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ARTICLE

Gradations in digital inclusion: children, young people and the digital divide

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Abstract

Little academic and policy attention has addressed the 'digital divide' among children and young people. This article analyses findings from a national survey of UK 9–19-year-olds that reveal inequalities by age, gender and socioeconomic status in relation to their quality of access to and use of the internet. Since both the extent of use and the reasons for low- and non-use of the internet vary by age, a different explanation for the digital divide is required for children compared with adults. Looking beyond the idea of a binary divide, we propose instead a continuum of digital inclusion. Gradations in frequency of internet use (from non and low users through to weekly and daily users) are found to map onto a progression in the take-up of online opportunities among young people (from basic through moderate to broad and then all-round users), thus beginning to explain why differences in internet use matter, contributing to inclusion and exclusion. Demographic, use and expertise variables are all shown to play a role in accounting for variations in the breadth and depth of internet use.

Key words
children and young people • digital divide • digital inclusion • internet • internet literacy

INTRODUCTION

> 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)

Considerable academic and policy attention has recently addressed the so-called 'digital divide', 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 (Bradbrook and Fisher, 2004; Bromley, 2004; Foley et al., 2002, 2003; Selwyn, 2003, 2004a, 2004b; Warschauer, 2003). Lack of access is associated with disadvantage in financial, educational or cultural resources, and much research has focused on divides by nation (Norris, 2001) and, within developed nations especially, on divides by region (Chen and Wellman, 2003), age (Loges and Jung, 2001), ethnicity (Hoffman et al., 2001) and income (Rice and Haythornthwaite, 2006). However, most research has focused on adult populations, even though, in recent years, children in Western countries have rapidly gained access to the internet at both school and home, strongly supported by public policy and industry initiatives.

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, or the reasons why some of them make low or no use of the internet (although see Broos and Roe, 2003; Clark, 2003; Holloway and Green, 2003). 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 (Facer and Furlong, 2001; Livingstone et al., 2005). Does the lack of research mean that children and young people have no difficulties accessing and using the internet or that inequalities do not divide them?

FROM THE DIGITAL DIVIDE TO DIGITAL INCLUSION

Both the public debate and the research agenda have shifted substantially as internet access has become widespread. Some argue that the problem of the digital divide is all but resolved (Compaine, 2001). Most, however, argue that

'mere access' is insufficient to ensure equality of opportunity, seeking to move the debate on from a concern with material access to the technology to the trickier question of social and cultural factors that influence use:

> A lack of meaningful use . . . is not necessarily due to technological factors . . . or even psychological factors . . . engagement with ICTs is based around a complex mixture of social, psychological, economic and, above all, pragmatic reasons. (Selwyn, 2004a: 349)

Technological innovation requires a recurrent rather than a one-off investment of money, time and effort on the part of the general public. In this process, social stratification continues to matter (Golding, 2002; Spears et al., 2000). There is a risk that increasing internet penetration will exacerbate rather than reduce inequalities. This is partly 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 (Rogers, 1995). It is also because digital exclusion is strongly associated with traditional forms of social exclusion – by socioeconomic status, region, deprivation, etc. (Norris, 2001). The concern, then, is that '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). Thus, it is vital to examine who is or is not using the internet, why and with what consequences (Anderson, 2005; Selwyn, 2003; Warschauer, 2003), and this applies to children no less than to adults.

The UK government frames this conceptual and policy shift in focus from 'basic' access to 'advanced' 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)

In effect, the academic debate has reframed the 'digital divide' in terms of the social inclusion agenda, refocusing attention on 'digital inclusion':

> A framework of technology for social inclusion allows us to re-orient the focus from that of gaps to be overcome by provision of equipment to that of social development to be enhanced through the effective integration of ICT into communities and institutions. This kind of integration can only be achieved by attention to the wide range of physical, digital, human, and social resources that meaningful access to ICT entails. (Warschauer, 2003: 14)

It should be noted, however, that public concern over differences in access has not yet resolved the question of exactly what benefits internet use brings, and too often it is simply assumed that being online is necessarily a 'good thing'.

For researchers, identifying how people use the internet, and with what consequences, is not as straightforward as determining whether they have access. For example, how should we conceptualize the practical skills and subtle competencies which facilitate confident internet use, the lack of which limits the use of new and inexpert users if not excluding them altogether? The nature of use and the skills required to maximize the benefits of internet use may be measured in many ways – frequency of use, time spent online, kinds of uses, expertise in use, specific skills online, attitudes towards internet use and so forth.

The research task has thus shifted to that of capturing the range and quality of use, transcending simple binaries of access/no-access or use/non-use and tracking shifting 'degrees of marginality' in digital inclusion and exclusion (Murdock, 2002: 387; see also Foley et al., 2003). For example, Hargittai (2002) pursued the question of skills, revealing considerable variation in the success of people's online search strategies. Others have examined strategies for including the digitally excluded (Hellawell, 2001; Livingstone, 2005) or the reasons for non-use (Dutton et al., 2005; Wyatt et al., 2002).

In a recent report, Livingstone et al. (2005) mapped children and young people's internet literacy, identifying a range of socio-demographic barriers to and enablers of internet literacy as well as showing how internet literacy mediates the benefits (and the risks) of internet use. For children and young people, it seems, the more literacy, the more opportunities are taken up. Similarly, Cho et al. (2003) found young, upper-class users were more effective in obtaining the gratifications they sought online, while others took indirect or multiple routes to achieve the same end.

