its virtuality and its mutability. These three descriptors can be related to much of the children's use of the internet as described in this thesis. Its non-hierarchised form relates to and appeals to children in the way in which they can create, share and seek information and communicate using internet-based technologies. The virtuality of the internet places sources of information, recreational spaces and their network of friends in an easily accessible and synchronous environment created by them wherever they have an internet-enabled device, but especially out-of-school.

These ideas are also consistent with theories expressed by other researchers. Hernwell has described the internet as being a function rather than an object and describes it in virtual terms (Hernwell, 2005). Gee (2005) expresses similar ideas, placing experience ahead of information and seeing the internet in terms of process rather than product. Again, children's process-oriented usage of the internet is consistent with ideas such as these. At an early stage in the popular use of the internet, Nune was also writing in similar terms (Nune, 1995), realising quickly that the internet had no frontiers and as such was not bounded in the same way as other systems of communication or methods of storing and retrieving information. These

descriptions closely match, in spirit anyway, the ways in which children spoke, sometimes naively but often perceptively about the internet.

The children's use of and perspectives on the internet are also supported by the ideas of Gramic and Lamey (2000) who have spoken about postmodernism in terms of perspectivism, multiplicity and decentralisation and by relating these three concepts to both the internet itself and to learning on the internet. Children's discussion of the internet and the various viewpoints and relativism that pervades both the content and the spirit of the internet is consistent with Gramic and Lacey's, and although children did not exactly describe the internet in those precise terms, the perspectivism can be related to the points of view that children expressed and encountered on the internet, the multiplicity related to the variety of people and information sources with which they interacted, and the decentralisation related to the hyperlinked, shared and democratic nature of their online communication and research. This is also coherent with Chapman's description of the internet and postmodernism in terms of the multiplicity of competing and subjective narratives (Chapman, 2005). These competing narratives can also be seen in terms of how (in)formal learning itself is seen. Sefton-Green (2004) describes informal learning as being no longer seen in terms of being merely casual, disorganised and accidental but as being an integral part of the same learning process that occurs in more formal settings. This certainly appears to be validated by the comments by children on the way in which they used the internet informally for educational, social and recreational reasons.

Children discussed their use of the internet in very human and interactive terms, in turn revealing many of their values with respect to honesty, respect and other ethical issues. The revelation of these values and beliefs are consistent with the theories of Butler (2002) who has written about how technology reveals the outcome of our human values. However, and the children in the study have indicated this, the use of the internet is not a utopian state of being. There are challenges, idiosyncrasies, frustrations and blind alleys, all of which can on the one hand reduce the effectiveness of the internet for research and communication but on the other hand can help raise the social and intellectual capital gained through working through these issues. Zembylas and Vrasidas (2004) have spoken of the pedagogy of discomfort with respect to online learning and this can be translated to the postmodern context of children's use of internet where there are unprecedented freedoms, but also challenges, new rules and new responsibilities for parents, teachers and those who care for children in both in-school and out-of-school contexts.

Patterns of Usage

There appears to be some common patterns between students' responses to the online survey, their discussions during the interviews and the logs on internet usage as produced by the Websense© monitoring software. The Websense © logs show that search engines are by far the most common category of website accessed by students at school. This is supported by the results of the survey where 72% of children use the internet for obtaining information. It is worth noting that the Websense © logs indicate that there is often little use of the schools' websites and the use that is recorded often

relates to those schools that set their website as the default homepage upon logging in, with students quickly navigating away. The survey indicates that only 24% of students use the schools' websites, which raises the issue of the purpose and role of the school website. Is it purely for marketing? Could it be used more effectively for children's learning? Should it more effectively incorporate learning platforms, blogs, e-portfolios or other more interactive elements? These are issues that schools may be prompted to consider.

The interviews yielded a large number of children's comments on the accuracy of content on the internet, especially with respect to their learning. The interviews included much discussion about online games, and this is also supported by the survey which reported 81% of students using the internet for games. There appeared to be little variance between what children say they did and what Websense © reported as actual usage.

Revisiting the Research Questions

I believe that the methodology chosen for obtaining and analyzing the data in this thesis has worked effectively in helping to answer the research questions. Both the survey and the interviews produced rich data that assisted my understanding of the area being researched. My positionality as a keen advocate of the internet and as a senior member of my organization placed me in a privileged position to interpret the data made available through the methodology. At the top level of questioning, the main research question for this thesis was : *How do year seven children use the internet both in-school and out-of-school?* This was broken down into four subsidiary questions which were:

- *How is out-of-school internet behaviour of year 7 students similar to in-school internet behaviour?*
- *How does out-of-school internet behaviour of year 7 students differ from in-school behaviour?*
- *If the behaviour of year 7 students differs, is this important?*
- *Do schools have something to learn from home practice (and vice versa)?*

In retrospect, the main question has been a little less about the children's actual behaviour and more about their perceptions about how they use the internet, their beliefs and the way they report these perceptions and beliefs. . With respect to the question *How is out-of-school internet behaviour of year 7 students similar to in-school internet behaviour?* a number of conclusions can be drawn from the data and analysis in the preceding sections. Children were critical of the accuracy of information on the internet, especially with respect to their learning. This was drawn out of experiences with a number of websites that were cited as examples. They did, however, demonstrate good ways of checking and validating information, and felt the internet was a valuable resource. This was consistent with both in-school and out-of-school access.

Children complained about the things that got in the way of their internet use. This included their experiences with viruses, spyware and pop-ups at home, yet they also complained about the restrictions placed on them by firewalls and filtering at school. This shows their impatience with the technology and their need for immediacy and reliability of access. Children disliked things

that got in the way of them using the internet when and where they liked. I believe this needs a curriculum response, educating children about skilful practices on the internet and explaining the reasons and the technologies involved for firewalls and filtering. However, generally children demonstrated a good awareness of internet safety issues. Schools could further encourage and nurture safe practices whilst providing adequate safeguards such as filtering and caching facilities. A good safety policy and code of practice is important.

With respect to the question *How does out-of-school internet behaviour of year 7 students differ from in-school behaviour?* and its corollary *If the behaviour of year 7 students differs, is this important?,* there are a number of observations to be made and conclusions to be drawn. There often appears to be a different relationship between the children and their informal learning and that which occurs in a formal educational setting. Schools should look at ways of making the formal educational experience more related to and built upon that which the children bring from home. In order to do this a deeper understanding must be developed of what children do and how they interact with others online. Bringing the home and school practice together is important. This is more relevant than trying to emulate home practice at school. New kinds of learning are taking place involving, amongst other things, online exploration, collaboration and networking and this should be embraced and contextualised by schools to allow young people the opportunity to practice, enhance and apply their skills in a transferable way both in-school and out-of-school.

Children mainly used the internet at home in private or other designated areas, whereas at school, usage was more public and exposed. However, children believed that teachers were less likely to know what they were doing on the internet at school than parents were to know what they were doing on the internet at home. Videos and games were favourite activities for children at home, whereas search engines were favourites at school. Children unsurprisingly preferred using the internet at home, mainly due to the privacy and freedom afforded to them. Those who spent the most time on the internet at school, also tended to spend the most time on the internet at home.

- *Do schools have something to learn from home practice (and vice versa)?*

The use of the internet by young people differs in informal, formal and non-formal settings. However, there are perpetual and changing overlaps between these settings, and the contexts will be largely determined by the learners themselves. In this sense, although we might aspire to a framework for learning with the internet, it is a framework that itself is in perpetual beta form. Children develop self-organised learning practices (or contexts) using the tools which are sometimes taught in schools and sometimes learnt informally. It is apparent that children bring informal learning to school. Schools should use this, but not necessarily appropriate it. This has also been commented upon recently by other researchers (Green and Hannon, 2007). Schools should also however, look at ways of developing context-based models for learning, and seek to understand ways in which informal

and formal learning can be realigned. Children should also be encouraged in the school setting to be creators of content as well being articulate and discerning consumers. This is consistent with trends observed in the 2007 Ofcom report on the communications market where the most notable impact of the internet in recent years was seen to be the conversion of consumers into content producers (Ofcom, 2007, p. 97). It is also consistent with recent research into the CBBC online game 'Adventure Rock'. In 2008, Gauntlett and Jackson conducted a case study on 'Adventure Rock', a virtual world for children aged 8-11 (Gauntlett and Jackson, 2008). This free, downloadable program from CBBC provides creative studios where children can draw pictures, animate cartoons, choreograph dance, compose music and construct machines. CBBC has taken up the challenge of providing safe and appropriate social networking and interactive games for children in this age group. At the time of writing, Adventure Rock is the latest in a series of virtual worlds, created specifically for children in the past two years. Others include Club Penguin, Nicktropolis, Moshi Monsters and My Tiny Planets. Gauntlet and Jackson describe eight types of players in these virtual worlds: explore-investigator, self-stampers, social climbers, fighters, collector-consumers, power users, life-system builders and nurturers, all engaged in a series of online activities ranging from solitary to sociable. Gauntlett and Jackson found a number of benefits to be apparent in children's usage of Adventure Rock including the creation of mental maps, rehearsal of responsibility and self-expression. Research such as this is important in informing the future appropriation of in-school and out-of-school online experiences for children.

Schools need to listen to children and their use of the internet, and develop strategies to bring together the richness that both informal and formal learning can provide. Schools also need to provide the opportunity for children to practice the skills that they bring from informal learning and enable them to use those skills in a range of contexts and settings. In doing this, schools should not attempt to mimic out-of-school use, but concentrate on enabling responsible and effective use of IP-based technologies by students. The development of a set of ethical, safe and critical approaches to the internet is crucial. However, it also apparent that children already have some good critical skills in finding and analysing information, and that they are good at verifying and validating information found on the internet. On the social aspect of the internet, there is a need to further develop safe practices with respect to social networking, blogging ,e-portfolios and other online activities.

Given children's frequent interest and participation in internet games, there is further scope to explore the educational possibilities available through these activities. The fun elements of the internet greatly appeal to children of this age, and the appropriation of creative and constructivist activities continue to be a desired outcome for children. Teaching children to be disciplined users is important too. My research showed that those who spent a lot of time just browsing were often those who had unrestricted use of the internet at home. The encouragement of supportive, responsible parental supervision is important and schools should have a role in promoting this. Where the response from home is apathetic or negative, schools should look towards the education of parents and the provision of the internet during out of hours

time in the form of after school, or homework clubs where good out-of-school internet behaviours and habits can be demonstrated and developed.

