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Inequalities and the Digital Divide in Children and Young People's Internet Use

Findings from the *UK Children Go Online* project

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A research report from the *UK Children Go Online* project
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Executive summary

Considerable academic and policy attention has recently addressed the so-called 'digital divide' in the UK and elsewhere. Yet very little research has addressed children and young people in relation to the digital divide.

This report examines the extent and source of any inequalities in internet access and use among 9-19 year olds in the UK. Drawing on data from the 'UK Children Go Online' project, we ask:

- Is there is digital divide among children and young people? If so, does it parallel or differ from the divide among the adult population? And among parents?
- How do differences in internet access and use relate to age, gender, socio-economic status and ethnicity? Are there other barriers and enablers of use?
- Are some children left out, on the wrong side of the digital divide? Does it matter that some use the internet much more than others? Is this a matter of individual choice?

Findings

The vast majority of children and young people have access to the internet. Talk of a binary divide between haves and have-nots, or users and nonusers, applies much less to them than to the adult population:

- Three quarters (75%) have accessed the internet from a computer at home. School access is near universal (92%). Access platforms are diversifying. Most 9-19 year olds (84%) are daily or weekly users of the internet.
- Only 3% of UK 9-19 year olds have never used the internet, a similar figure to that found in the EU and USA.
- Their parents are also more likely to be internet users than the UK average for adults: 78% of parents of 9-17 year olds are internet users, with 39% using it daily, 21% weekly. However, 17% use it less often, and 22% are non-users.

In what follows, this report divides the population of 9-19 year olds into non-users, occasional users, weekly users and daily users in order to look beyond a binary divide of haves and have-nots towards a continuum of internet access and use.

Age

- The relation between access and age is not linear. The oldest and youngest age groups have lower levels of internet access and use than the 12-17 year olds. This is not just because access varies: age differences in frequency of use persist when comparing just those with home access.
- Non-users are found more among the oldest and youngest age groups: 8% of the 18-19 year olds say they don't use the internet, compared with just 1% of 12-15 year olds and 2% of 16-17 year olds; 4% of 9-11 year olds are also non-users.
- Weekly users take up fewer opportunities than daily users across the age range and across most categories of online opportunities. Differences between daily and weekly users are greater for 12-17 year olds.

Gender

- There are few gender differences in access to the internet. However, given access, it seems that boys are a little more likely to use the internet and to use it for longer.
- More subtle gender differences occur in the kinds of opportunities taken up by girls and boys on the internet (i.e. the sites they visit, the activities they pursue) and in relation to online skills and online risks.
- For girls, the difference between daily and weekly users is most evident in how many visit civic websites (more common among daily users). On the other hand, for boys, the difference between daily and weekly users shows up most in their take up of peer-to-peer opportunities.

Socio-economic status

- Middle class children and young people are more likely to have access to the internet at home. They also benefit from higher quality access on a range of indicators, compared with those from working class backgrounds.
- Children and young people from more advantaged homes are more likely to use the internet and to use it more often and for longer. Moreover, middle class children have more years of online experience, are more skilled at using the internet, have higher levels of self-efficacy and, most importantly, they take up more of the range of online opportunities on offer.

- Providing internet access at home seems to equalise the amount of internet use between middle class and working class children, though middle class children retain the advantage in terms of their range and quality of internet use, partly because their parents are also more expert in using the internet.
- The differences in quality of use between daily and weekly users are greater for middle class children, especially for take up of interactive and civic opportunities.

Other potential sources of inequality

- There are considerable differences in access and use by region across the UK. Living in a more or less deprived area also has implications for children's access to the internet.
- However, there are few significant differences between the different ethnic groups in their access and use of the internet. Disability is associated with lower levels of internet access, but not perhaps use, at home.

Who does not use the internet?

- 'Voluntary drop-outs' have internet access somewhere and used to use the internet but have now stopped. These are older (average age 16.3) and more likely middle class.
- 'Involuntary drop-outs' lack internet access at home, used to use the internet and have stopped using it. These are more often in their mid-teens (average age 14.6), more often middle class and more likely to be boys.
- 'Potential users' have internet access but have never used the internet. Younger than the other non-users (average age 13.0), they tend to be working class girls or boys.
- 'Internet excluded' have no internet access at home and have never used the internet. These are young teens (average age 13.4) and tend to be working class.

Who uses the internet occasionally?

- 'Voluntary drop-outs' have access to the internet, used to use the internet more but now use it less often. These are older teens (average age 14.3), more often middle class and more likely to be girls.
- 'Involuntary drop-outs' have no internet access anywhere and used to use the internet more frequently. The oldest group of infrequent users (average age 15.2), they are more often working class boys or girls.
- 'Potential users' have internet access somewhere but have never used the internet more often. These are the youngest group (average age 12.1) and are more often middle class boys.
- 'Internet excluded' have no internet access and have never used the internet more. Young teens (average age 12.7), they are more often working class girls or boys.

Why are some low or non-users?

- Lack of access is the most important reason that prevents children and young people from using the internet (more), with lack of interest also important for teens while, for the youngest group, safety issues and lack of time are also important.
- Parents are more likely to explain their own low or non-use of the internet in terms of lack of interest or lack of internet literacy.
- When asked what they would do online if they used the internet (more), the 9-11 year olds would play more games and do creative activities as well as school work; and teens would use it for both school work/exam revision and also for games/downloading. However, 18-19 year olds (who, like the 9-11 year olds, contain the most low or non-users) see the internet mainly as an entertainment medium and would use it for downloading music and email.

Contextualising internet use

- Age, gender and socio-economic status all influence the quality of children and young people's access and use of the internet. Although few lack access altogether, there are wide variations in the quality of internet access and use.
- In addressing inequalities among children and young people, the idea of a divide is less useful than the idea of a continuum from hesitant, narrow or unskilled use to diverse, confident and skilled use of the internet.
- A key enabler of children's internet use is their parents' use, perhaps because this affects the culture of the household and the expectations held of children or because these parents can, more practically, help their child get online.
- Parents with high internet self-efficacy are more likely to have children who use the

internet, as are parents who think the internet is beneficial. More generally, positive parental attitudes to the media seem to encourage internet use, though high users may occasion parental concerns about playing computer games.

- Since age is a key factor, even more than gender and socio-economic background, in explaining differences in internet use, one must be careful about discussing 'children and young people' as a whole or when contrasting 'children' with adults.
- Far from the internet displacing other media, it seems that those who spend longer per day on the internet also spend more time playing computer games, on the phone and doing homework. Occasional users spend more time watching television. Intriguingly, there are no differences for reading or spending time with the family by amount of internet use.

Priorities for future research

- **Keep up with technological and market developments in relation to access:** Research on access and inequalities must keep pace with technological and market developments. How are patterns of access to the internet changing, and what difference does it make that young people can access the internet in different ways and from different locations, including mobile devices?
- **Track shifting and diversifying contexts of use, including the institutional and social influences on children's internet use:** For example, do uses at home affect or undermine educational uses, and are educational uses increasing pressure on parents? How does the peer group act to promote or critique commercial contents? Are community locations of use important to young people and, if so, how should these be evaluated? Particularly, can internet access help compensate for disadvantages in the home, school or community?
- **Critically examine causes and consequences of exclusion:** Although most children and young people are now internet users, a few are not, a few drop out, and a sizeable minority use the internet only occasionally. What are the causes and consequences, and how are the trends changing? What does their avowed 'lack of interest' mean? Will non or low access continue to be socio-economically stratified? Targeted research is needed to examine minority groups in more depth – by ethnicity, disability, and so forth.

Policy recommendations

- **Address the changing conditions of digital exclusion:** Despite basic internet access becoming more widespread, a few children remain digitally excluded, and rather more use the internet only occasionally. More efforts are required especially for those who rely on the school for access to ensure that they can take up the range of online opportunities. The extent to which schools and parents act to restrict rather than enable children's internet use for safety reasons must be balanced against the opportunities thereby reduced.
- **Inequalities are likely to continue, even grow:** As mobile devices become internet-enabled, and as broadband spreads, the complexity of 'access' will increase. This is likely to exacerbate inequalities in access across diverse groups, given the different financial and cultural resources among parents, and this has consequences for the quality of use. Targeting online resources to the disadvantaged remains a priority, as does identifying new routes to draw in those who are currently digitally excluded.
- **Recognise, and seek to redress, variation in quality of use among users:** Even among frequent users, many make narrow use of the internet, therefore not benefiting from the many online opportunities. Since age, gender and socio-economic status are all associated with a narrower range of uses, even when access is provided, initiatives are required to improve equality in the range and breadth of take up of online opportunities, especially among working class children. Parents have been identified in this report as key enablers (or, barriers) to the quality of their children's use. The blanket label of 'online experts' gives children confidence but may deny them the attention and guidance that could benefit them.
- **Recognise the complexity of 'access' when designing information and advice campaigns:** As children and young people access the internet in different places, it is important to recognise that these vary in their possibilities for adult supervision and filtering, use with peers or in private, speed of connection etc. For example, being able to use the internet in private is easier for middle-class children with more choice of access locations.

Is there a digital divide among children and young people?