Is it possible to generalize from research such as this?

Informal learning using the internet often appears as self-motivated with a strong sense of ownership both of content creation and social networking. It is often generated by a real purposeful need by the children themselves, often with the assistance of their peers.

Schools should be places where literacy in new media can be developed. The sample of schools in which children were consulted in the research represents a broad set of demographic profiles across England. As the sample was restricted to children at year seven, responses from other year levels would most probably have shown a different set of responses. This is especially likely with respect to the ownership of social networking sites. Older children may be more inclined to use the internet for communications, to explore and test boundaries and to behave in a more independent manner.

All the students included in the sample were from schools with good internet provision and it also appeared that children were also generally immersed in the internet in their out-of-school contexts. In this sense, perhaps the internet is a non-issue, being such a natural part of their lives that it holds no awe or surprise for them. This contrasts with my own response, where I am still easily impressed by new internet-based applications. The danger is that school and home practices will diverge to the point where school provision of the internet becomes increasingly irrelevant to children's lives, especially if a

significant gap between teacher and student competencies emerges and grows.

Perhaps a more longitudinal study is required, following the patterns of usage over a number of years and possibly examining other types of ICT usage such as mp3 players, mobile camera phones and emergent technologies.

Both internet use and reading are popular activities and seem to be related i.e. children who like using the internet also like reading. This clearly links internet use as being a literacy activity. Games, homework, browsing and instant messaging are favourite activities and the literacy activities associated with these are worthy of exploration. As internet use and reading are closely related, literacy is a key skill for internet use and also a key way of improving and practicing that skill. The motivational level for activities such as these is high, as children enjoy the levels of engagement that are afforded by use of the internet.

There appears to be a mixed set of rules for home usage, and education of parents is important, especially if their skills and understandings of children's social practices on the internet are low. Because of children's high levels of confidence with the internet (66% think they are good users), rules for both school and home usage should perhaps be constantly reviewed.

There is a bigger gap between those with access and those without access for boys and girls, and this inequity of access should be explored further. Certainly, the research shows that more emphasis is needed on reading for boys. Girls' interest in social networking applications also demands a

curriculum that teaches responsible use. My research shows that social networking owners are more independent, less likely to look at recommended websites and although children are quite aware of safety issues and can recognize dangers, we must continue to equip them with the necessary skills. The use of resources from *Childnet International* and the *Child Exploitation and Online Protection Centre* is to be encouraged. Resources outlined by the Cyberspace Research Unit's 2004 report (O'Connell, Price and Barrow, 2004) into emerging trends amongst primary school children's use of the internet has been taken up by many schools and local authorities. This trend is also to be encouraged and cascaded into the family homes of children. As noted previously, boys tend to use the internet more for chatrooms, games and music, possibly partially because they have less strict rules at home than girls but possibly just because this is what boys enjoy doing anyway. A curriculum response that teaches responsible use is also required here.

The role of the internet in schools certainly needs constant examination. Students generally don't see its usage at school as being as relevant as might be hoped. Indeed, Lankshear and Knobel describe how

> …much classroom appropriation of new technologies is ineffective, wasteful, and wrongheaded. For a start, they [educators] are likely to see that effective use of the internet calls for sustained continuous periods online with minimal constraints (Lankshear and Knobel, 2006b, p. 258).

A response is required to address this relevance, possibly through further research into teachers' perceptions and usage, and there is arguably a need to revisit professional development models for the use of internet applications in the classroom for learning and teaching. Much of what the

young people appear to do on the internet is play, not just with respect to online games but playing with video, music and social networking. The institutional rationale for the expense of providing the internet in schools is primarily for the transmitting of information to learned. This is how the cost can be justified. The dichotomous nature of the internet for play/learning is managed by young people, although 'play' is still the key word. This is consistent with Sandvig's view of the internet as a place for ritual and play as well as for information retrieval and work (Sandvig, 2006). Again, Lankshear and Knobel

> …do not advocate turning schools into 'playgrounds' for new literacies at the level of popular cultural engagement, Educational practice is distinct from and different to popular culture. The day we give that distinction away is the day we give formal education away (Lankshear and Knobel, 2006b, p. 259).

Some authors speak of the necessity of engaging children with the use of the internet (Pritchard and Cartwright, 2004). Most children who responded to my research were soundly engaged, with the engagement being a natural and embedded part of a child's habitus. I believe that the issue here relates more to giving children the critical and ethical capabilities to use the internet more skilfully.

Lack of access to the internet at home by children can mean exclusion from a range of social, creative and constructivist skills. Children not using the internet for communicating with friends, music, games and homework are missing out on a great deal. Perhaps this is a future role of schools' internet provision, not just as an enabler of access, but also a promoter of innovative practice. Teachers employing strategies such as personalised learning, formative assessment and other contemporary approaches to education may

find in the usage of the internet mechanisms by which children can become more independent, directing their own curriculum and managing their assessment for learning. Internet tools such as learning platforms require teacher engagement at the same time as letting go of the locus of control. The negative side of increased online engagement is that excessively heavy use of the internet is often related to music downloading and chat room use and the dangers of internet addiction should be an area of future concern both for parents and schools. Children who use the internet for more than two hours per day could be prone to internet addiction, and excessive internet use should be monitored by parents and teachers, as has already been noted by researchers (Yoo et al, 2004). The issue of internet addiction is also explored by Cao and Su who found that, certainly in China, young people with internet addiction possess different, and often disturbing psychological features when compared with those who use the internet less frequently (Cao and Su, 2007). The reality at the time of writing of this thesis (2006-2008) is that a significant proportion of children use the internet to watch videos and claim that they are more likely to use the internet than television to learn about things (Ofcom, 2007, pp 94-95). As they get older (and approach the age of my sample group) they are also more likely to use the internet to keep in touch with other people (Ofcom, 2007, p. 96).

Both parents and teachers need to listen to and observe children's online behaviour whilst at the same time respecting their privacy. Byron talks of how "in terms of adult input with the young person and technology, this is a time to move towards collaborative management" (Byron, 2008, p. 38). Zembylas and Vrasida discuss the principles of Levinas' view on ethics and how they

relate to internet use. Internet use has an ethical significance which all parties must discover on a journey together. The ethics will evolve through a sensitive and sympathetic partnership (Zembylas and Vrasidas, 2005). With respect to the education of both parents and students, parental and child use of the internet together as a shared experience could improve the effectiveness of parental monitoring. This is supported by the findings of Wang et al (Wang, Bianchi and Raley, 2005). This also is supported by other writers who stress the importance of understanding parents' and children's interaction with the internet at home (Valentine and Holloway, 2001).

Looking back on my own research process in examining these areas, I can see issues relating to the time sensitivity of the data. The internet has changed significantly during the time of writing of this thesis (2006-2008) and in a short period of time the internet will further mutate and children may become engaged in a range of online activities that are yet to be invented. Activities described in this thesis may be discarded by children in favour of new technologies affording fresh opportunities for leisure, for learning, communicating and collaborating. In this sense, this thesis is an artefact representing a snapshot of the state of children's internet usage during 2006-2008.

Further work will certainly need to be undertaken to ensure that we are constantly revising our own practices as educators, parents, builders of schools and collaborators with children's online and offline worlds. New theories will in time emerge to support these and we must constantly reflect not just upon what is happening, but on what new ideas could emerge from future research.

Reflections on Theory

Many of the findings from my research can be related to existing theory and to issues that have already emerged from the literature review. The findings of this thesis can therefore be considered in the light of previous research. As already postulated by Livingstone (Livingstone, 2002), children's leisure cannot be separated from their education. I found that most children spent time on the internet both at school and at home and that (at one level) contrasting activities (online gaming, homework and revision) are the two most commonly engaged internet activities at home. We can also see how the influence of home on a child's development is at least as great as at school (Wellington 2001) and from my research I found that home supervision and clearly articulated rules are correlated with richer, more highly engaged activities (both leisure and school-work related) compared with unrestricted use being correlated with less focused, less engaging and less creative activities such as unstructured browsing and indiscriminate downloading. Somekh et al (Somekh, 2002) found that children used the internet more at home than at school and several years on from her research, I found similar patterns. As also seen in my research, I find myself agreeing with Sefton-Green's observations (Sefton-Green, 2004) that formal and informal learning occurs in both formal and informal settings and that many of these types of distinctions are, if not breaking down, at least blurring.

Observations relating children's online and offline reading and the activities undertaken by children that demonstrate their online and offline literacies

support Davies' research that finds that online literacies help children in becoming more literate (Davies, 2005). My findings on the role of the school in supporting these literacies (as well as other types of learning) are also underpinned by the concepts explored by Lahti and Marjomma (Lahti and Marjomma, 2003). The school can be seen as a scaffolder and facilitator of group processes, and this has an important role in supporting children's positive use of the internet. I also found myself agreeing with Livingstone (Livingstone, 2003) that the internet should not necessarily be seen solely in terms of an external agency that impacts on society in a deterministic way but something that is shaped itself by its usage by children and others.

Again, theories relating to the internet come back to some of the ideas of postmodernism and the way in which they relate to my findings. I have seen how both the internet and postmodernism are characterised by influences that are chaotic, non-hierarchised and mutable, at the same time being reminded of Lyotard's prediction of how the impact of technology would change the circulation of learning. (Lyotard, 1979). Hernwell (Hernwell, 2005) has described the internet in terms of being a function, rather than an object and this postmodern description of it sits comfortably with other postmodern characteristics of the internet such as decentralisation (Granic and Lamey, 2000), the revelation of the values of its users (Horrocks, 1999), its non-hierarchical nature (Butler, 2002) and its nature of being incomplete, contested and subjective (Chapman, 2005). The way in which the children in my research have constructed their own worlds using the internet is also reflected in the writings of such authors as Sherman (Sherman, 2000) who, several years ago described co-operative learning on the internet in terms of

postmodern, constructivist pedagogy. The children who participated in my research engage with the internet at this level, and I believe that these are important characteristics of which we should be aware. Not all technologies are the same, and the elusive nature of the internet and the ease with which children engage with it, makes it unique.

Another level of uniqueness relates to the way in which power is distributed and is manifested in the internet. Power relationships on the internet are less obvious (Kershaw, 2001) and Lyotard has also spoken of how the technological transformation of power would affect power relationships in the future (Lyotard, 1979). Certainly, when observing the internet usage of children and hearing them discuss it in terms of where the locus of power sits, it can be seen that with the internet and their usage of it, power does not always flow from the centre to peripheral points, but rather it flows from the peripheries in capillary form (Heng, 1998).

Impact on Work and Policy

The findings of this research have already impacted professionally on both myself, and the schools with which I work. A number of work and policy changes have been put in place and will continue to evolve as we place the use of the internet under closer inspection over the next few years.

At a practical level, we have already taken measures to improve the way in which we manage children's access to the internet at school. Having listened to their frustrations at the way in which the filtering and caching services restrict as well as protect, we are implementing forensic software solutions that are based upon monitoring rather than restricting protocols. It is

expected that this technological implementation, in conjunction with mandatory and thorough internet protocol and safety training will allow a far richer internet experience for children at school.

Given children's generally poor opinion of school websites, we are now considering how to make the sites more interesting, accessible and relevant to children's needs, including the provision of a showcase for children's multimedia work incorporating podcasts, blogs, webcams, games, quizzes and collaborative spaces. At the same time, we are implementing learning platforms for children, parents and teachers. These learning platforms will allow users to make choices about the structure and design of their user interface based upon their own needs and learning styles. Each user will have a personal portal allowing quick and easy access to task management, learning activities, e-portfolios and blogs. The latter two will especially allow children, teachers and parents to gain insight into the evolution of individual learning processes and artefacts, facilitating individual attention and personalised learning. The sites will be secure yet with an open architecture, allowing a more profound evaluation of learners' understanding than traditional assessment methods.

However, by also integrating the learning platform with the schools' management information systems, access will be provided additionally to the more traditional assessment data.

The web-based learning platform will allow easy integration of all types of digital content by both teachers and children, and will fully incorporate assistive technology ensuring compliance with accessibility standards.

Children will be able to invite peer comments on their work, collaborate on joint projects and communicate safely by means of synchronous chat and instant messaging. They will be also able to set up their own discussion forums. By capitalising on children's out-of-school practices, levels of engagement with the school curriculum may be more effectively achieved.

There is also a recognised need, however, to improve teachers' knowledge in those elements of the learning platform that use Web 2.0- type functionality, especially with respect to literacy practices, online collaboration and constructivist activities. This is supported by the 2008 Web 2.0 research report published by BECTA where they recognised that "it is important that Web 2.0 resources can stimulate and serve interests that lie outside the demands of a school curriculum" (Crook, 2008, p. 18). The report also states that "teachers also will have to manage the consequences of a strongly collaborative form of working that Web 2.0 activity invites" (Crook, 2008, p. 5). An intensive programme of teacher development is needed to support this. The use of the learning platform will be enhanced by online opportunities including other collaborative communication tools such as child-friendly, kite-marked social networking sites. This will be enhanced by improved safety policies, rules and codes of practice based upon CEOP and ChildNet guidelines and recommendations from the 2008 Byron review.

Regarding the use of the internet for research and information retrieval, the Information and Communications Technology curriculum will be restructured for year seven, including an increased focus on the development of critical, analytical, synthetic, ethical and research capabilities. As Greenfield states, "… in this new answer-rich world surely we must ensure that we are able to

pose appropriate, meaningful questions" (Hansard, 2006, col. 1220). Opportunities will be provided for children to discuss, celebrate and demonstrate the skills and artefacts that they bring from home. Teachers will be encouraged to develop this, and to understand more clearly the nature of informal learning at home by discussing this with children and encouraging the demonstration of informal learning outcomes.

By working more closely with parents on issues of collaborative management, we will aim for higher levels of parental internet skills and understanding in some cases, and improved engagement with and understanding of children's internet practices.

Final areas of focus will be on the use of internet games that use creative and constructivist activities to engage new literacy practices and the use of classroom based action research techniques for both teachers and children.

These changes to work practices and policy are being implemented as a direct result of the findings of this research.

The Coherence of the Inchoate

Although the thesis is now completed, it represents a part of a longer journey for me. Given the constantly changing nature of the internet, I have not so much completed this thesis, as strategically abandoned it. On reflection, I am satisfied with the methods I used, although with the benefit of hindsight I would have made the questions more open, allowing for more wide-ranging responses from the children. Although logistically impractical, I would like to survey the children 2-3 years on from the time of the original survey and interviews. I believe that using as large a sample as I did for the online

survey worked well, generating interesting and useful data. However, in their 2008 report of learners and technology, Cranmer, Potter and Selwyn also expressed frustration at the 'snap-shot' methodology acknowledging that a longitudinal study would uncover a richer mine of data (Cranmer et al, 2008, p. 41). The landscape and the technologies will continue to change and children's practices will evolve and mutate. I can only hope to have captured a snapshot (albeit a digital one) of children's internet use during the time in which I collected the data. The scope of ICT usage by young people is vast, representing a much broader range of people than those represented by respondents in this thesis. It is also a rapidly changing, mutable area and one which is extremely time-sensitive when it comes to research, as the technologies and practices evolve and change rapidly. I started from a position of examining the internet practices of year seven children. Using a range of research techniques, I explored their in-school and out-of-school contexts and learnt that although there were many similarities, there were also sometimes surprising differences in practices, and as educationalists we could learn from these.

Certainly, I believe that policy makers should take children's out-of-school practices more seriously and use these to develop in-school learning opportunities that are relevant to children's actual experiences and capabilities. As Leadbeater says, "An integrated curriculum policy would focus on how schools interact with families, including learning supports at home, working on raising family aspirations for learning " (Leadbeater, 2008, p. 147). There also needs to be relentless, continuing revisiting of the area by researchers to ensure that the non-formal and informal practices are

understood in terms of children's learning. In 2008, a CIBER briefing paper from UCL reported, with very high confidence levels, that children's information literacy had not improved with widened access to technology; they had a poor understanding of their information needs and found it difficult to assess the relevance of information retrieved from the internet (CIBER, 2008, p. 12). Issues such as these present additional challenges for educators. There are implications for policy makers and parents as well. Marsh's call for the transformation of literacy practices through new technologies (Marsh 2008) and Byron's call for greater awareness of digital safety issues (Byron, 2008) points the way for future research in these areas. In the context of my professional work, the outcomes of my research have made me more aware of children's practices and will inform my future strategic direction for the provision of relevant and empathetic internet experiences in our formal learning spaces. I reflected rhetorically upon the children who participated so generously in this research and wondered what their future will be like and what types of people they will be.

The subtitle of this thesis, "the coherence of the inchoate" (Alvarez, 1972, p.254) is appropriated from a book on modern culture by Alvarez and quoted more fully on page 2, but I have used the phrase for my own purposes. www.wiktionary.com defines *coherence* as *sticking together* and *inchoate* as *beginning but not yet fully formed*, which captures for me in an attractive way the immature, yet developing and evolving internet practices of children in ways that make sense to them. For me, internet practices are perpetually both inchoate and coherent. Children's use of technology will help determine the shapes and cultures of the world. In their way, they are leading

practitioners of ICT and although we do not know what the world will look like in the future, it can be reasonably asserted that children's evolving technological practices will help determine it. We would be wise to understand them a little better.

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Appendices

We had the experience but missed the meaning,

And approach to the meaning restores the experience

In a different form,

(T.S. Eliot, The Dry Salvages)

These appendices will hopefully give the reader some sense of both the experience and the meaning of the research from the perspective of the research participants.

Appendix A

Research Participant Information Sheet

27 September 2006

1. **Research Project Title:**

Year 7 children and the internet: a comparative study of in-school and out-of-school behaviour.

2. **Invitation to participate**

Children in Year 7 in your care are invited to take part in a research project. Before you decide to give permission it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish the children to take part. Thank you for reading this.

3. **What is the purpose of the project?**

Albin Wallace, the Group ICT Director of the charity is undertaking research as part of a Doctor of Education programme of study at the University of Sheffield to compare children's in-school and out-of-school behaviour. The purpose is to ascertain how internet usage can help a child's learning.

4. **Why have the cohort been chosen?**

All year 7 students in our schools will be invited to take part. This cohort will represent users with recent internet experience at Key Stage 2 and Key Stage 3

5. **Do children have to take part?**

It is up to the child and the parent to decide whether or not to take part. Refusal to take part will involve no penalty or loss of benefits to which they are otherwise entitled. If they do decide to take part they should be given this information sheet to keep (and be asked to sign a consent form). If they decide to take part they are still free to withdraw at any time, without penalty or loss of benefits, and without giving a reason.'

6. **What will happen if they take part?**

The research will revolve around a completely anonymous on-line survey on child internet use. It will take between 5 and 10 minutes to complete. There will also be a set of group interviews conducted at the school.

7. **What do they have to do?**

Complete the online-survey and participate in the interview if they so wish.

8. **What are the possible disadvantages and risks of taking part?**

There are no foreseeable disadvantages or risks in taking part.

9. **What are the possible benefits of taking part?**

The main benefit is making a contribution to an understanding of how the internet can help learning and therefore help shape their curriculum.

10. **What if something goes wrong?**

The only thing that could go wrong is that an unforeseen computer error may cause the survey to abort the session. In this case, the child could either take retake the survey or choose not to.

16. **Will taking part in this project be kept confidential?**

All information which is collected during the course of the research will be kept strictly confidential. No information will be collected that will allow individuals to be identified.

17. **What will happen to the results of the research project?**

The aggregated results will be made available to all headteachers and principals and any student or parent upon request.

18. **Who is organising and funding the research?**

The charity

19. **Who has reviewed the project?**

Sheffield University Research Ethics Committee

20. **Contact for further information**

Albin Wallace

Thank you for taking part in this important piece of educational research

All participants will be given a copy of the Participant Information Sheet

Appendix B

Participant Consent Form

School of Education University of Sheffield

Participant Consent Form

Title of Project: Year 7 children and the internet: a comparative study of in-school and out-of-school behaviour.

Name of Researcher: Albin Wallace

Please initial box

1. I confirm that I have read and understand the information sheet dated 27 September 2006 for the above project and have had the opportunity to ask questions. ☐

2. I understand that participation is voluntary and that participants are free to withdraw at any time without giving any reason. ☐

3. I understand that responses will be anonymised before analysis. ☐

I give permission for members of the research team to have access

to anonymised responses.

4. I agree to children in my care taking part in the above project.

Name of Head Teacher	Date	Signature
Albin Wallace	27/9/06	
Researcher	Date	Signature

Copies:

One copy for the participant and one copy for the Principal Investigator / Supervisor.

Appendix C

Letter to Students

Dear Student,

The charity that your school is part of is looking at the ways in which students in Year 7 use the internet both at school and out-of-school. We are looking at ways in which the internet can help with students' education and to see if there is anything we can learn from the way that you use it.