The research context: from the digital divide to digital inclusion

'Some people can't afford it, which is just a sad truth.' (Steve, 17, from Manchester)

'If we didn't have the internet, we'd get everything we have on the internet somewhere else. And I don't think the internet is the solution to anything… I just think the internet can be an easy way of doing things.' (Marie, 16, from Essex)

Considerable academic and policy attention has recently addressed the so-called 'digital divide' in the UK and elsewhere, drawing attention to divisions within and across societies according to those that have access to digital technologies (including the internet) and those that do not.[1]

'A "digital divide" threatens to exacerbate already-wide gaps between rich and poor, within and among countries. The stakes are high indeed. Timely access to news and information can promote trade, education, employment, health and wealth. One of the hallmarks of the information society – openness – is a crucial ingredient of democracy and good governance. Information and knowledge are also at the heart of efforts to strengthen tolerance, mutual understanding and respect for diversity.' (Annan, 2003)

Since lack of access is associated with disadvantage in financial, educational or cultural resources, most research has focused on divides by nation and, within developed nations especially, on divides by age, ethnicity, income and region.[2]

Most research has also focused on adult populations. However, in a very few years, children have rapidly gained access to the internet at both school and home, strongly supported by government policy and industry initiatives. Indeed, young people's lives are increasingly mediated by information and communication technologies – at home, at school and in the community. Yet little research has addressed inequalities in children and young people's access to the internet.[3]

Partly, this is because children are widely perceived to be 'ahead', dubbed 'the internet generation' or 'online experts' (labels they themselves relish, although some have challenged this as a prevailing myth). Nor is there much literature specifically on parents, though they play a key role in introducing and regulating children's internet use at home and in mediating the home-school link.[4] Does this mean that children and young people have no difficulties accessing and using the internet? And that inequalities do not divide them?

This report from the *UK Children Go Online* project (www.children-go-online.net) extends our previous report on children and young people's developing internet literacy (Livingstone, Bober and Helsper, 2004) by examining the nature of inequalities in internet access and use among 9-19 year olds in the UK.

This does not necessarily imply that not being online is problematic, nor that the internet is always a 'good thing'. However, many endorse statements such as that from Kofi Annan, above, that the internet increasingly represents a key route to social, economic and political participation. Manuel Castells makes a similar claim:

'Exclusion from these [internet-mediated economic, social, political, cultural] networks is one of the most damaging forms of exclusion in our economy *and in our culture.'* (Castells, 2002:3)

Since traditional forms of social exclusion (by socio-economic status, region, deprivation, etc) are, it seems, strongly associated with digital exclusion, it is vital to examine who is or is not using the internet, why and with what consequences. This applies to children and young people no less than to the adult population.[5]

'The ability to access, adapt, and create new knowledge using new information and communication technology is critical to social inclusion in today's era.' (Warschauer, 2003:9)

However, technological innovation is a moving target, requiring a recurrent rather than a one-off investment.[6] In this process, social stratification continues to matter. The risk is that increasing internet penetration will exacerbate rather than reduce inequalities precisely because the internet is unlike simple media and consumer goods in which a more-or-less stable technology diffuses from the early adopters to the mass market.

For the internet, the 'chameleon-like capacity of digital technologies to morph, converge, and reappear in different guises' (Norris, 2001:17) maximises the conditions for maintaining distinctions.

Hence 'mere access' may not be enough to ensure equality of opportunity. The research task becomes one of tracking the shifting 'degrees of marginality' (Murdock, 2002:387) and the multiple reasons for 'non-use' (Selwyn, 2003) across diverse dimensions of digital inclusion and exclusion.

Policy concerns over the digital divide

Considerable policy attention has also addressed the digital divide, seeking to identify, and remove, the barriers to internet access and use in order to reduce inequalities.

'In 2000 the Prime Minister set a target for internet access for all who want it by 2005, underlining the Government's commitment to ensuring that the opportunities of the digital age are extended to all. The target recognizes that, unless tackled, digital exclusion may reinforce rather than address broader social inequalities.' (Office of the e-Envoy, 2004:5)

With rising access to the internet, some argue that the digital divide problem is now resolved.[7] Most, however, seek to move the debate on from a concern with material access to the technology to the trickier question of symbolic access – the practical skills and subtle competencies which facilitate confident internet use, the lack of which crucially hinders new and inexpert users, limiting the richness of their use if not excluding them altogether.

Increasingly, then, the question has become 'access where, how, to what, and what difference does it make?' Identifying the ways that people use the internet is not as straightforward as identifying whether they have access. The quality of use and the skills required to maximise the benefits of internet use may be measured in a variety of ways – frequency of use, time spent online, kinds of uses, expertise in use, specific skills online, attitudes towards internet use and so forth.

The UK Government frames this shift as one from basic to advanced levels of use thus:

'Encouraging remaining non-users onto the first rung of the internet ladder will remain an important challenge to guide policy in the next few years. However, for individuals to fully realise the benefits of the internet we must help them move up the ladder – to move from basic activities such as e-mail and browsing to more advanced uses such as e-learning and transactional activities like buying, banking and accessing government services.' (Office of the e-Envoy, 2004:11)

Developing policy initiatives to increase levels of internet literacy is crucial. When, in a recent report, we mapped out the skills and literacies being developed by children and young people as they use the internet, we identified a range of the barriers and facilitators to internet literacy as well as examining the consequences of greater or lesser literacy (see Livingstone, Bober and Helsper, 2004). This showed that internet literacy indeed mediates the benefits (and the risks) of internet use: for children and young people at least, the more literacy, the more opportunities are taken up.

A further, related direction for policy has been to broaden the 'digital divide' debate as ICTs permeate further into the conduct of every dimension of social, economic and political life, recasting the issue in terms of social and digital inclusion. Central here is the argument that not being online means being socially excluded, a problem that is compounded insofar as those who are not online are also those who are disadvantaged in other significant ways in society.

Policy should, therefore, begin with the social inclusion agenda (who should be included in what, how does inclusion advance societal goals, what are the costs of exclusion, etc), and then ask how ICTs alleviate or exacerbate the nature and extent of social in/exclusion.[8]

The Prime Minister's Strategy Unit (2005) has developed an action plan to overcome the digital divide in the UK, as follows: (1) Transform learning with ICT, (2) Set up a 'Digital Challenge' for local authorities, (3) Make the UK the safest place to use the Internet, (4) Promote the creation of innovative broadband content, (5) Set out a strategy for transformation of delivery of public services, (6) Encourage competition and take-up in the broadband market, (7) Improve accessibility to technology for the digitally excluded and ease of use for the disabled, and (8) Review the digital divide in 2008.

As the digital divide, or digital exclusion, agenda proceeds apace, the present report develops the evidence base regarding children and young people, so they can be included within this agenda. As we show, the above action plan is directly relevant to children's use of the internet, especially the importance of learning, safety and creative content.

Research aims

'My younger cousins, they're all under the age of eleven – and they're now coming into an age where the internet is all they've ever known…When we were young, we were still doing all the [outdoor] activities, and the internet wasn't really around. So we've got balance. But maybe in five or ten years time that will change.' (Lorie, 17, from Essex)

'We should have time in our computer lesson if we want to find out something, like, the other kids have been talking about … I haven't got the internet at home. So if you want to go and see what they're all talking about, you can go on it then.' (Holly, 10, from Hertfordshire)

The research project, UK Children Go Online (UKCGO), aims to offer a rigorous and timely investigation of 9-19 year olds' use of the internet. It balances an assessment of online risks and opportunities in order to contribute to academic debates and policy frameworks for children and young people's internet use.

The project centred on a major national, in-home, face to face survey which asked a series of detailed questions to 1,511 9-19 year olds and 906 parents of the 9-17 year olds, using Random Location sampling across the UK, combining this with findings from focus group discussions with children and young people (see Appendix for further details on the project and the UKCGO survey).

In previous reports we have mapped the extent and nature of children and young people's internet access and use (Livingstone and Bober, 2004), their experiences of the internet (Livingstone and Bober, 2003), young people's participation online (Livingstone, Bober & Helsper, 2004) and their online skills and literacy (Livingstone, Bober and Helsper, 2005).

In this report, the following questions about the digital divide are addressed:

- Is there is digital divide among children and young people? If so, does it parallel or differ from the divide among the adult population? And among parents?
- How do differences in internet access and use relate to age, gender, socio-economic status and ethnicity? Are there other barriers and enablers of use?
- Are some children left out, on the wrong side of the digital divide? Does it matter that some use the internet much more than others? Is this a matter of individual choice?

A note on research design

In 2002, when this project was being designed, and funding was being sought, the proposal was to survey 1,000 internet users between 9 and 19 together with 500 non-users. Different questions, therefore, would be asked of each group.

However, by late 2003, when the survey was being commissioned, this proposal was already superseded by events. Most children, the indications were, had had some experience with the internet. The category of non-users or of those with no access at all, despite being the focus of considerable public policy attention for the adult population, seemed no longer to apply to children and young people.

We tested this perception in the survey and, as we show below, found it to be broadly correct. The UKCGO survey found that very few children and young people are wholly excluded from the internet, unlike for the adult population: 98% of 9-19 year olds have used the internet at some time. But inequalities remain, and the question is how to understand and evaluate them.

This report therefore focuses on the digital inclusion and exclusion, rather than a simple binary divide. In redesigning the empirical research, we surveyed 1,500 9-19 year olds in all, and provided multiple routes through the questionnaire, depending on their amount of internet access and use.[9]

In what follows, we consider a range of indicators of access and use and focus on inequalities in the nature and quality of access and use (e.g. multiple indicators of access, time use, online skills and the range of online activities).

Findings on internet access and use among 9-19 year olds compared with adults

Main findings for children and young people

Is there a digital divide among children and young people? If so, does it parallel or differ from the divide among the adult population? And among parents?

The UKCGO survey shows that among 9-19 year olds just a few have not used the internet. A minority use it only infrequently. And, even among frequent users, many make only narrow use of the internet. Lastly, there are some drop-outs as users cease to use or have access to the internet.