Our Group ICT Director, Mr. Albin Wallace is looking at this important topic with the University of Sheffield. A report will be written by Mr. Wallace about this. We would like you to do a short survey on the internet which will not take up too much of your time. You will not need to give your name and no-one will be able to identify you from your answers. You may also be asked to take part in a group discussion.

If you have any questions, please ask your ICT teacher who will pass them on to Mr. Wallace. We would like you to do this survey so we can look at what students themselves think and do. You do not have to do it, but we hope that you will help us in this way. However, we understand if you would prefer not to take part. It is totally your choice.

Many thanks

School

Appendix D

Online Survey Questions

School Internet Survey

1

Are you a

- Girl?
- Boy?

2

What school do you go to?

3

Do you have the internet at home?

YES NO

If yes, which room do you use it in?

4

How much time do you usually spend each day on the internet at school?

- None
- Less than half an hour
- About half an hour
- About an hour
- About two hours

- More than two hours

5

How much time do you usually spend each day on the internet out of school?

- None
- Less than half an hour
- About half an hour
- About an hour
- About two hours
- More than two hours

6

How much time do you usually spend each day reading books or magazines at school?

- None
- Less than half an hour
- About half an hour
- About an hour
- About two hours
- More than two hours

7

How much time do you usually spend each day reading books or magazines out of school?

- None
- Less than half an hour
- About half an hour
- About an hour

- About two hours
- More than two hours

8

Do you have your own pages on Bebo or Myspace?

YES NO

9

Do you have your own e-mail address?

YES NO

10

Where is your favourite place for using the internet?

11

How often do you use the internet at home for looking for information?

very often	sometimes	not very often	never
1	2	3	4

12

How often do you use the internet at home for looking at websites your teachers have told you about?

very often	sometimes	not very often	never
1	2	3	4

13

How often do you use the internet for looking at websites such as Myspace or Bebo?

14

How often do you use the internet for looking at your school's website?

15

How often do you use the internet for making music or videos?

16

How often do you use the internet for making webpages?

17

How often do you use the internet for downloading music?

18

How often do you use the internet for playing games?

19

How often do you use the internet for listening to or looking at podcasts?

20

How often do you use the internet for looking at things to buy?

21

How often do you use the internet for Instant Messaging (e.g. MSN)?

22

How often do you use the internet for sending e-mails to other people at school?

23

How often do you use the internet for sending private e-mail?

24

How often do you use the internet for visiting a chatroom?

25

How often do you use the internet for homework and revision?

26

How often do you use the internet for just browsing for stuff?

Survey Page 1

School Internet Survey

27

What are your favourite websites that you visit at school?

28

What are your favourite websites that you visit out of school?

29

What do you prefer?

- finding out about things on the internet
- talking to people on the internet
- Other, please explain

30

What rules do you have for using the internet out of school (tick the ones that are true)?

- I can only use the internet at certain times
- I can only use the internet with an adult watching
- I can only use the internet after I have done my homework
- I can only use the internet for school work

- I can only use the internet if I ask
- I can use the internet whenever I want
- I can't use the internet at all

31

Which of the following sentences are true?

- My teachers know what I do on the internet
- People at home know what I do on the internet
- I am good at using the internet
- The internet helps me with my work at school
- The internet helps me with my homework
- The internet helps me keep in touch with friends
- The internet helps me make new friends
- I use the internet for fun

32

Who is the best person at using the internet at home?

- Me
- Another young person
- An adult

SUBMIT

Survey Page 2

Appendix E

Discussion Group Questions

1. What is the best thing about the internet?
2. What is the worst thing about the internet?
3. How did you first learn to use the internet?
4. Do think most of what you find on the internet is true?
5. How do you know if something on the internet is true or not true?
6. Why do you think most people your age use the internet?
7. How would you describe the internet?
8. What do you think the internet will mean to you in the future?
9. How do you think the internet will change in the future?
10. What is the most interesting thing you have done or discovered on the internet?
11. What is the most fun thing you have done or discovered on the internet?
12. What is the most useful thing you have done or discovered on the internet?
13. How does the internet affect the way you learn?

Appendix F

School Profiles

In this thesis subjects include the individual schools, their character and profile and the findings obtained from each of the three methods outlined in the methodology chapter.

Darebin-school

Darebin-school is a suburban, academically selective, middle-class, independent school for girls with outstanding academic results. It has a number of students from overseas, especially South Korea. It prides itself both on its outstanding academic results and also on its ethos and pastoral care. It is a school in great demand in its local area.

According to the Spatial Literacy study, more details of which may be found in Appendix G (Longley, 2006) and by analyzing the postcodes of the catchment area, families whose students attend Darebin-school are most likely to be members of group H (E- experts) belonging to type H22 (E-committed).

Hume School

Hume School is a comprehensive school located in an inner city area. It was recently opened on a brownfield site in new buildings, and serves socially and economically disadvantaged children from the local housing estate and also the middle-class terrace house and flat dwellers in the surrounding area. The school has a mixed but challenging educational profile with low levels of literacy for some children and their parents. A small number of children also come from families with high levels of illegal drug dependency such as crack

cocaine and heroin. At 32%, the proportion of the pupils who have learning difficulties and disabilities is around twice the national average, as is the proportion who have Statements of Special Educational Need. The school has a diverse pupil population and at 17%, the proportion of pupils who speak English as an additional language is high; 14% of pupils are at the early stages of learning to speak English.

Despite these discouraging facts and partially due to the relative affluence of many families whose children attend the school there is a high level of ICT literacy associated with the catchment area. According to the Spatial Literacy study (Longley, 2006) and by analyzing the postcodes of the catchment area, families whose children attend Hume School are most likely to be members of group H (E- experts) belonging to type H22 (E-committed).

Monash School

Monash School is an independent co-educational day and boarding school on a site of over 100 acres of countryside on the outskirts of a middle-sized town. It is the result of the merger of two smaller independent schools. It is co-educational and prides itself on a distinguished tradition from both its predecessor schools. Although there is little demographic data on the ICT practices of families of students from the catchment area, according to the Spatial Literacy study (Longley, 2006) and by analyzing the postcodes of the catchment area, people who live in the catchment area are most likely to be members of group Group A : E-unengaged and type A06 : Elderly marginalized. This is indicative of the aging population of the area and provides no real indication of the ICT practices of the younger people, who are demographically in the minority.

Banyule School

Banyule School is an independent co-educational day school for children aged 3-18, situated in a city centre based in a multi-cultural community. It has average to good academic results. There are a number of overseas students, including some from Hong Kong. According to the Spatial Literacy study (Longley, 2006) and by analyzing the postcodes of the catchment area, families whose students attend Banyule School are most likely to be members of Group C : Becoming engaged and type C10 : E-bookers and communicators.

Brimbank School

Brimbank School is a comprehensive school serving an area that has high levels of social and educational disadvantage. The students are predominantly from White British backgrounds, although a small number are from minority ethnic groups. The proportion of students entitled to free school meals is very high. The proportion with learning difficulties and disabilities, including those with a Statement of Special Educational Need, is above average. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area are most likely to fall into Group D : E for entertainment and shopping and type D12 : Small time net shoppers.

Wyndham School

Wyndham School is a comprehensive school serving an area of significant social and economic disadvantage. About two thirds of the students aged 11 to 16 and all the sixth form students are eligible for free school meals. While the school admits students of all abilities, many had low results in national

tests at primary school, achieving standards well below the average for their age. 29% have learning difficulties and/or disabilities, including 18 students who have formal Statements of Special Educational Need. Far more students than is typical join or leave the school at times other than at the start of Year seven, including a significant number whose families have sought refuge or asylum in this country. Nearly 10% of the students are at the early stages of learning to speak English.

Despite this profile, according to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area find it easy to acquire and master new technologies and fall into category H : E- experts and type H22 : E-committed.

Parkville School

Parkville School is a comprehensive school in an inner city area serving an area of high social deprivation and surrounded by council housing which is characterized by a high crime rate, drug and other social problems. 90% of the students come from council wards which rank amongst the most social deprived 10% of wards in England and Wales. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group A : E-unengaged and type A06 : Elderly marginalized, consisting mostly of an aging populationn, many living on their own, who have very poor levels of access to electronic technology.

Moreland School

Moreland School is an academically successful independent school. It is a co-educational day school for pupils between the ages of 2 and 18 years and is located in former industrial regional town. According to the Spatial Literacy

study (Longley, 2006) families in the postcode catchment area fall mainly into Group A : E-unengaged and type A04 : Mobile's the limit.

Knox School

Knox School is a medium-sized, co-educational independent school for young people aged from 2 to 18 years of age. It is located a quiet suburb a few miles away from a major regional town. It is has generally high levels of academic attainment. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall mainly into Group A : E-unengaged and type A03 : Technology as fantasy, consisting mostly of an aging population, some of whom have an interest in electronic technology and like to read about it, but few of whom use it for obtaining information or for online shopping.

Manningham School

Manningham School is large, co-educational, independent school for young people aged from 2 to 18 years of age. It is based in a medium-sized country town and has high levels of academic attainment. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group H : E- experts and type H22 : E-committed.

Bayside School

Bayside School is an independent day and boarding school for girls between the ages of 3 and 18. It is based in a small regional town. It has high levels of academic attainment. The junior school is in the process of becoming co-educational and caters for pupils up to the age of 11. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group H : E- experts and type H22 : E-committed.

Whitehorse School

Whitehorse School is an independent, co-educational day and boarding school with high levels of academic attainment. It is in a very affluent, suburban area. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group F : Instrumental E-users and type F17 : Computer magazine readers.

Casey School

Casey School is an independent and well-respected school founded 150 years ago. It provides day education for girls from 4 to 18 years on a compact site in a very affluent but aging residential area east of a city centre. The junior school, on the same site, caters for pupils 4 to 11 years. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group A : E-unengaged and type A05 : Too old to be bothered.

Elwood School

Elwood School is in one of the 10% most deprived wards in England. It has suffered from job losses in local industry and unemployment is high at almost 40%. It is a small, co-educational comprehensive school serving the predominantly white community. The areas have high levels of social and economic deprivation and students' attainment is weak. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group D : E for entertainment and shopping and type D13 : E for entertainment.

Fairfield School

Fairfield School is a comprehensive school located in an area of high socio-economic deprivation on the outskirts of a regional city. The overall academic attainment of students is low, particularly in terms of literacy and numeracy and their levels of verbal and non-verbal skills are exceptionally low. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group B : E-marginalised and type B07 : The Net ; What's that?