- **Home access is growing:** Three quarters (75%) have accessed the internet from a computer at home. Currently, 74% have internet access via a computer, games console or digital television while one quarter of 9-19 year olds (23%) have never accessed the internet on a computer from home, and 29% currently lack such access.
- **School access is near universal:** 92% have accessed the internet at school, with one quarter (24%) relying on this, having access at school but not at home (see Figure A). Two thirds (64%) have also used the internet elsewhere (someone else's house, library, etc).
- **Access platforms are diversifying:** 87% have a computer at home (71% with internet access), 62% have digital television (17% with internet access), 82% have a games console (8% with internet access), and 81% have their own mobile phone (38% with internet access, though this may no mean they use it). Further, those with internet access at home are also more likely to have these other technologies at home. One in three (36%) have more than one computer at home, and 24% live in a household with broadband access.
- **Most are daily or weekly users:** 9-19 year olds are mainly divided between daily users (41%) and weekly users (43%). Only 13% are occasional users, and just 3% count as non-users (compared with 22% of their parents).

The key point is that the vast majority of children and young people have internet access. Talk of a binary divide between haves and have-nots, or users and non-users, does not apply to them as it still does to the adult population.

Comparing children and adults

By comparison with the adult population, children and young people are 'ahead'.

- **Children lead in internet use:** Only 58% of UK adults (aged 16+) had used the internet in 2003/04 (up by 10% since 2001/02) according to the Office for National Statistics (2005), considerably fewer than the 98% figure for children and young people. Ofcom (2004) reports over a third of the adult population not using the internet in 2003. Similarly, the Oxford Internet Survey[10] found most internet users among 14-22 year olds in full time education: 98% were internet users in Spring 2003, compared with 67% of people of working age up to 55 and 22% of retired people over the age of 55.
- **Parents are also especially likely to be internet users:** In the UKCGO survey, 78% of parents of 9-17 year olds are internet users, with 39% using it daily, 21% weekly and 17% less often. However, 22% of parents say they have never used the internet. This proportion of non-users is lower than the national average, understandably since households with children are more often connected to the internet than those without.
- Of those parents who use the internet, 51% use it daily, 27% weekly and 22% less often. Further, 64% access it at home, 40% at work, 24% at someone else's house, 15% at a public library and 10% on a mobile phone.
- **UK figures for young non-users match those in the EU and USA:** In the European SAFT survey (2003), 3% of 9-16 year olds said they never used the internet, a similar proportion to those identified in the UKCGO survey. In the US similarly, 3% of 12-18 year olds are non-users (compared with 24% of the whole US population), according to the Digital Future report (USC, 2004).

Mapping a continuum of internet use among children and young people

In order to examine the nature of the continuum of internet use, this report divides the population of 9-19 year olds into four distinct categories: non-users, occasional users, weekly users and daily users so as to explore go beyond the binary divide of 'haves' and 'have nots' towards a continuum of internet access and use.

Why a continuum? Most obviously, the concept of a 'divide' is not useful if 98% fall to one side and 2% fall on the other. It is also useful since there are multiple ways of 'drawing the line'.[11] But the more important reason for proposing a continuum of digital inclusion is to focus attention neither on the few who are not online, though they continue to merit attention, nor on the much larger minority who use the internet daily, but to invite a focus on those in the middle.[12]

Thus, we seek to capture the range or quality of use as well as its extent, going beyond the simple binaries of access/no access and use/non-use towards exploring a continuum, or even multiple continua, of digital inclusion among those using the internet. The UKCGO survey examined the extent of use (years online, frequency of use, time online per day), the skilled use of the internet (asking young people about their online skills and perceived self-efficacy online and the range of online opportunities that children and young people take up (see Appendix for explanation of variables/scales used).[13]

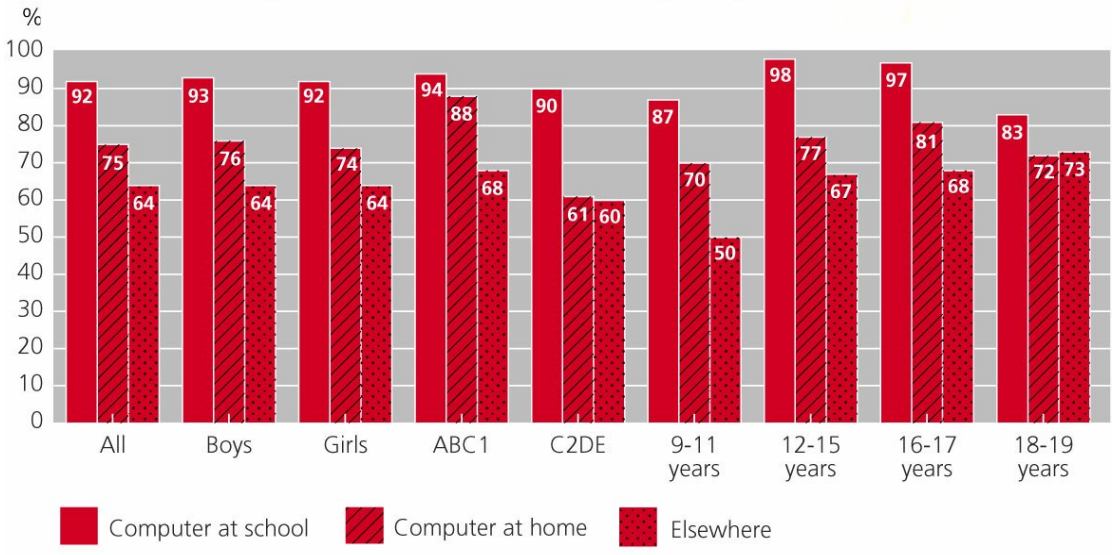
A focus on the (unequal) take up of online opportunities is particularly important. As the above quotations from academic and policy sources stress, low quality or basic use would suggest a narrow, unadventurous or frustrating use of the internet, while high quality or sophisticated use permits a broad-ranging and confident use of the internet that embraces new opportunities and meets individual and social goals (Livingstone and Bober, 2004).

Recognising the multiple ways in which the internet can be used necessarily complicates the identification of inequalities, central to the digital inclusion agenda. If there are different ways of using the internet, some will be considered more important for digital inclusion than others, though this discussion remains to be developed. We point to its importance, however, by encompassing multiple measures of the quality of access and use and examining how far these are unequally spread across society because of the influence of age, gender, socio-economic status, ethnicity, etc.

Demographic influences on access and use

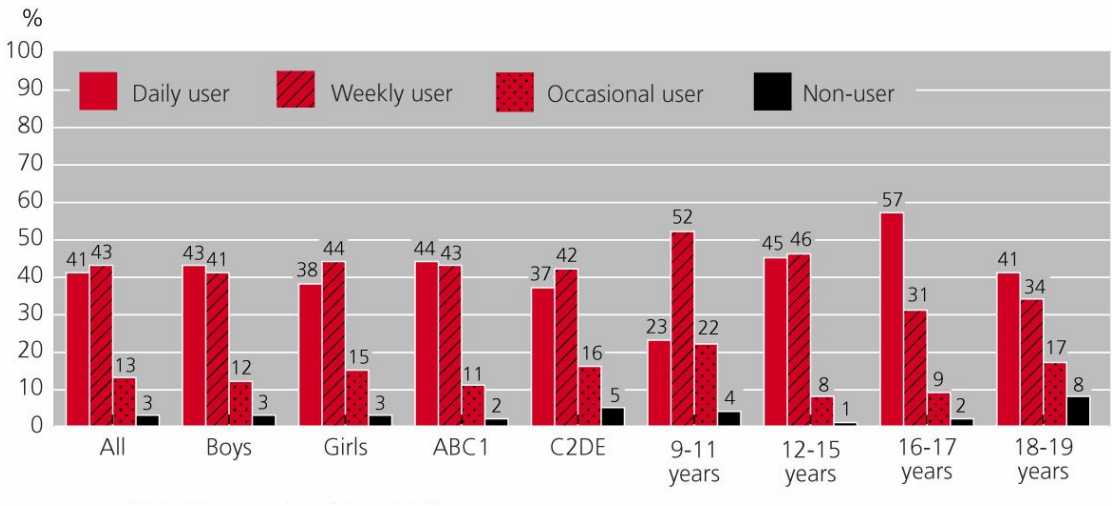
We begin with the main demographic factors that differentiate within the population.[14] As Figures A and B show, age, gender and socio-economic status differentiate among children and young people in terms of internet access and use.

Figure A: Which of these have you ever used to access the internet? By demographics



Base: All 9-19 year olds (N=1,511)

Figure B: How often do you use the internet (anywhere)? By demographics



Base: All 9-19 year olds (N=1,511)

Age

Treating 9-19 year olds as a simple grouping can be misleading, especially as the relation between access and age is not linear (see Figure A). The oldest and youngest age groups have lower levels of internet access and use than the 12-17 year olds.

- **Home access:**[15] The youngest and the oldest age groups are least likely to have access to the internet at home (70% of 9-11 year olds, 69% of 18-19 year olds) while 16-17 year olds are most likely to have the internet at home (83% of 16-17 year olds). Among 12-15 year olds, 74% have internet access at home.
- **Quality of access:** Considerable differences among the age groups can be found when we look at quality of internet access (see Table 1): 18-19 year olds are more likely to use the internet in an internet café or at work, and to rely on internet access elsewhere. The 9-11 year olds have the fewest total access locations, both outside and inside the home, and they are much less likely to have access in their bedroom.
- **Frequency of use:** 9-11 year olds are most likely to use the internet on a weekly basis (52%), 12-15 year olds are split between daily (45%) and weekly users (46%), and 16-19 year olds are more likely to use it on a daily basis (57% of 16-17 and 41% of 18-19 year olds).
- **Non-use:** Non-users are more likely to be found among the oldest age group – 8% of the 18-19 year olds say they don't use the internet, compared with just 1% of 12-15 year olds and 2% of 16-17 year olds. However, 4% of 9-11 year olds are also non-users.
- **Low use:** One in four 9-11 year olds are either occasional or non-users (26%) and so too are one in four of the 18-19 year olds (25%). This compares with only one in ten of the 12-17 year olds who fall into this category (9% of 12-15 year olds, 11% of 16-17 year olds).
- **Time online per day:** There are also differences in average time spent online per day – about half an hour for 9-11 year olds, half an hour to one hour for 12-15 year olds, about one hour for 16-17 yr olds and half an hour to one hour for 18-19 year olds.
- **Access influences use:** While access does not wholly determine use, more frequent users are more likely to have home access. However, age differences in frequency of use persist even if we just consider those with home access.

Table 1: Type of internet access by age and frequency of use

Age	9-11 years			12-17 years			18-19 years			All
Frequency of use	Freq	Low	All	Freq	Low	All	Freq	Low	All	
Home	**76%**	**53%**	**70%**	**80%**	**49%**	**77%**	**82%**	**30%**	**69%**	**74%**
School but not home	**23%**	**35%**	**26%**	**20%**	**46%**	**22%**	**15%**	**49%**	**23%**	**24%**
Elsewhere but not school or home	1%	1%	**1%**	0%	1%	**0%**	3%	6%	**4%**	**1%**
No access	**90%**	**77%**	**3%**	**98%**	**94%**	**0%**	**86%**	**71%**	**4%**	**2%**
Computer at school/college	**73%**	**59%**	**87%**	**81%**	**52%**	**97%**	**85%**	**32%**	**83%**	**92%**
Computer/laptop at home	**40%**	**29%**	**70%**	**54%**	**29%**	**78%**	54%	40%	**72%**	**75%**
Computer in someone else's house	18%	17%	**37%**	36%	26%	**51%**	**39%**	**24%**	**51%**	**48%**
Computer in public library	**4%**	**0%**	**18%**	8%	5%	**35%**	**24%**	**7%**	**35%**	**31%**
Computer in an internet cafe or kiosk	4%	3%	**3%**	8%	4%	**8%**	11%	4%	**20%**	**9%**
Computer at parent's work	0%	0%	**4%**	3%	1%	**8%**	15%	10%	**9%**	**7%**
Computer in your own work place	3%	1%	**0%**	4%	5%	**3%**	6%	1%	**14%**	**4%**
Digital television at home	5%	1%	2%	20%	15%	4%	26%	21%	5%	4%
Mobile/WAP phone	6%	6%	**4%**	7%	4%	**20%**	5%	7%	**25%**	**17%**
Games console at home	**12%**	**3%**	6%	**23%**	**6%**	7%	**31%**	**3%**	6%	6%
Child has access in own bedroom	**12%**	**3%**	**10%**	**23%**	**6%**	**21%**	**32%**	**3%**	**24%**	**19%**
Total number of access locations	**2.43**	**1.92**	**2.30**	**3.19**	**2.36**	**3.11**	**3.52**	**2.17**	**3.18**	**2.92**
N's	287	100	387	789	85	874	186	63	249	1,510

Base: All 9-19 year olds (N=1,511). Frequent users = daily and weekly; Low users = occasional and non-users.
Note: Comparisons in bold are statistically significant at least at p<0.05.

If we examine the relation between age and internet use more closely, Table 1 shows that:

- For all ages, being a frequent user is also facilitated by home access. Only a few children, especially among the younger ones, manage to be frequent users if they must rely on access at school/college.
- Without access at home and/or school, children and young people hardly use the internet. Some frequent users seem to find opportunities to use the internet also in other locations – someone else's house for 9-17 year olds, the public library or an internet café for 18-19 year olds.
- More access locations are associated with more use for all age groups, though especially among older teens.

Even among the frequent users, differences are to be found in the quality of internet use, here measured by the take-up of online opportunities. As Table 2 shows:

- Weekly users take up fewer opportunities than daily users in all age categories and across most categories of online opportunities. The differences are greater among 12-17 year olds, especially among 16-17 year olds (daily users = 13.2 opportunities on average, weekly users = 9.1). The differences are smallest among the 9-11 year olds (5.4 for daily users vs. 4.4 for weekly users).[16]
- In other words, when the youngest children use the internet more often, they do not necessarily use it more widely; but for 12-17 year olds, more use is associated with more diverse uses, suggesting a continuum of use in which frequency and quality of use are linked.

Gender

Does a gender divide exist now that the internet has become widely available?[17] The UKCGO survey finds few (or, fairly modest) gender differences in access to the internet. However, given access, it seems that boys are a little more likely to use the internet and, when they do, to use it for longer.

- **Home access:** There are no gender differences in home access (74% of boys and 73% of girls have home access).
- **Non-use:** There are also no gender differences here – 2% of boys and 2% of girls are non-users.
- **Frequency of use:** There are small but significant differences in frequency of use, with boys being slightly more frequent users than girls: 43% of boys and 38% of girls are

Table 2: Take up of online opportunities by age and frequency of use

	9-11 years*		12-17 years		18-19 years	
	Daily user	Weekly user	Daily user	Weekly user	Daily user	Weekly user
Total opportunities (values 0-30)	5.36	4.40	11.58	8.46	12.85	10.32
Interaction opportunities (values 0-8)	0.66	0.36	1.69	0.83	1.95	1.33
Civic opportunities (values 0-5)	N/A	N/A	1.01	0.72	1.34	1.25
Peer to peer opportunities (values 0-6)	2.28	1.67	3.66	2.53	3.53	2.72
Commercial/career opportunities (values 0-4)	N/A	N/A	1.37	1.09	2.31	1.83
Other opportunities (values 0-8)	2.41	2.37	3.96	3.34	3.83	3.31
N's	88	199	428	361	101	85

Base: All 9-19 year olds who use the internet at least once a week (N=1,263)
Note: Not all questions were asked of the 9-11 year olds.

daily users; 41% of boys and 44% of girls are weekly users; 12% of boys and 15% of girls are occasional users.

- **Access and use:** Among children and young people with home access, these gender differences in frequency of use persist. So, for those with home access more boys are daily users (52% vs. 45% girls), and more girls are weekly users (44% vs. boys 38%).[18]

- **Time online per day:** Not only do boys use the internet more frequently they also use it for longer: girls use it about half an hour per day while boys use it an hour a day on average.

Looking across the range of ways in which children and young people use the internet, including a diversity of online opportunities and risks, a more subtle series of gender differences emerge (see also Livingstone, Bober and Helsper, 2005). These differences lie in the kinds of sites they visit, not in the way that they interact with sites. There are also differences in terms of skills, and online risks.

- Boys not only spend more time online per day and have been online for longer (in years), but they also report higher levels of online skills and self-efficacy. Interestingly too, they experience more online risks than girls, being more likely to seek out pornographic and violent/racist websites on purpose and to come across online porn by accident.

- Boys also take up slightly more peer-to-peer opportunities (such as emailing, instant messaging, downloading music and playing games), though overall, the gender differences are modest. Furthermore, web design is an activity undertaken more often by boys than girls.

- While girls use the internet a little less than boys, they tend to visit a broader range of civic sites, particularly charity sites and human/gay/children's rights sites, and they take up slightly more civic opportunities (such as visiting civic/political sites and signing petitions online).

- Girls encounter less pornography online but are more likely to experience contact risks (such as online bullying, talking to strangers online and meetings with people from the internet).

Table 3 compares the quality of use for daily and weekly users:

- As for age, for both girls and boys, daily users take up more opportunities than weekly users (average 10.9 vs. 7.5).

- The main gender difference is when one looks at civic opportunity taking, where the daily users in the girls take up more civic opportunities than the weekly users (average = 1.23 vs. 0.88), while for the boys this difference is smaller (average = 0.95 vs. 0.75). Also, for peer-to-peer opportunity taking, the difference between daily and weekly users is larger for boys than for girls.

In short, if young people use the internet more often, girls are more likely to take up civic opportunities and boys peer-to-peer opportunities.

Table 3: Take up of online opportunities by gender and frequency of use

	Boys		Girls	
	Daily user	Weekly user	Daily user	Weekly user
Total opportunities (values 0-30)	10.90	7.37	10.91	7.54
Interaction opportunities (values 0-8)	1.56	0.72	1.61	0.78
Civic opportunities (values 0-5)	0.95	0.75	1.23	0.88
Peer-to-peer opportunities (values 0-6)	3.62	2.32	3.23	2.26
Commercial/career opportunities (values 0-4)	1.24	0.81	1.43	0.90
Other opportunities (values 0-8)	3.76	3.03	3.67	3.04
N's	336	319	280	328

Base: All 9-19 year olds using the internet at least once a week (N=1263)

Table 4: Types of internet access, by socio-economic status

	AB	C1	C2	DE	All
Total number of access points*	**3.38**	**3.13**	**2.74**	**2.41**	2.92
Total number access points at home**	**2.17**	**1.82**	**1.46**	**0.99**	1.61
Access in bedroom**	20%	22%	21%	**13%**	19%
Broadband access**	**43%**	**35%**	**31%**	**25%**	35%
Unlimited dial-up access**	**38%**	**43%**	**43%**	**53%**	43%
Pay as you go dial-up access**	**19%**	**21%**	**25%**	**22%**	22%

Base: * All 9-19 year olds (N=1,511) and ** All 9-19 year olds with home access (N=1,114)
Note: Comparisons in bold are statistically significant at least at p<0.05.

Socio-economic status

Differences relating to socio-economic status (SES) are considerable:[19]

- **Home access:** 87% of middle class (ABC1) but only 60% of working class children (C2DE) have access to the internet from home (91% AB, 83% DE, 77% C1 and 47% C2).

Beyond 'mere' access to the internet, quality of access is also heavily dependent on SES, with middle class youngsters benefiting from higher quality access on a range of indicators (see Table 4):

- **Number of access points:** Children from a middle class background report more internet access points, both at home (computer/ laptop, digital TV, games console, mobile phone) and outside (school, someone else's house, public library, internet café, parents'/ own work place).
- **Access in child's bedroom:** Only 13% of children from DE backgrounds have internet access in their bedroom, compared with 21% of the other groups.
- **Speed of access:** Children from a middle class background are more likely to have a broadband connection instead of dial-up access.