Fitzroy School

Fitzroy School is a comprehensive inner-city school where academic achievement is low. It is not a first school choice for most parents in the area. It has high mobility, a high number of students with Statements of Special Education Needs and a large number of refugee students. According to the Spatial Literacy study (Longley, 2006) families in the postcode catchment area fall into the Group D : E for entertainment and shopping and type D12 : Small time net shoppers.

Rosanna School

Rosanna School is a comprehensive inner-city school which specializes in performing arts and media. The students are drawn from a population where over 30% of residents belong to black or minority ethnic minorities and over 100 first languages are spoken. Although the school has had high levels of attainment in the past, the standard of the school's performance has declined recently with its poor reputation being linked to poor student behaviour. It is currently undergoing regeneration with improving academic standards and behaviour. According to the Spatial Literacy study (Longley, 2006) families in

the postcode catchment area fall into the Group H : E- experts and type H22 : E-committed.

Appendix G

E-Society Classifications

The classifications used to describe the schools and academies in this thesis and which are referenced in Appendix F, are those developed and identified by the Spatial Literacy e-society project (Longley, 2006). The **E-Society Classification** is a detailed classification of all of Great Britain's neighbourhoods, based on information about levels of awareness of information and communications technologies, usage patterns, and attitudes to their effects upon quality of life.

The classification claims to provide a valuable and accessible means of studying the 'E-Society' and people's engagement with new information and communications technologies.

The classification website has been created as part of the Economic and Social Research Council's **E-Society Programme**. This claims to be the largest ever-academic research programme to investigate the impact of digital technologies, particularly the internet on society. Full details of the program may be found at: http://www.york.ac.uk/res/e-society/.

The groups and types alluded to in this thesis are as follows:

Group A : E-unengaged

The 'E – unengaged' are typically groups that do not have access to electronic communications or technologies. Most are too old, too poor or too poorly educated to be able to access them, and instead traditionally rely upon personal contacts they trust for advice. Within this group there are low levels of literacy and many people do not feel that their life outcomes are much subject to their own decisions. Within this group there is a very low level of ownership of personal computers, very little access to them at work and little ambition to master the skills necessary to take advantage of information technologies. Unsurprisingly, these people have a very low level of using email at any location (home, work and other locations) or participating in other on-line activities.

Members of this group tend to live in the poorer areas of traditional mining and manufacturing towns and to have conservative social attitudes. A high proportion of the group is made up of elderly people, many of whom live in social housing or sheltered accommodation.

Type A01 : Low technologists

This type contains a number of people, mostly older women it would seem, whose primary use of the Internet, if they use it at all, is to buy apparel, children's clothes and vitamins. For these people the Internet is seen as an electronic version of a mail order catalogue, and not something that you learn from. Its members are particularly unlikely to own a mobile phone or to subscribe to cable television.

Type A02 : Cable suffices

This type comprises people with some limited interest in electronic technologies but who have neither the education nor income to become heavily engaged in using them. Many of this type are men who have recently retired or who are approaching retirement. A high proportion has access to cable television.

Type A03 : Technology as fantasy

This type contains many old males, some of whom have an interest in electronic technology and like to read about it, but few of whom use it for obtaining information or for on line ordering. This is a group which has very low take up of cable television. Many transient people fall into this category.

Type A04 : Mobile's the limit

This type has particularly low levels of use of computers and the Internet, knows next to nothing about the technology and has no motivation to do so. They enjoy more traditional modes of communication, but the mobile phone represents the limit of their technical ambition. Many of this type are female and elderly.

Type A05 : Too old to be bothered

This type consists mostly of very old people who feel that they predate anything to do with electronic technologies. Members are particularly unlikely to be found purchasing or reading 'techie' magazines and are among the

least likely to find the computer a useful medium for playing computer games – or even watching videos.

Members of this type have little interest in acquiring E-technology skills.

Type A06 : Elderly marginalised

This type consists mostly of very elderly adults, many living on their own,, who have very poor levels of access to electronic technology. Technology seems to be moving on at a rate faster than they can keep up with – for this type, mobile phones and cable television are still novelties, never mind personal computers and the Internet.

Group B : E-marginalised

The 'E – marginalised' are not necessarily averse to the use of electronic technologies but often lack the disposable income to equip themselves with them, or the training and education needed to understand how to make effective use of them. In this group we find very low level of PC ownership and very little use of the Internet to obtain information or to undertake transactions. However there are members of this group who regularly use personal computers to keep in touch via email and more are considering getting on line. This group does use simpler and less expensive technologies such as mobile phones.

Many members of this group are relatively unskilled young workers, many of whom are in manual occupations. Many also live in low rise council estates,

in areas of high unemployment, low incomes and where people are reliant upon public services.

Type B07 : The Net ; What's that?

This type has a low level of engagement with electronic technologies. However those that are not engaged have very little interest in acquiring access to personal computers or to the Internet, although they are interested in getting access to a mobile phone. This type contains a large number of people in later middle age.

Type B08 : Mobile Explorers

This type contains many young people. They have a high level of access to the Internet both at home at work. They enjoy using computers to play games and to watch videos but do not use them to acquire information or to undertake transactions. Many of this group are young. They earn ready money and spend a significant amount of it on their mobile phones.

Type B09 : Cable TV heartland

This type lives and works among a peer group for whom technology is an important lifestyle statement. Members invest considerable time considering the purchase of new technologies. They were amongst the earliest adopters of devices that link mobile telephony with the Internet. They read a lot about technology in magazines and spend a lot of time on the Internet. They send a lot of emails but do not make a lot of on-line purchases.

Group C : Becoming engaged

Members of this group often acquire their competence in the use of information technology at work, since many of them are young people working in junior white collar occupations in modern offices. They are keen to become more expert in the use of new technologies and to use them for new applications. Many spend time browsing the Internet but without necessarily making many transactions.

Many members of this group work in large cities and may be starting a life in a house that they own, typically in one of the cheaper inner suburbs. Their use of the Internet at work may be a practice that their employers may be keen to control or reduce.

Type C10 : E-bookers and communicators

This type is a particularly active user of email, receiving and sending messages both at work and while on the move. The type includes a large number of young, single people, who are particularly interested in the media of communications – they are heavy users of mobile phones but also frequent switchers to and adopters of new mobile technologies. Although ownership rates of personal computers are only average, many individuals use computers to order music and fashion on line. Downloading of music is a particularly common activity. But this type does not make use of the latest technical features of information technology and is unlikely to have professional involvement in the IT industry.

Type C11 : Peer group adopters

This type exists on lower income and is younger than its peers in Type C10, and is even more reliant upon email, text messaging and the use of mobiles to participate in peer group activities. Fewer members of this group are employed in the types of job which would allow access to email at work, and many fewer use personal computers to purchase goods on-line. Members of this type are more likely than those in type C10 to have access to cable television and to be able to access information through digital television. Being younger this type is more likely to be living at home with parents than in a shared rented flat.

Group D : E for entertainment and shopping

This group includes a number of moderately well paid blue collar workers for whom the Internet and personal computing provide important leisure activities. This group tends to use the Internet not for obtaining information about products or for learning, but rather to provide access to music, games and general entertainment. People in this group are smart enough to learn new methods of accessing what they want but they are not necessarily interested in technology for its own sake. Besides providing a form of personal relaxation they also see the computer as a resource for family entertainment.

Members of this group are found among areas of cheaper owner occupied housing, particularly in neighbourhoods with high proportions of households with children.

Type D12 : Small time net shoppers

This type comprises many younger and middle aged men who particularly rely upon the Internet to buy music, books and videos. They are also active Internet purchasers of computer games and of fashion wear. This group is happy to undertake a wide variety of transactions on the Internet but tends not to be professionally involved in the development of information technology when at work

Type D13 : E for entertainment

Members of this type are not currently particularly active users of electronic technologies but are very interested in considering the purchase of new or enhanced products, from the range of mobile and personal computer devices. Many access the Internet using broadband and a high proportion purchase computer games. However this type is less interested in using the Internet for shopping, seeing it primarily as a leisure and entertainment medium.

Group E : E-independents

This group tends to take a rational and considered view of electronic communications and technologies. These people are not interested in mobile phones, texting or the Internet as lifestyle accessories; they do not feature as major topics of conversation within the social networks to which they belong and they do not provide a significant focus for leisure activity. However people are reasonably well equipped and use the Internet to search for

information, to buy products and to undertake transactions where there are obvious efficiency benefits.

Type E14 : Rational utilitarians

This type tends to have access to the Internet at home and to use it extensively for shopping for groceries, wines, apparel, books and holidays, and for transacting financial services. Many of these people live in the countryside and beyond the reach of cable television services. These people do not tend to use computers for playing games or as a form of leisure activity. Not being particularly heavy readers of computer magazines, these people treat the computer as a tool rather than as an end in itself.

Type E15 : Committed learners

This type consists of well educated, urban professionals with a high proportion of middle aged females, who use the Internet both for ordering and for information. Many of them have access to email and the Internet at work and consider information technology as a natural method of acquiring information – both as consumers and as emerging professionals. They tend to have access to technology that they are comfortable with and are less concerned than other groups about peer group opinion or the outward visible features of electronic devices.

Type E16 : Light users

This type contains many people who have access to electronic technologies but who are not very heavy users of them. Mostly in late middle age, these

people do not view technology as a leisure activity and are not influenced by fashions or the need to keep up with peer groups. This type, though it does have access to the internet, tends not to use it to purchase games, fashion wear, videos or holidays, preferring to deal with organisations directly. However the type does purchase flowers over the Internet.

Group F : Instrumental E-users

This group tends to use electronic technologies for purely instrumental purposes, because they provide a practical method of saving time or money. They have plenty of other leisure activities that they enjoy and tend to be light television watchers. However they find the Internet useful for purchasing on line and they are smart enough to realise that they can drive better deals when purchasing goods and services if they fore-arm themselves with consumer information. Generally they use the net to undertake transactions and manage their personal finances rather than to explore.

This group contains mostly people in well off, middle class, owner occupied suburbia. Many have children.

Type F17 : Computer magazine readers

This type contains mostly middle aged users of electronic technology. They are people who have access to personal computers and the Internet and are interested in the features and functions of technologies. Many members of this type read magazines and purchase additional software and hardware over the Internet, but they are more oriented to the use of the Internet for personal finance transactions than for purchasing. For example this type

does not purchase children's wear or apparel over the Internet and is a low user of on line grocery shopping services. This type is a good market for Internet banking services.

Type F18 : E for financial management

This type contains mostly young people who work in companies which provide them with access to mobile phones, email and Internet access. It seems that many of these people lead lives which involve substantial amounts of travel between locations. Although competent in the use of electronic technologies they are not heavy purchasers of products through the Internet. However they are very heavy users of on line financial services. Flexibility is an important value for this type who feel the need to keep in constant touch with providers of information relevant to their daily lives.

Type F19 : On-line apparel purchasers

This type consists of well educated young professionals, many of them women, who are confident users of electronic technologies and communications. They use the Internet for purchases across a wide range of product categories, but in particular for children's products and fashion wear. They tend not to use this medium to purchase wines or insurance. Many members of this type look after children at home and do not have access to electronic technologies at work. They are not particularly interested in computer magazines.

Type F20 : E-exploring for fun

This type really enjoys the use of the computer to purchase products and services, making very high levels of on-line purchasing in virtually every product category – including traditional male purchases such as wines and insurance, computer games, videos and software, and traditional female purchases such as apparel and children's products. This type also likes to use the computer for personal banking services, but is not especially likely to be interested in cable television or mobile telephony. The majority are men, many of whom are in their thirties.

Group G : E-business users

This group includes many people who use electronic technologies in order to run their business. These may be people working in a technology related business or in a small business which needs to keep in electronic contact with its suppliers or its customers. Many of this group are self employed and make relatively little use of the technology as a leisure activity.

The group is well represented in upper income neighbourhoods attracting older professionals as well as in the countryside.

Type G21: Electronic orderers

This type is very likely to have a computer connection at home, but is likely to make only light use of it. Few members of this group have access to email and the Internet at work but not at home. Many of this type own small businesses, and work and live outside London. Many are also farmers or

proprietors of small establishments, who use technology to manage the administration of their businesses. The majority are male.

Group H : E- experts

Members of this group have every confidence in their abilities to undertake on-line transactions and to make full use of electronic technologies. These are the types of people who are able to make use of personalisation and configuration options. They enjoy exploring the features in electronic menus and will navigate them in an efficient manner. They prefer on line to inter-personal sources of information and make use of the Internet as an information source for obtaining best value for money. These people are heavy email users. Many of them are involved in the development of information technology applications at work, and see leisure time spent on electronic technologies as enhancing their human capital. Many recent graduates belong to this group.

This group is particularly concentrated in large cities and in the South East of England.

Type H22 : E-committed

This type finds it easy to acquire and master new technologies. The use of electronic technologies fits comfortably with the lifestyle which these people enjoy, which has a modern edge to it. These people rely on the Internet for information, though to a slightly lesser extent than those in type H23, and are active purchasers of goods and services over the Internet. Many of these people live in rented flats or are first time buyers on modern estates, have

mortgages and children and feel the need to be familiar with information technology in order to advance their careers.

Type H23 : E - professionals

This type views the Internet and associated technologies as an indispensable basis of living. They use the Internet and new technologies in their professional lives, are constantly transferring numeric data as well as text messages, and are confident electronic orderers of specialist merchandise such as books and music. They are mostly young people, in and out of the office, who know how to access emails from locations other than their work and home. Young and well educated, a high proportion are students and single graduates, many of whom work in the new professions.

Appendix H

Schedule of Work

The schedule of work has been liable to change as circumstances and directions altered. The breakdown of tasks has been as follows:

- Background reading (June 2006 – June 2008)
- Literature review (June 2006 – September 2006)
- Defining and selecting methods and methodologies (June 2006 – November 2006)
- Ethical clearances (September 2006)
- Planning (September 2006 – February 2007)
- Thinking time (February 2007 – June 2007)

- Writing introduction (August 2007 – September 2007)
- Writing theoretical framework (September 2007 – October 2007)
- Writing methodology (December 2007 – January 2008)
- Framing questionnaires (November 2007)
- Fieldwork (January 2007 – March 2007)
- Collecting data logs (April 2007)
- Analysis (April 2007 – September 2007)
- Writing up of findings (September 2007- April 2008)
- Writing of conclusion (May 2008)
- Proof reading (June 2008)
- Checking of references (July 2008)
- Final redrafting (August 2008)
- Submission (September 2008)

Appendix I

Tools

Partly because of the subject of the research but mainly due to the nature of the methodology, I have employed a number of ICT and internet-based tools. Specifically I have used the following applications:

- *Weft ©*: Weft © is a qualitative data analysis tool and is used for preliminary analysis of survey data
- *Websense ©*: Websense © is filtering and caching software installed in all our schools and academies and is used for collective general and specific, anonymised data on internet usage by students

- *Zoomerang ©:* Zoomerang © is a web-based survey tool and was used for constructing and delivering the survey and collecting the qualitative and quantitative data
- *Microsoft Word* ©: Word © is a word processing program and was used for composing the thesis and notes
- *EndNote* ©: EndNote © is a referencing tool and was used for managing quotations and resources and for accurately citing and compiling a reference list
- *Microsoft Excel* ©: Excel © is a spreadsheet program and was used for initial aggregation of Zoomerang © data and some analysis.
- *Microsoft Project* ©: Project © is a project management tool and was used for scheduling, managing time and resources
- *Adobe Photoshop Elements* ©: Photoshop © is a graphics manipulation program and was used for manipulating images such as computer screen shots
- *Microsoft Outlook* ©: Outlook © is an email program and was used for electronic communication where anonymity is not required
- *Microsoft internet Explorer* ©: internet Explorer © is a web browser and was used for research and also for delivering surveys composed using Zoomerang ©
- *Microsoft Visio* ©: Visio © is a design package with an excellent mind-mapping facility. This was used for creative planning and more specifically for linking conceptually together theorists, ideas and research methodologies as well as other components of the thesis.

The most important tool however, was the internet itself, especially Web 2.0 collaborative social networking software. Research is a collaborative process and as Small says "the use of tools like social software adds to the argument that we need to de-stigmatise and legitimise collaboration, changing what we value and assess" (Small, 2006, p. 8)

Appendix J

Sample Complete Interview transcription

Interviewer: The first question that I'm going to ask you is what are the best things about the internet?

Students: Erm, I like about the internet is you can do research stuff and…for your homework and….you can go on MSN chatting your friends and also you can make websites that, erm and I've made a website with my friends on Pixel and I always go on that 'cos I think it's really cool. I also like MSN because I can chat with my friends but you've still got to be very cautious about it and I also use Google quite a lot to do school projects. I use the internet for researching and, erm, making my own websites and stuff and you can like find out like if you want to make something you can find out on the internet. I like the internet because of all the games like World of Warcraft and Roomscape and the things you can download…… Yeah…I'm pretty much the same as James except I don't play on World of Warcraft; I play a lot more on Moonscape. Hmmm, Same with me probably except, erm I don't play on either World of Warcraft or Moonscape. I would like to play on World of Warcraft but I don't have the money to at the minute 'cos it's quite expensive, so I usually play free online games.

Interviewer: Free online games, OK, that's lovely. So our second question that we're going to look at now, I'm going to ask you about things that you **don't** like about the internet. So would you like to start with this one….

Students: Erm, the things that I don't like is probably the wrong websites that are not meant to be on, like the children are not meant to….erm, you can block them but like, I don't think they should have them on in the first place. And there's chat boxes which once I tried I didn't know what it was and people just started swearing at me so I think….I…that's the thing that I didn't like about it.

Interviewer: Ok, who's got something else to say about this one?

Students: Erm, I'm just about the same as Anita really…the…

Interviewer: So you're frightened (yeah) of things that, yup, ok…who else would like to say something they don't like about…

Students: I don't really like it how when you go on a website which you really like but every time you go on it you find that you've got a virus on your computer or something and also that….when you find….when you go on it and then you get these unwanted pop-up messages that come up saying you've won…you are our millionth customeeeeeeer [American accent]

Interviewer: Do you believe them?

Students: No (laughs), they're liars! If you click on them, they're just probably send spam onto your computer. Yeah, I've tried one of them before and I clicked 'Yeah' and it said 'You've won it!' and then I pressed 'X' because there's another one and then I pressed 'no' on that and it said you've won again- so it was a bit of a……set-up….

Interviewer: Is there anything that anyone else doesn't like about the Internet?

Students: Er, I don't like it because I think it can be sometimes a bit unsafe and inappropriate some things that are on the Internet. Yeah I once typed in, erm, Spanish food and it came up with a really rude, erm, photo

Interviewer: Oh right, OK, and you don't like it when it does that?

Students: No, it's horrible 'cos it just pops up with these really rude photos. Also, with MSN, erm, sometimes you've got to be very careful. I know some people they just add people they don't know who they are – erm, friends of their cousins or something but I still think it's a bad idea and I think they should be, there should be a bit more protection on it no matter how careful anyone is.

Interviewer: OK, anybody got anything else to add?

Students: Internet chat rooms are a bit unsafe 'cos you don't know who you're talking to – probably like they could be in New Zealand or something……. Yeah and also you can like….if you're talking to a person who you think's your friend and they act all friendly and everything in a chat room, but you don't know who they are and for all you know they could be a murderer and they might want to know where you live so that they could come and… attack you…. What I usually do if I find someone's behaving strangely on MSN I'll ask them a question that only they would know….or that I'd talked to them about …..and once I think the other night, erm, Luckily I didn't see anything significant but erm, someone I think hacked into my friend's MSN account and was talking to me and I thought they were acting strange but sometimes they do so….

Interviewer: OK….

Students: So I was still very careful, erm, so I ask my friends nearly all the time something that if they haven't been on for a while, mostly….if…..like a personal question that they'll only know…

Interviewer: OK , When you're using the Internet at school, do you feel safe using it?

Students: Erm….yeah….it feels safe but the thing is the Websense can be annoying because there are some perfectly friendly websites which I've been on before which it blocks…

Interviewer: Like, have you got any examples?

Students: Well….like….erm….let's think….er….I'm trying to remember one now….I've, oh yeah, it's a website called Cow online, which is…it's just basically about Warhammer which is these little models that you collect and, erm, I've been on it before and it's perfectly fine but it blocked at school.

Interviewer: OK, do you feel safe on the Internet at school?

Yeah I do, but Websense is really annoying cos things like Youtube and Google as long as you don't search up anything rude, they are absolutely fine. I think the internet is safe but Websense is really annoying 'cos we were searching for paint-balling costs we were doing this thing on paint-balling in ICT but it wouldn't allow us onto any of the sites 'cos it was about guns and things.