In short, as predicted by sociological theories of stratification and inequality, as the market continues to innovate it seems that higher SES households continue to maintain their position of advantage, both through gaining access and through increasing the quality of that access.[20]

What follows from differences in access for the nature of internet use in different households?

- **Non-use:** In comparison with the differences in home access, the differences in use are relatively small (though still statistically significant): 1% of middle class and 3% of working class children don't use the internet (0% of AB, 3% of C1, 3% of C2, 7% of DE).
- **Frequency of use:** There are more occasional users among working class children than among middle class children (11% of AB, 11% of C1, 13% of C2, 18% of DE) and fewer daily users (32% of DE vs. 45% of AB).

Table 5: Frequency and quality of internet use for children, by socio-economic status

Child	AB	C1	C2	DE	All
1 Frequency of use (values 1-8)	3.34	3.27	3.26	3.00	3.21
2 Years online (0-11)	3.79	3.67	3.34	3.35	3.56
3 Average time online per day (1-7)	3.69	3.65	3.55	3.28	3.54
4 Online skills (0-7)	2.72	2.50	2.32	1.84	2.34
5 Self-efficacy (1-4)	2.39	2.42	2.38	2.23	2.36
6 Online opportunities (0-30)	10.04	9.48	8.98	7.92	9.14

Bases: Scales 1-3: All 9-19 year olds (N=1,511); Scales 4-6: All 9-19 year olds who go online at least once a week (N=1,257)
Note: See Appendix for an explanation of the scales.

Table 6: Frequency and quality of internet use for parents, by socio-economic status

Parent	AB	C1	C2	DE	All
7 Frequency of use (values 1-8)	6.10	5.56	4.48	3.29	4.92
8 Online skills (0-7)	2.04	2.08	1.31	0.94	1.62
9 Self-efficacy (1-4)	1.98	1.96	1.73	1.71	1.88
10 Online opportunities (0-8)	3.28	2.97	2.04	1.22	2.42
11 Parental rules and practices (0-15)	6.33	6.39	5.36	3.20	5.36

Bases: Scale 7: All parents of 9-17 year olds (N=906); Scales 8-10: All parents of 9-17 years olds who have ever used the internet (N=692); Scale 11: All parents of 9-17 year olds who, according to their parents, use the internet at least once a week and have home access (N=630).
Note: All comparisons are statistically significant at least at $p<0.05$.

- **Time online per day:** Middle class children spend more time online per day than working class children.
- **Access and use:** Importantly, however, when we compare only those children and young people who have internet access at home, the socio-economic differences regarding both time online and frequency of use disappear (by contrast with the parallel analysis for age and gender, where differences persist for those with home access).[21]

Do the inequalities in access by SES matter? Looking across the population, SES socio-economic status differentiates among children and young people not only in terms of access and frequency of use but also in terms of their quality of use:

- **Quality of use:** By comparison with working class children, those from the middle class have more years of online experience, are more skilled at using the internet, have higher levels of self-efficacy and, most important, they take up more of the range of online opportunities on offer (see Table 5).

One reason why middle class children are more likely to have internet access at home is that their parents are more likely to be internet users. Among parents of 9-17 year olds also, higher SES is associated with more frequent use, higher skills and, again, the take-up of more online opportunities (see Table 6).

Since those children from lower SES homes who do have home internet access use it just as much as those from higher SES homes, it would seem that providing home internet access in a low SES household helps to close the gap, potentially reducing the relative disadvantage for these children in terms of the benefits of the internet.

Specifically, increasing home access among lower SES households seems to reduce the gap in frequency of internet use, and also in internet-related skills and self-efficacy.[22] However, socio-economic status still exerts a direct influence (over and above its association with home access) on how many opportunities are taken up.

Thus, middle class children take up more online opportunities than do working class children. Looking at the types of opportunities taken up among the daily and weekly users, Table 7 shows that:

- As before, middle class users take up more opportunities than working class users, and daily users more opportunities than weekly users.
- The differences between daily and weekly users are almost always larger for the middle class children, but especially so for interaction opportunities (1.78 vs. 0.81 for ABC1 and 1.33 vs. 0.69 for C2DE) and civic opportunities (1.32 vs. 0.97 for ABC1 and 0.74 vs. 0.64 for C2DE).

Thus, if middle class children are daily users, they take up disproportionately more opportunities than do daily users from working class backgrounds, interacting more with websites and visiting civic websites.

Table 7: Take up of online opportunities, by SES and frequency of use

	ABC1		C2DE		All
	Daily user	Weekly user	Daily user	Weekly user	
Total opportunities (values 0-30)	11.63	7.85	9.98	7.01	8.41
Interaction opportunities (values 0-8)	1.78	0.81	1.33	0.69	0.99
Civic opportunities (values 0-5)	1.32	0.97	0.75	0.64	0.70
Peer-to-peer opportunities (values 0-6)	3.51	2.31	3.37	2.27	2.79
Commercial/career opportunities (values 0-4)	1.49	0.97	1.13	0.73	0.92
Other opportunities (values 0-8)	3.83	3.13	3.58	2.93	3.24
N's	345	340	272	307	1263

Base: All 9-19 year olds who use the internet at least once a week (N=1263)

Relying on internet provision at school or elsewhere to reduce inequality is insufficient: working class children who rely on internet access outside the home take up significantly fewer opportunities (7.2 on average) compared with those working class children with home access (8.4 on average).

We conclude that providing home access can alleviate but not overcome the relative disadvantage of coming from a low SES household in terms of the quality of internet use (just as it does not overcome the importance of age and gender in determining quality of use).

Other potential sources of inequality

Region

There are some considerable differences in access and use by region across the UK.

- **Home access:** The highest levels of home access to the internet are found in East Anglia where 91% of 9-19 year olds have home access, followed by the South West with 80%. Wales has the least connections at home (63% of 9-19 year olds with home access), and Yorkshire is also low in home access (66%).
- **Non-users:** The 'least connected' region is the North with 10% non-users, and the 'most connected' is Greater London with only 2% non-users.
- **Frequency of use:** Greater London also has the highest percentage of daily users (51%), followed by the East Midlands (48%), the South West (46%) and the West Midlands (45%). Both Scotland (24%) and Wales (19%) have a high percentage of occasional users compared with the other regions.

Deprivation[23]

Living in a more or less deprived area has implications for children's access to the internet but not, it seems, to their use.

- **Home access:** There are significant differences in home access between areas of high and low deprivation. Children living in areas of high deprivation are less likely to have home access (64% of 9-19 year olds in England, 50% in Scotland and 45% in Wales have home access) than children from areas of low deprivation (86% in England, 79% in Scotland and 94% in Wales); the biggest gap is found in Wales.
- **Frequency of use:** There are no differences in non-use or in frequency of use between areas of high and low deprivation.

Ethnicity

There are few significant differences between the different ethnic groups in their access and use of the internet.[24]

- **Home access:** Children and young people from the different ethnic communities are just as likely to have internet access at home.
- **Non-use:** In the sample surveyed, all the non-users were either white or Asian (while in the African-Caribbean and other ethnic groups there were occasional users, no non-users from these ethnic groups participated in the survey).
- **Frequency of use:** Children and young people from an Asian or mixed race background are more likely to be daily users than other ethnic groups. Children and young people from the black community tend to be weekly users. Those from a white background tend to be spread over the different user categories, having the same amount of daily as weekly users (two in five), as well as 14% occasional users.

Disability

Disability is associated with lower levels of internet access at home.

- **Home access:** Children who have a disability are significantly less likely to have internet access at home (63% compared with 75% of children without a disability).[25]
- **Non-use:** Children with a disability are no more likely to be non-users (5% compared with 3% of children without a disability).
- **Frequency of use:** Disability makes little difference also to the frequency of use, though as with ethnicity, a larger sample is needed to examine this more fully, given the difference found for access.

Explaining low and non-use of the internet among children and young people

Thus far, we have focussed on the continuum of internet use from non or low use to frequent internet use. But, beyond the influence of demographic variables, can we understand better why some children are digitally excluded? And is this a matter of individual choice?

Since occasional and non-users tend to be either younger or older than the rest of the cohort, this invites different explanations of use for the different age groups. In what follows, we offer an account of types and reasons for occasional and non-use by age group.

Types of non-use

Although very little is known of why some children use the internet, there is a growing body of research examining the reasons why adults don't use the internet. Ofcom (2004) lists lack of interest and costs among the reasons for non-use in the UK: 37% of those without internet access at home saw no need for it, 19% weren't interested in the content, 13% weren't interested in new technology, and 15% thought that PCs and another 15% that internet usage costs were too high.[26]

In the UKCGO survey, we asked both occasional and non-users, as well as their parents, why they don't use the internet (more). We identified four types of non-users, depending on whether they have/don't have internet access and use/don't use the internet:

- **'Voluntary drop-outs'** have internet access somewhere but have stopped using the internet.
- **'Involuntary drop-outs'** have lost internet access and have stopped using the internet.
- **'Potential users'** have internet access but have never used the internet.
- **'Internet excluded'** have no internet access and have never used the internet.

Given the small size of the sample who are non-users (only 3.2% of the sample, N=48), we must be cautious in interpreting the data (see Table 8). Still, the findings suggest that, given access, young children are more likely to use the internet than older teens.

- The majority of 9-11 year old non-users (9 of the 15) have never had access to the internet anywhere and never used the internet ('internet excluded'), and four more (of the 15) used to use the internet but do not have access anymore ('involuntary drop-outs'). Thus, for the youngest age group, the lack of access keeps them from using the internet.
- The picture looks different for the oldest age group of 18-19 year olds. Eight of the 19 have access to the internet but have stopped using the internet ('voluntary drop-outs'), though seven more are 'internet excluded'. So, while lack of access is still a problem, some in this age group seem to be dropping out voluntarily, for reasons which we explore below.
- For the few 16-17 year olds who are not using the internet, access seems to be less of an issue. Five of the six non-users here still have access but they have stopped using it ('voluntary drop-outs').

Table 8: Types of non-users by age

Age	9-11	12-15	16-17	18-19	All
Voluntary drop-outs	7%	50%	83%	42%	38%
Involuntary drop-outs	7%	0%	17%	5%	6%
Potential users	27%	25%	0%	16%	19%
Internet excluded	60%	25%	0%	37%	38%
N's	15	8	6	19	48

Note: Although the percentage differences are large, they are not significant due to the low numbers of non-users in each category.

- Among the eight 12-15 year old non-users, four are voluntary drop outs, two are potential users and two are internet excluded.

Types of occasional use

As argued earlier, we need to understand not only why some children and young people don't use the internet but also why some make comparatively little use of the internet. We identified four types of occasional users depending on whether they have/no longer have internet access and the frequency of their internet use compared with before:

- **'Voluntary drop-outs'** have internet access at home and used to use the internet more frequently than they do now.
- **'Involuntary drop-outs'** have lost internet access at home and use the internet less now.
- **'Choose-nots'** have access at home but never used the internet frequently.
- **'Marginal users'** have no internet access at home and have never used the internet frequently.

The youngest age group (9-11 year olds) includes a sizeable proportion of occasional users who don't have and never had access at home (29% 'marginal users') – they use the internet elsewhere, where presumably their frequency of access is limited. The largest group, however, is children who have access at home but make little use of it (39% 'choose-nots') (see Table 9).

- For the oldest age group (18-19 year olds), 32% say they have access at home and used to use the internet more than they do now ('voluntary drop-outs') while 43% say they used to use the internet more but no longer have access at home anymore ('involuntary drop-outs').
- For those young people aged between 12 and 17 the main type of occasional users are the 'choose-nots' – those who have internet access at home but have never used the internet frequently.

The pattern for the youngest occasional users thus differs somewhat from that for non-users. Some choose to make only modest use of the internet while others are restricted in the extent of their use since they rely on access outside the home. For the oldest teens, the occasional users have once used the internet more but now, for reasons of access or choice, their use has reduced. For the 12-17 year olds, although few make only occasional use of the internet, their reasons are more those of choice than of access.

Table 9: Types of occasional users by age group

Age	9-11	12-15	16-17	18-19	All
Voluntary drop-outs	**18%**	**26%**	**24%**	**32%**	24%
Involuntary drop-outs	**14%**	**13%**	**28%**	**43%**	22%
Choose-nots	**39%**	**32%**	**36%**	**9%**	30%
Marginal users	**29%**	**30%**	**12%**	**16%**	24%
N's	83	47	25	44	199

Note: Comparisons in bold are statistically significant at least at $p<0.05$.

Reasons for occasional and non-use

We asked 9-19 year old occasional and non-users why they don't use the internet (more) or why some are voluntarily dropping out. To avoid drawing conclusions on the basis of very small numbers, we combined the reasons given by occasional and non-use so as to be able to compare the age groups (see Table 10).

- Across all age groups, lack of access was the most important reason that prevented children and young people from using the internet (more): 39% of 9-11 year olds, 42% of 12-15 year olds, 48% of 16-17 year olds, 57% of 18-19 year olds.
- The main difference among the age groups was that teens, unlike younger children, profess not to be interested in using the internet. For 12-19 year olds, lack of interest is the second most important reason for occasional and non-use. This is significantly more important than for the youngest group (9-11 years), where the safety issues and lack of time are relatively more important reasons for occasional and non-use.
- By comparison with adults (Ofcom, 2004; USC, 2004), children and young people are less likely to identify either costs or the difficulty of using the internet as barriers to use.

Table 10: Reasons for occasional/non-use by age group

	9-11 years	12-15 years	16-17 years	18-19 years	All
I haven't got internet access	39%	42%	48%	57%	46%
I don't have time	15%	13%	16%	11%	14%
I'm not interested	**13%**	**35%**	**32%**	**33%**	**26%**
It's not really safe	10%	4%	6%	8%	8%
My parents don't let me access the internet	8%	7%	3%	2%	6%
It's too expensive	8%	7%	0%	8%	7%
I find it difficult/frustrating	7%	5%	3%	3%	5%
It is too slow/keeps going wrong	7%	4%	3%	5%	5%
I think people rely on computers too much	6%	4%	3%	6%	5%
No reason	6%	2%	0%	5%	4%
N's	100	55	31	63	248

Base: 9-19 year old occasional and non-users (N=248).
Note: Comparisons in bold are statistically significant at least at p<0.05.

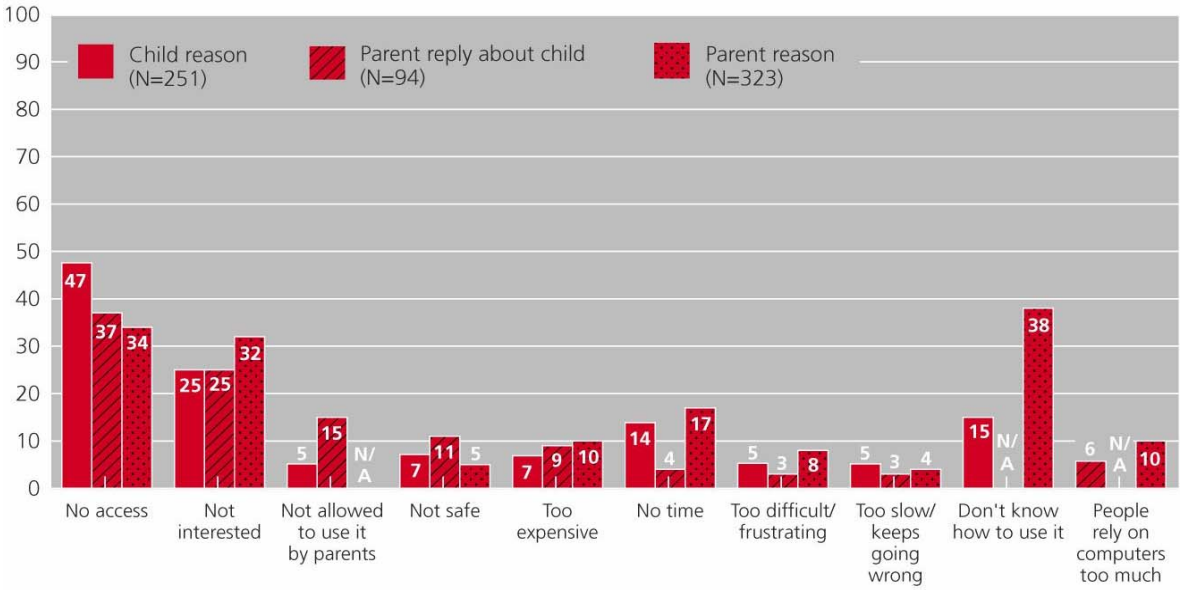
Interest in using the internet

As Figure C shows, parents are a little more likely to explain their child's low or non-use in terms of parental permission (not being allowed to use it) and safety. In explaining their own low or non-use, parents point less to issues of access and more to a lack of interest or, the main reason given, not knowing how to use it – a matter of internet literacy.

Low levels of interest in the internet from some children and young people may seem puzzling, given the enthusiastic reception of this medium by the majority. So, we asked 9-19 year old occasional and non-users what they would do if they used the internet (more). Again, there are considerable differences among the age groups (see Table 11):

- The oldest age group (18-19 years) would download music (57%), get information for other things not related to school (45%), and send/receive emails (49%). They are the least interested in games.
- The middle age group (12-17 years) would use the internet for school work (40%) and exam revision sites (33%), play games (48%) and also download music (45%).

Figure C: Reasons for occasional/non-use (Multiple response)



Base: 9-19 year old occasional and non-users (N=251); Parents of 9-17 year old occasional and non-users (N=94); Occasional and non-user parents of 9-17 year olds (N=323)

Table 11: If you did use the internet (more often), what would you do online? (Multiple response)

Age	9-11	12-17	18-19
Play online games	**62%**	**48%**	**36%**
Do work for school/college	**54%**	**40%**	**19%**
Make something (drawing, story)	**40%**	**17%**	**10%**
Visit sites about computer/video games	37%	23%	26%
Download music	**25%**	**45%**	**57%**
Get info for other things	**22%**	**34%**	**45%**
Email	**21%**	**27%**	**49%**
Exam revision	**18%**	**33%**	**15%**
Visit sites of clubs you're a member of	8%	5%	13%
Instant messaging	7%	16%	19%
Chat	**2%**	**11%**	**15%**
N's	100	86	63

Base: 9-19 year old occasional and non-users (N=248).
Note: Comparisons in bold are statistically significant at least at p<0.05.

- The majority (62%) of the 9-11 year olds would play games if they used the internet (more often). Using the internet for school work comes second (54%), and creative uses, such as making a drawing or a story, which are not as popular with the other age groups, come third (40%).

Given the interest in instant messaging (70% of daily users and 30% of weekly users), it is noteworthy that few occasional or non-users are interested in doing this or, except for the oldest teenagers, in sending emails. One may suppose either that one must communicate in this way to see the pleasure in it, or that these young people are not part of a peer group who regularly communicate in this way.

Contextualising internet use within everyday life

This report has considered children and young people's internet use across a range of contexts, though the home and school are the most important. In our 'internet literacy' report (Livingstone, Bober and Helsper, 2004), we identified the importance also of the school, and of teaching about the internet, drawing attention particularly to the lack of such teaching for a substantial minority of children and young people.