Interviewer: OK

Students: I just think the same as everyone else really.

Interviewer: OK

Students: I think it's OK it is good if it they have got a block 'cos there might be something bad on it but then again it is annoying like everyone else said 'cos you can't go on your favourite websites.

Interviewer: OK

Students: I feel very safe with them especially in case anything rude came up that you couldn't get rid of, the teachers are there to help and its, I feel a lot safer than I do with my computer at home even though I do feel safe with that.

Interviewer: OK – That actually leads us into our next question, let's just carry on with that. I was going to ask you how safe you feel with internet use at home

Students: I feel quite safe most of the time, the most annoying thing I find at home is when one of those little pop up messages comes up and says that you have won the free…

Interviewer: Does that frighten you though, does it actually make you feel unsafe or is it just annoying?

Students: Well… it can make me feel unsafe 'cos every time one pops up I get worried that it might be sending some virus onto my computer erm I have got a firewall for that but the main thing they send if anything is spyware

and I've always been worried about spyware because you can't tell if it comes on your computer because you can pick it up by just going on a website and basically because of the name as you might imagine, it spies on what you are doing on your computer and it allows more pop up messages to come up and it allows viruses to come on and it can break a hole in your firewall and so I always get worried about that.

Interviewer: OK – You carry on.

Students: Erm… I feel pretty safe but pop ups are a bit annoying like Cameron says, you can get viruses and that.

Interviewer: Yes, OK. Has anyone got anything different to say on this one?

Students: Yes well… I do have something different to say even though I agree with them. Sometimes on my internet for a while we had to change the password on our internet because sometimes in the voice that normally greets you onto the AOL site when you log on with your user, it sometimes when you were half way through using it, it would say you've got company. I used to get frightened at that and I would just log off the whole computer. It hasn't happened since we changed the password so… but when that happened I was a bit scared and I told my Dad and he got onto it. I think I do get sometimes quite worried on the computer, this is to do with pop up messages again, occasionally they say something on them and it can be something kind of freaky like erm… look out it is coming or something like that and that really scares me because I am like what…. Where did that come from. Well… I feel completely safe at home because my Dad has carefully blocked the ones that I shouldn't go on and the scary stuff that I should be worried about and that so I am completely safe. Well, sometimes once I was on the internet and I just clicked on what looked like a completely harmless page on Google and in brought up a very rude advert for something and I was a bit frightened by that and I tried to click off it but I couldn't until I exited AOL. Do you remember that time when you turned on the computer and you hadn't got the anti-virus software on? And you went on the internet and instead of the usual starting website this really rude thing popped up and you tried to press X on it, it popped up again and it kept popping up all the time and when you tried to shut it down it wouldn't let you? I had to turn off the power.

Interviewer: OK Yes, One more comment then.

Students: Erm… When I first started my computer, you have to be very careful because if you go on the internet when you first start before you have set up firewalls and things, viruses just start pouring in and I had about 26 viruses and one of them just automatically shut down my computer every 12 seconds.

Interviewer: Yes, that can be very annoying can't it? OK, next question, How did you first learn to use the internet?

Students: Well I first learned to use the internet slightly when I was at school for a while we would just occasionally go on and use some games on the internet like Countdown I think it was called and it was to help with maths and angles and things.

Interviewer: And how old were you when you were doing that?

Students: Erm…Maybe about eight, and there were very fun games on it but you had to use some of your knowledge to use it and we started learning how to use these things at school and when I finally got a computer in my house, I have now got one in my room, I now use it all the time.

Interviewer: Ok, that's good. Shall we ask someone else? So how did you first learn to use the internet?

Students: Erm… well, It was at school in year 3, I started using Microsoft and then I didn't go on the internet much though because I was only in year 3 and then once I was at home with my cousin and she taught me how to and I asked how to use MSN and talk to your friends and how to add people and from that day on I kind of learned and I found out more and more each day.

Interviewer: Lovely, ok yes

Students: I first learned to use the basics of the internet at school and then my brother and my Mum started teaching me how to use it.. just like favourites and things

Interviewer: And how long ago was that?

Students: Five years or so.

Interviewer: So you have been using it for quite a long time?

Students: Yeah, but I didn't use to go on it that much.

Interviewer: OK

Students: I probably first learned about the internet erm… quite a few years ago 'cos my Dad is obsessed with the computer and so I knew about how to use the internet for quite a long time but I never really realised how big the internet really is um until a couple of years ago 'cos I always thought there were only a couple of sites on it but there is actually millions.

Interviewer: OK

Students: I first learned to use the internet when I was about the same age as Mathew 'cos my mum bought some internet games that you download onto the computer and then you play on the internet and then I played on them but then my computer stopped working when I was about eight.

Interviewer: OK

Students: When I was about seven or six or something my Mum and Dad started teaching me about the internet and how to use it and stuff and told me not to go on stuff that I shouldn't.

Interviewer: Ok, so you mainly learnt at home. Thank you. Ok – The next question, I want to know if you think that most of what you see on the internet is true.

Students: Well, it really depends on what site you go on because some sites might not have true things on and if you click on something you might end up with about a million viruses.

Interviewer: OK

Students: I think quite a few things on the internet can be true but there are also lots which aren't like on websites where they abuse Tony Blair and things that make up loads of stuff about him. Wikipedia is a good example because they had loads of people who go around the website searching to find any details that are wrong and they correct them but the thing is um it's a free website where you can go on and just edit it so um people just go on and make stuff up but they normally edit it back to normal in a couple of days.

Interviewer: OK

Students: I found something with Wikipedia as well because I was researching something and got marked down for it because it was wrong and I searched for it on a couple of sites and they had different things on and I thought Wikipedia was quite a good one so I went with the Wikipedia thing so…

Interviewer: So are you deciding all the time whether you think things are true or not true when you are looking at the internet?

Students: Yeah, also another thing about the internet and Wikipedia, they when I think it was President Bush, when he had been edited so many times that they had to lock his page so that no one could get on without a password.

Interviewer: Ok

Students: Well I think it is, what I go on is, there is no much that lying or there is quite a lot of truth in the websites that I go on I think but it is bound to be half and half cost there is bound to be thousands and thousands of websites that just make things up and I have been on a website trying to research something for ICT once and it came up with completely the wrong answer and I think that was Wikipedia as well but I always thought that was quite a good website but until what I have heard recently, I have stopped using it.

Interviewer: Ok, Do you think most of what you find on the internet is true?

Students: Um, well most of them probably but there is so many websites that like half of them are probably untrue and half of them are true so you can't really decide it is just the internet that you find…

Interviewer: Ok

Students: Well I think that same as Anita, but if you are making your own website you can just write anything, you can write whatever you want.

Interviewer: Would you ever do that?

Students: No, not really.

Interviewer: Ok. Some of you have already mentioned this a little bit but I want to know how you know whether something on the internet is true or not true, how do you make those decisions?

Students: Well, you generally can't tell that much but when I have to decide it is usually if there is a completely unethical answer for a question or something on Ask Jeeves or Wikipedia and you have to decide whether it seems a sensible answer. Sometimes, I researched Julius Caesar not too long ago and it said about that, he was divorced and I didn't know whether that was true or not 'cos I didn't know if such a thing was occurring then, I didn't know that he ever had two wives so I am not sure if it was true or not so I decided to discard that.

Interviewer: Ok

Students: Um, well, I know if things are true or untrue because our teachers they have got, I think books are better than the internet because you can find information faster and so, my teacher once got some information out of a book and when you go onto the internet and look on it some of the things are totally wrong so that is how I find out.

Interviewer: Ok.

Students: I don't think there is any particular way you can be sure what is true and what's not but there is, you can go on one website and see what it says on there and then go on two websites and see what they say on those to and you can decide then which answer occurs the most often. That is the one I would go with.

Interviewer: OK. Does anyone else have any methods for checking whether things are true or not that they have seen on line?

Students: Well, I usually check by similar means as Cameron, occasionally I will just check a couple of websites and if they are both the same I will go with them and if they are both different then I will search quite a few more websites to make sure that I get the correct information.

Interviewer: Ok, any other comments on this one? This question is about why do you think that most people of your age use the internet? Would you like to start?

Students: I think most people of my age use the internet because mostly for homework and MSN messenger and the games because children of my age love games and I have got quite a few friends my age as well and they have got MSN and I always talk to them, same as my cousins.

Interviewer: Ok.

Students: Well, I use, I think I use the internet most of the boys use it for games and also for research but I think that the girls would use it less for games and maybe more for chatting but some of the boys use things like MSN as well.

Interviewer: Thank you.

Students: Well, sorry what was the question again?

Interviewer: The question was why do you think that most people of your age use the internet?

Students: Oh yes, well I would say, like I said in I think it was the first question, I think most of the boys use the games and things. Sometimes I, I had this a while ago, I just could not decide on what I wanted to go on right, so I had this thing which my Dad got called 'stumble'.

Interviewer: Ok.

Students: It just stumbles you on to a random website and that is what I sometimes do if I am stuck on what to do.

Interviewer: Ok, did you want to say something as well about why do you think people of your age use the internet?

Students: Well because of lots of the games and lots of the sites and things they can look at and some of the funny videos on like Google or Youtube.

Interviewer: Ok lovely, thank you. In this question I would like to ask, how do you describe the internet?

Students: Um, I would describe the internet as well, basically just a source of information and fun basically so you can do whatever you want.

Interviewer: Ok.

Students: Well, I agree but I think that it could be used for enrichment if you are bored or different things and it can be also good as a learning tool.

Interviewer: Ok. How would you describe the internet?

Students: Um well, I would probably describe the internet as one of its' other names which is the web, I would describe it as kind of like a web because it is very large and has lots of different sections to it and it's complicated as well which is like a spider's web so I would probably describe it like that.

Interviewer: Ok. How would you describe the internet?

Students: I would describe it as a very, very big thing. You can go on loads of stuff, it would be impossible to count all the websites and all the things on it.

Interviewer: Ok. You say it is a very big thing, is it a physical thing or…

Students: Well, 'thing' as in like so much information you can't even count it.

Interviewer: Ok.

Students: I agree with Nita and Matthew as well, there is really, really big but sometimes it is safe and sometimes it's not.

Interviewer: Ok. Any more comments on that? Right, the next question is what do you think the internet will mean to you in your future?