As shown above, the UKCGO survey has found that age, gender and socio-economic status all influence the quality of children and young people's access and use of the internet. Although few lack access altogether, there are wide variations in the quality of internet access and use.

Thus in addressing inequalities among children and young people, the idea of a divide is less useful than the idea of a continuum from hesitant, narrow or unskilled use to diverse, confident and skilled use of the internet.

Below, we consider also the role of parental involvement in facilitating their children's internet use. Then we seek to integrate the range of barriers and enablers into a single model of internet use. And we examine the implications of more or less internet use for other media and social activities in children and young people's lives.

Parental involvement

Since children's internet access and use is mediated by their parents, what difference does parental involvement make, if any? Focusing on the 9-17 year olds (see Table 12), the UKCGO survey finds that:

- **Parental use:** Having parents who use the internet appears important in determining children's internet use. This is even more pronounced among teens (12-17 years). Frequent users are more likely to have parents who use the internet on a daily basis (40% of their parents are daily users), and low users are more likely to have parents who don't use the internet (43% of their parents are non-users).
- **Parental attitudes towards the internet:** There is no difference between parental attitudes for children of different age groups. But there is a difference between the different user groups. Parents of frequent users are more likely to think that the internet is beneficial for their child, compared with the attitudes of parents of low users. This is especially the case for 9-11 year olds.
- **Attitudes towards other media:** Parents of frequent users are more positive towards media in general (parents of 9-11 year olds especially). But they also tend to worry more about computer and video games than do parents of low users (especially parents of teens).

It seems, then, that a key enabler of children's internet use is their parents' use. Whether this is due to the culture of the household, the expectations held of children or because these parents can help their child get online, merits

Table 12: Parental internet use and attitudes, by child age and frequency of use

Child age	9-11		12-17	
Child frequency of use	Freq	Low	Freq	Low
Non-user parent	18%	23%	**21%**	**43%**
Occasional user parent	16%	23%	17%	13%
Weekly user parent	21%	15%	22%	28%
Daily user parent	45%	39%	**40%**	**16%**
Parent believes internet is beneficial for child (values 0-2)	**0.89**	**0.64**	0.86	0.79
Parent believes all media* benefit child (values 0-5)	**1.68**	**1.34**	1.48	1.54
Parent worries about child playing computer games (values 0-2)	1.03	0.84	**1.02**	**0.79**
Parent believes television is beneficial for child (values 0-2)	0.75	0.71	0.70	0.80
N's	211	68	572	60

Base: Parents of 9-17 year olds (N=912).
Note: Comparisons between frequent and low users in bold are statistically significant at least at p<0.05.
*Television/video/DVD, books, computer and internet, except games

further research.

Parents of frequent users are more likely to think that the internet is beneficial for their child, this again pointing to the importance of the culture of the household – being generally knowledgeable about and favourable to the internet – especially in encouraging young children to go online frequently. More generally, positive parental attitudes to the media seem to encourage internet use, though high users may occasion parental concerns about playing computer games.

Modelling barriers/enablers of internet use

Having identified a range of barriers and enablers of internet use, we examined the range of factors together. Statistical analysis[27] confirmed the findings already discussed:

- Age is the most important factor, even more than gender and socio-economic background, in explaining differences in frequency of internet use. Care is thus essential in summarising findings for 'children and young people' or in contrasting 'children' and adults.
- Whether the child is from a middle or working class background, access is also crucial in explaining frequency of internet use, with having the internet in their bedroom making a particular difference to how much the child uses the internet. Thus, providing home internet access in a low SES household can help to close the gap in amount of use though, as we have seen, SES has more influence over the kinds of uses then made of the internet.
- Parental factors are important in explaining use. Parents with high internet self-efficacy are more likely to have children who use the internet, as are parents who think the internet is beneficial. However, parental online skills and actual use are less important in determining child internet use.[28]

Implications of internet use for other media and social activities

As any new medium gains widespread use and, especially, begins to occupy significant amounts of time in daily life, questions arise regarding the displacement of other activities (Livingstone, 2002). What are children and young people doing more or less of as they incorporate the internet into their lives? Without longitudinal panel studies, we must be cautious here.

However, the UKCGO survey does show that internet use is positively correlated with time spent on other media and social activities. Daily and weekly internet users spend more time playing computer games, doing homework, talking on the phone, going out and with friends. Occasional users spend more time watching television.

Far from the internet displacing other media, it seems that some children and young people are leading more media-centred, media-rich and more social lives while, for better or worse, others are not. Intriguingly, there are no differences for reading or spending time with the family by amount of internet use (see Table 13).[29]

Table 13: Average time spent on leisure activities, by frequency of internet use

Average time per day spent…	Daily user	Weekly user	Occasional user	Non-User	All
Watching TV	**5.31**	**5.47**	**5.71**	**5.65**	**5.44**
Reading	2.88	2.95	2.94	2.64	2.91
Playing computer games	**3.86**	**3.57**	**3.51**	**3.46**	**3.68**
Doing homework	**4.08**	**3.78**	**3.23**	**2.62**	**3.79**
With family	5.26	5.26	5.38	5.60	5.28
Talking on the phone	**3.34**	**2.97**	**2.78**	**2.91**	**3.09**
On the internet	**4.41**	**3.16**	**2.09**	**0**	**3.54**
Seeing friends	**6.01**	**6.02**	**5.72**	**5.57**	**5.96**
Going out	**5.40**	**5.06**	**4.88**	**4.71**	**5.19**

Base: All 9-19 year olds (N=1,511)
Note: Comparisons in bold are statistically significant at least at p<0.05.

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Appendix 1: Survey items and response options

(All asked in the children's survey unless stated as in the parents' survey.)

Frequency of use: Respondents were asked whether they use the internet (1) several times a day, (2) about once a day, (3) a couple of times a week, (4) about once a week, (5) a couple of times a month, (6) about once a month, (7) less often or (8) never.

Years online: We asked respondents how old they were when they first started using the internet and subtracted this from their current age. The range was 0-11 years.

Average time online per day: Respondents were asked to estimate the time they spend online on a typical weekday and a typical weekend day. From this, a composite score was calculated for the average time spent online per day: (1) none, (2) about ten minutes, (3) about half an hour, (4) about an hour, (5) between one and two hours, (6) between two and three hours or (7) more than three hours.

Online skills: We asked respondents which of the following seven online tasks they are good at – finding information on the internet, sending an instant message, fixing a problem on your computer, setting up an email account, downloading music, setting up a filter and removing a virus from your computer.

Self-efficacy (or self-rated internet expertise) was assessed on a four-point scale, with respondents being asked whether they think of themselves as (1) beginner, (2) average, (3) advanced or (4) expert in using the internet (see also Eastin and LaRose, 2000).

Online opportunities: The UKCGO survey asked 9-19 year olds (or 12-19 year olds for starred questions*) who go online at least once a week what they do on the internet. In all, 30 different opportunities were included. Using a factor analysis, these were grouped statistically into five distinct categories of online opportunity. Those young people who take up an opportunity from one category are also likely to take up others in the same category (see also Livingstone, Bober and Helsper, 2005).

- Interactivity opportunities: send an email/SMS to a site, vote for something online, use message boards, send pictures/stories to a site, access others' personal webpages*, offer advice to others online, fill in an online form about yourself, sign a petition online*
- Peer-to-peer opportunities: send/receive emails, play games online, send/receive instant messages, download music, watch/download video clips*, use chat rooms
- Commercial and career opportunities: look for info on careers/further education*, look for events listings online*, look for products/ buy something online*, plan a trip online*
- Civic opportunities: visit site for a charity/organisation that helps people*, visit site about protecting environment*, visit government website*, visit site about human/gay/children' rights*, sign a petition online*
- Other opportunities: use internet to do work for school/college, use it to get information for other things, do a quiz online, use the internet for someone else, try to set up a webpage, look for info on computing/web design*, read the news online*, visit a site about improving conditions at school/college/work*

Online opportunities taken by parent: The UKCGO survey asked parents of 9-17 year olds who go online at least a couple of times a month what they do on the internet. In all, eight different opportunities were included: using the internet for work, searching for information other than for work, sending/ receiving email, visiting chat rooms, using instant messaging, playing/ downloading games, checking what's going on in your area.

Parental rules and practices: We asked parents of 9-17 year olds (who, according to their parents, use the internet at least once a week and have home access) how they regulate their children's use of the internet in terms of rules and practices. Based on a factor analysis of the parents' replies, we grouped parental rules and practices for their children's internet use (total range 0-15) into two categories of restriction and two categories of monitoring. Parents who report a rule or practice from one category are also likely to employ others from the same category (see also Livingstone, Bober and Helsper, 2005).

- Privacy restrictions: Tell child not to give out personal information online, buy anything online, use chat rooms, fill out online forms or quizzes, download things
- Peer-to-peer restrictions: Tell child not to use instant messaging, download things, play games online, use email
- Supportive practices (overt monitoring or co-using): ask child what he/she is doing or did

on the internet, keep an eye on the screen when child is on the internet, help child when he/she is on the internet, make sure they stay in the same room when child is using the internet, sit with child and go online together

- Checking up (covert monitoring): check the computer later to see what child visited, check the messages in child's email account

Appendix 2: The 'UK Children Go Online' research project

UK Children Go Online (UKCGO) seeks to offer a rigorous and timely investigation of 9-19 year olds' use of the internet (see www.children-go-online.net). The authors thank the research funders (the Economic and Social Research Council under the 'e-Society' Programme, see www.london.edu/e-society, AOL UK, BSC, Childnet-International, Citizens Online, ITC and Ofcom), the Advisory Panel and Children's Online Panel, and all those who participated in the research.

Aims of the project

The project balances an assessment of two areas of risk with two areas of opportunity in order to contribute to academic and policy frameworks on children and young people's internet use in relation to:

1 Access, inequalities and the digital divide

2 Undesirable forms of content and contact

3 Education, informal learning and literacy

4 Communication, identity and participation

Research design and methods

The UKCGO research design consists of 3 phases (April 2003 - April 2005):

1 **Qualitative research:** 14 focus group interviews with 9-19 year olds around the UK (summer 2003), nine family visits and in-home observations (2003/4), and a children's online panel.

2 **Quantitative research:** A major national, in-home, 40-minute face to face survey of 1,511 9-19 year olds and 906 parents of the 9-17 year olds, using Random Location sampling across the UK. The fieldwork, conducted via multi-media computer-assisted personal interviewing (CAPI) with children, and a paper questionnaire completed by their parents, took place between 12 January and 7 March 2004 and was carried out by BMRB International.

3 **Qualitative research:** This followed up findings from the survey with 13 focus group interviews and observations in autumn 2004, plus a reconvening of the children's online panel.

See www.children-go-online.net for project reports, the research ethics policy, and contact information.

UKCGO children's and parents' survey samples

In this report, percentages have been weighted in accordance with population statistics; sample sizes are reported as unweighted. The sample characteristics (N=1511) are as follows:

Child sample (N=1,511)

Age	9-11 years (N=380), 12-15 years (N=605), 16-17 years (N=274), 18-19 years (N=251), Don't know (N=1)
Gender	Boys (N=842), Girls (N=669)
SES	AB (N=264), C1 (N=418), C2 (N=407), DE (N=422)
Region	England (N=1,228), Wales (N=69), Scotland (N=166) Northern Ireland (N=48)
Ethnicity	White (N=1,336), Non-white (N=171), Not states (N=4)

Parent sample (N=906)

Age	18-24 years (N=5), 25-34 years (N=134), 34-44 years (N=470), 45-54 years (N=209), 55+ years (N=42), Not stated (N=46)
Relationship with child	Mothers (N=659), Fathers (N=232), Other (N=10), Not stated (N=5)
SES	AB (N=167), C1 (N=254), C2 (N=257), DE (N=228)
Region	England (N=719), Wales (N=42), Scotland (N=109), Northern Ireland (N=36)
Ethnicity	White (N=841), Non-white (N=63), Not stated (N=2)

Endnotes

[1] See Bradbrook and Fisher (2004), Bromley (2004), Compaine (2001), Foley et al (2003), Norris (2001), Selwyn (2003, 2004) and Warschauer (2003).

[2] See Norris (2001) on divides by nation, Loges and Jung (2001) on divides by age, Hoffman et al (2001) on ethnicity, Lazarus and Mora (2000) and Rice (2002) on income, and Chen and Wellman (2003) on region.

[3] Although see Broos and Roe (2003), Clark (2003), Holloway and Green (2003), Facer and Furlong (2001), Bolt and Crawford (2000), and Becker (2000). Particularly little is known of the reasons or causes behind non-use or low-use by teenagers, and even less is known of younger children.

[4] See Livingstone and Bovill (2001a), Van Rompaey and Roe (2001) and Van Rompaey et al (2002) on parents' role in introducing and regulating children's internet use at home; and Attewell and Battle (1999), Facer et al (2000), Kerawalla and Crook (2002) and Livingstone and Bovill (2001b) on parents' role in mediating the home-school link.

[5] Note that surveys, ours included, typically do not examine alternative routes to education, information, social networks etc, and so cannot compare internet use with other routes to positive social goals.

[6] See Golding (2000).

[7] See Compaine (2001).

[8] Bradbrook and Fisher (2004) identify five key issues for research here: connectivity, capability, content, confidence and continuity; all expanding the agenda from a tracking of 'mere access'. Note that discussion of the digital divide often assumes that having internet access will enhance children's educational performance. However, home computing, along with internet access, may generate another 'Sesame Street effect' whereby an innovation that held great promise for poorer children to catch up educationally with more affluent children instead increases the educational gap between affluent and poor (Attewell & Battle,1999:1; see also Bonfadelli, 2002, on knowledge gaps).

[9] The many questions asked of each individual were crucial because, as we move beyond simple polarisations between technology 'haves' and 'have-nots', it is imperative to identify multiple criteria for the extent and quality of access and use. It is here that differences among population sub-groupings show up clearly.

[10] See Dutton (2005).

[11] For example, we could instead divide the 71% with home access from the 29% without, but perhaps that places too much emphasis on the benefits of home access. An alternative would be to divide the 24% with broadband access at home from those without. Or, for a more even split, one could divide the 41% who use the internet daily from the 59% who do not. And so on. Our point here is that distinguishing among the more and less advantaged in terms of internet access is a multi-criterion decision.

[12] The 56% who use the internet either occasionally or, more often, weekly, are neither digitally excluded nor yet, we suggest, fully included. They are, as we have argued in earlier reports, those who are taking the first steps, pursuing some interests but not always following through, gaining some skills but finding other aspects of the internet frustrating (Livingstone, Bober and Helsper, 2004 & 2005). For example, among these 56% of young people, 73% visited fewer than five sites in the week before the survey, hardly a wide-ranging use of the internet. And 91% claim fewer than five of the nine online skills we asked about, hardly a high level of online expertise.

[13] Although we do not develop the point here, we have shown previously (Livingstone, Bober and Helsper, 2005) that there is a strong, positive association between quality of use, measured by the online opportunities children take up and the risks they encounter on the internet (such as pornographic and violent content, chat danger, privacy risks or online bullying). Increasing opportunities increases the risks; restricting children and young people's internet use reduces not only the risks but also their opportunities. Thus, online opportunities, and online safety, bear a cost.

[14] In what follows, demographic differences are described as such only if they are statistically significant.

[15] Defined as internet access at home via a computer/laptop, digital television, games console or mobile phone.

[16] The difference in 12-15 and 18-19 year olds was similar (12-15: 10.7 opportunities among weekly and 8.2 among daily users; 18-19: 12.9 opportunities among daily and 10.3 among weekly users).

[17] For example, see Weiser (2000), Odell et al (2000), Shaw and Grant (2002), Cummings and Kraut (2002), Singh (2001), and Ono and Zavodny (2003).

[18] This finding parallels earlier findings regarding the home computer: for girls and boys, differences in frequency of use exist even given equivalent access (Livingstone and Bovill, 1999).

[19] Socio-economic status is measured according to the standard market research categories: A – Upper middle class (Higher managerial administrative or professional occupations, top level civil servants), B – Middle class (Intermediate managerial administrative or professional people, senior officers in local government and civil service), C1 – Lower middle class (Supervisory or clerical and junior managerial administrative or professional occupations), C2 – Skilled working class (Skilled manual workers), D – Working class (Semi and unskilled manual workers), E – Those at lowest levels of subsistence (All those entirely dependent on the State long term, casual workers, those without regular income). Socio-economic status is strongly correlated with measures of parental occupation, education and income: only 12% UK households in the lowest income group (below £123 per week) had home access in 2002/03 compared with 85% of households in the highest income group (over £1,085 per week) (ONS, 2005).

[20] See Bourdieu (1984), Golding and Murdock (2001).

[21] This finding parallels earlier findings regarding the home computer: for middle and working class children, differences in frequency of use disappear given equivalent access (Livingstone and Bovill, 1999).

[22] In our previous UKCGO report on internet literacy among children and young people (Livingstone, Bober and Helsper, 2005), we showed that while internet access is directly related to socio-economic status, with middle class children more likely to have home access, SES does not directly influence frequency of internet use, average time online per day or levels of online skills and self-efficacy. These variables are, instead, related to home access (and, since this follows from gaining home access, to the number of years the child has been online). Thus, children and young people who have home access and have spent more years online use the internet more often, spend more time online per day and have higher levels of online skills and self-efficacy.

[23] The 2004 'Index of Multiple Deprivation' for England combines seven domains of neighbourhood deprivation: income deprivation, employment deprivation, health

deprivation and disability, education, skills and training deprivation, barriers to housing and services, living environment deprivation and crime (Office of the Deputy Prime Minister, www.odpm.gov.uk, 2004). Socio-economic status correlates significantly with deprivation.

[24] Note that this might be due to the relatively small numbers of ethic minorities in the survey sample: 1,333 respondents were of white background, 91 Asian, 35 black, 4 Chinese and 39 of mixed ethnic background. Hence, only 66% of children from a black background had home access compared with an average of 74% among the other ethnic groups; but this difference is not statistically significant.

[25] Disability was measured by asking respondents, 'Can I just check, do you have any long-standing illness, disability or infirmity? By long-standing I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time?'. Ten percent of 9-19 year olds replied 'yes'.

[26] The main reasons for non-use in the US, according to the Digital Future Report (USC, 2004) include lack of access (40% of non-users and 43% of drop-outs say this), followed by a lack of interest (24% of non-users, 7% of drop-outs) and not knowing how to use the internet (18% of non-users); see also Selwyn (2003) and Wyatt et al (2002).

[27] In order to test which variables contributed significantly to a child being either a frequent or a low user, a binary logistic regression technique was applied. The variables entered into the model were: age, gender and socio-economic background of the child (both gender and SES were entered as categorical variables), the number of access points, access in child's bedroom, parental frequency of use, parental internet self-efficacy and skills and the perceived benefits of media in general, and television and the internet in particular. Through backward elimination (using Wald's criteria), the simplest best-fitting regression model included age, access points, bedroom access, parental self-efficacy and parental attitudes towards the benefits of the internet ($X2=5.77$, Hosmer & Lemshow $p=.67$).

[28] If we set aside parental factors (so as to include 18-19 year olds in the analysis), it turns out that access is most important in determining internet use and that socio-demographic variables play less of a role. The variables that remain in the model are total number of access points, whether the child has access in the bedroom and whether the child has broadband access.

[29] While these findings may seem surprising, they are consistent with previous research on the arrival of the home computer and, before that, television (Livingstone, 2002).