Students: I think it depends what job you get as in like, if you were a computer technician you might use the internet a lot more than someone who plays sports like a rugby player or a football player. Well I think it could be a lot of use for people who will be involved in game making or in university.

Interviewer: What about for you in your future though?

Students: Well, I am not sure because I am planning on being a zoologist or a writer so I don't think it would be that much unless I want to research different animals but you can't really tell that much about animals unless you actually experience time with them.

Interviewer: Ok. Yes.

Students: Well, this may sound a bit too futuristic but I think that in the future computers might be used for a lot more than they are today 'cos you could actually maybe use them for exercise 'cos , an idea just popped into my head where you could have a virtual headset yeah and you have a treadmill and every time you walk in the virtual world it works on the treadmill so you could use it for exercising and things like that and you could probably use it, I think I would probably like to be a computer programmer when I am older so I would like to use it for learning how to do that.

Interviewer: Ok.

Students: Well, for me the computer in the future….

Interviewer: Specifically, we are looking at the internet. How do you see the internet being a part of your future?

Students: Well, it I am planning on being an actress, I am very good at drama and I love acting and a little bit of singing as well and I think with me I could put websites on it about me if I am famous so…

Interviewer: So you would use it for publicity?

Students: Yes, I would like other people looking a websites like that about me.

Interviewer: Ok.

Students: Um, I haven't a clue what I want to be in the future or anything so I just don't know.

Interviewer: Ok. Do you think the internet will be a part of your future in some way though?

Students: Yeah, I am not sure how.

Interviewer: You're not sure how, Ok. Ok, so this question is how you think the internet will change in the future.

Students: Well, you can't say exactly for sure but it will probably become very futuristic compared to what we have got today. Um, I think on the screen instead of using a mouse you can touch it with your fingers or you could get these special gloves and start touching it and with your mind well you can get this control maybe and if you were in the kitchen doing something and you wanted to turn the computer on you could just press this button on the remote for the computer. That would be really cool.

Interviewer: Ok, yes.

Students: I think on the internet that there will be much more information and programmes and stuff and you can do more with music than you can at the moment.

Interviewer: Ok yes.

Students: Um, as I already said I think you could probably have virtual reality in all the internet games and things compared to what they are today and everything will be much better graphics and stuff.

Interviewer: Ok, yes.

Students: I think that there will be a lot better games and the games will have a lot better graphics and that.

Interviewer: What is the most interesting thing that you have either done or discovered on the internet?

Students: Well it is probably, I think the most interesting thing is when I discovered MSN because when I first got it I had no clue how to use it and I think it is very interesting.

Interviewer: Why is it interesting?

Students: Because when I was younger I couldn't ever dream of being able to chat to your friends and didn't know of anything like MSN and even

though it has been on for a while, I only discovered it quite a small space of time ago.

Interviewer: Ok.

Students: I would also go for MSN 'cos I think it is absolutely brilliant. You can talk to your cousins who are across the world. I have a cousin who is in Australia and I never get to see him but you can get web cams and you can actually see the person that you are talking to and you can get video calls, you can talk to the people. It is very, very interesting I think, it is about the best thing about the internet.

Interviewer: Ok, yes

Students: I agree with Amy and Anita about MSN 'cos it is really interesting with the web cams and everything.

Interviewer: Lovely, yes

Students: And the pictures get sent in such a short space of time.

Interviewer: Ok, yes good point

Students: I think it is like all the plug-ins and everything that you can put in for the internet, like you can plug in a camera and stuff and start recording yourself and like the web cams and things and you can send emails and stuff like that.

Interviewer: Lovely

Students: Yeah I would agree with James on that.

Interviewer: Ok.

Students: Um, probably the most interesting thing I have found on the internet is when I discovered um, I have forgotten it now…

Interviewer: What does it do?

Students: It is an on line game except it was, all I remember is, I think it was called Sherwoodforest.com and there was a really quite strange thing 'cos there was a game called Sherwood, Sherwood something or other and you had to run around on this small island doing stuff.

Interviewer: Ok.

Students: But the thing was it was only a really small area which hardly anyone went on and now they have upgraded it so it has got loads of different levels on it and things.

Interviewer: OK.. What is the most fun thing that you have found on the internet?

Students: Um, well the most fun thing I have found is… Can you come back?

Interviewer: I will come back to you, ok.

Students: Um… the most fun thing I have found is Ruinsgate cos one of my friends told me about it and I have been on it since Summer 2006 and I have just kept going.

Interviewer: Can you tell me that name of that again? Ruinsgate? Ok thank you.

Students: Um….. the most fun thing that I have found is all the game sites, there is so many and the main ones are just like funny games.

Interviewer: Ok.

Students: Um, the games and MSN and making websites and stuff.

Interviewer: Ok.

Students: I would say games although I don't play on them much but I still find them quite fun and my brother enjoys them as well. Well, I like games but the most fun game I have ever played on is one that you can only go on daily cos you can't do anything to it. It is Raw on-line game and is taken from a programme but it is quite a kiddy thing but I still find it quite fun.

Interviewer: Ok, what was the name of that again?

Students: Raw

Interviewer: Raw, thank you

Students: Erm, probably the most fun thing I found on the internet was World of Warcraft which as I say, I don't have enough money for it at the minute but I played on it at Craig's house and I found that really fun.

Interviewer: So the next question is about what the most useful thing is that you have found on the internet. Do you want to start with that one for me?

Students: Well, I thing that it is probably the search engines and I most like Google because it can lead you onto loads of other search engines that I have never heard of so that probably is one of the most useful things I have come across on the internet. Um, could you repeat the question for me?

Interviewer: Yes, the question is what is the most useful thing is that you have found on the internet?

Students: The useful thing is Google because all my homework for example for biology I had to get ten famous scientists and I went on there and it was really simple so I think Google is the best thing 'cos you can find pictures and images and anything you want so that is probably the best thing that I have discovered.

Interviewer: Ok.

Students: I think it would be Google for me 'cos practically anything I think of you can search about it. Probably all the search engines, I use Google and all the others.

Interviewer: Ok. Can you name any others?

Students: Um like Ask and Answers.com and things like that.

Interviewer: Ok, yes

Students: Um so far probably the most useful thing I have found is probably Wikipedia cos I use it a lot on homework.

Interviewer: Ok. Yeah.

Students: As nearly everyone else has said, probably Google because that's the thing I have been using since I was about eight and it has been really useful for me.

Interviewer: Ok, yes…. Back over here.

Students: Well I just want to disagree about Wikipedia because of how misleading it can sometimes be, um so I am not too sure about that and I don't really like Ask either because sometimes it gives you very complicated answers and it won't give you a straight answer like Google sometimes will.

Interviewer: Ok. Have we got one more point there?

Students: Um No

Interviewer: No? Ok thanks. Ok, the final question that I have got for you today is How does the internet effect the way that you learn? Who would like to start with that one? Ok.

Students: The internet for me effects the way I learn because I use it a lot for projects, like in my history project quite a lot of it I got off the internet but to so it wasn't it a lot for projects, like in my history project quite a lot of it I got off the internet but to so it wasn't just the same as copying and pasting, I got bits of it off of different websites.

Interviewer: Ok. You weren't just taking someone else's work, you were actually looking at it and taking different bits of it. OK.

Students: Urm, well I think it is very good 'cos I learnt how to do some counting skills off the internet and I use it quite of for projects as Cameron said so I think it has helped my learning quite a lot.

Interviewer: Ok. Yes

Students: Urm, I think it might affect you because the things that are good you might think it is really good, but it is actually really bad and you might tell your friends and it might affect you from learning, I am not really sure of examples. Otherwise it is quite good and it hasn't affected me in any way and that is about it really. I think the internet is really useful for your learning

'cos it makes it more interesting but like Amy said, sometimes Wikipedia can mislead you.

Interviewer: Ok.

Students: Sometimes it can be worse really because you could get addicted to a game instead of doing a project or something you play on the game. Um, I agree with Jamie. You can get addicted to games and it can get a bit distracted.

Interviewer: Do you think your games can sometimes help your learning?

Students: Well it depends on whether it is an educational game or not.

Interviewer: So you don't think you learn something through some of the games that you're playing?

No, not really.

Interviewer: Not really. Ok.

Students: I actually agree because sometimes if you are bored with your homework and you are doing something on the internet, you might be drawn into going on a game and the game that I play on, I sometimes get distracted away from my homework since you only can go on it once a day and so I just go on it as soon as I get home so then I am not wanting to go on it during my homework.

Interviewer: Ok. Has anyone else got anything to add about how the internet affects their learning? Right, well thank you very much for your time today.

Appendix K

Glossary

The vocabulary of the internet is perpetually shifting, with new words entering the lexicon and existing words mutating in what is an unsettled area. To help the reader understand my usage of certain words, I provide the following short glossary for internet-related phrases I have used in this thesis. Definitions have been based upon those found at www.wiktionary.org. I am also mindful of the deferred meaning of words (Derrida, 1978) and the elusiveness of their meaning.

Blog: A personal website in the form of an online journal, with new entries appearing in sequence as they are written, especially as dealing with reflections or opinion, and typically incorporating links to other sites.

Broadband-: An internet connection with a much larger capacity than dial-up or ISDN.

Browser: software A software component capable of rendering HTML pages and allowing for navigation of HTML links, for example on the Internet.

Email: electronic communication between users of computer networks.

Hypertext: Text, in a form readable by a web browser, in which the reader may navigate from one passage to another by clicking on hyperlinks within the text.

Instant messaging: a means of realtime communication between two or more people, by use of sending messages across the Internet

Internet: The specific internet consisting of the global network of computers.

Netiquette: Conduct while online that is appropriate and courteous to other Internet users.

Podcasting: The distribution of multimedia files over the Internet for playback on a mobile device, often in MP3 format.

Protocol: A set of formal rules describing how to transmit data, especially across a network.World-Wide Web: the aggregated resources that can be accessed on the internet using tools such as browsers and search engines

Search engine: an application that searches for, and retrieves, data based on some criteria, especially one that searches the Internet for documents containing specified words

Social networking: The interaction between a group of people who share a common interest

TCP/IP: Transmission Control Protocol/Internet Protocol. This is the standard now widely in use for computers to communicate on networks, especially the internet.

Web 2.0: The second generation of the World Wide Web, especially the movement away from static webpages to dynamic and shareable content.

Wiki: A collaborative website which can be directly edited by anyone with access to it.

World-Wide Web: An information space on the Internet in which the items of interest, referred to as resources, are identified by global identifiers called uniform resource identifiers.