In the present article, we focus on inequalities in the take-up of online opportunities. We have termed these 'opportunities' rather than simply 'activities' in order to acknowledge the offline and online structures that may enable or constrain young people's activities, as an alternative to a more individualistic or motivational account. Thus we ask the following questions in relation to children and young people:

1. Is there a digital divide among children and young people? If so, what role do age, gender and socioeconomic status (SES) play in access to and use of the internet?
2. Who makes little or no use of the internet and why?
3. Are there gradations in quality of internet use among children and young people and, if so, how can these be explained?

DESIGN AND METHOD

As part of a broader, quantitative and qualitative research project on children and young people's use of the internet in the UK, a national survey, 'UK Children Go Online' (UKCGO), was conducted through an in-home, 40-minute, face-to-face, computer-assisted interview with children and young people aged 9–19,

using random location sampling across the UK.[1] Following the design and piloting of the survey questionnaire by the research team, the fieldwork was carried out by a reputable market research company (BMRB International). This was conducted via multi-media computer-assisted personal interviewing with children, together with a paper questionnaire completed by one parent of each of the 9–17-year-olds, in Spring 2004. Informed consent was obtained from all respondents and, for respondents under 18 years old, from a parent also (see www.children-go-online.net for the research ethics policy).

In total, 1511 interviews with 9–19-year-olds were completed (see Table 1). Further, 1077 parents of those aged 9–17 agreed to complete a questionnaire of which 920 paper questionnaires were received and 906 were usable. In this article, percentages have been weighted to data from BMRB's Target Group Index and Youth surveys. The weighting efficiency was 91 percent and the effective sample size was 1375.

The UKCGO survey asked respondents a range of questions including, for our present purposes, the extent of use (years online, frequency of use, time online per day), the skilled use of the internet (online skills and perceived self-efficacy online) and the range of online opportunities that children and young people take up.[2]

FINDINGS AND DISCUSSION

Is there a digital divide among children and young people?

The vast majority of children and young people access the internet at home (74%) or at school (92%). Most children and young people use it daily (41%) or weekly (42%). Only 13 percent are occasional users (i.e. use it less than once a week), and just 3 percent count as non-users (Table 2). The finding that only 3 percent are non-users is consistent with findings in northern Europe (Larsson, 2003), the USA (Lenhart, 2005) and elsewhere (Cole, 2004).

• Table 1 Distribution of survey participants (N = 1511), by demographic characteristics

Demographics	Subgroup sample sizes			
Age	9–11 years (N = 380)	12–15 years (N = 605)	16–17 years (N = 274)	18–19 years (N = 251)
Gender	Boys (N = 669)	Girls (N = 842)		
Socioeconomic Status (SES)	AB (N = 264)	C1 (N = 418)	C2 (N = 407)	DE (N = 422)
Region	England (N = 1228)	Wales (N = 69)	Scotland (N = 166)	Northern Ireland (N = 48)
Ethnicity	White (N = 1336)	Non-white (N = 171)		

The frequencies in this table are based on unweighted data.

• Table 2 Frequency of internet use among 9–19-year-olds, compared with parents (%)

	CHILD (1)	PARENT (2)
Non-user (have never used)	3	22
Occasional user (less than once a week)	13	17
Weekly user (one or more times a week)	43	21
Daily user (one or more times a day)	41	39

Base: (1) children 9–19 years old (N = 1511); (2) parents of 9–17-year-olds (N=906).

However, this is considerably smaller than the finding that 22 percent of their parents are non-users and that, in the UK generally, one-third lack access to the internet (Dutton et al., 2005). Therefore, the simple conclusion is that a binary divide between haves and have-nots, or users and non-users, no longer applies to young people as it does to the adult population.

Are there inequalities in access and use among the young?

Since 'access' is no longer a unitary phenomenon, there may be inequalities in the nature and quality of access. Table 3 shows that lacking access to the internet is a matter of both age and SES (though not gender): non-users are more likely to be found among the oldest age group and the youngest age group, and they are more common among poorer households.

As regards the quality of access, Table 3 shows the number of locations in which 9–19-year-olds have internet access, whether they have access at home, whether they have broadband at home and whether they have access in their own bedroom. These data reveal that gender, age and SES all matter to where and how young people gain internet access. Boys have access to the internet in more places, and are more likely to have it in their bedroom, compared with girls. The oldest and youngest groups have less home access than the younger and middle teenagers, while older teens have more points of access, and more private access in their bedroom. Last, middle-class children have more access points, and the most affluent are considerably more likely than the poorest group to have home access, broadband and bedroom access.

In short, as predicted by sociological theories of stratification and inequality, as the market continues to innovate it seems that higher SES households will maintain their position of advantage, first through gaining access and then through increasing the quality of that access (Bourdieu, 1984; Golding and Murdock, 2001; Mackay, 1997).

As with the above discussion of access, the UKCGO survey measured not only use but also the nature and breadth of use. Table 4 shows that boys use the internet more often than girls, have been online for longer, and spend longer online. The age differences in frequency of use are non-linear for both frequency of use and time spent online, with young to mid-teens being more

• Table 3 Dimensions of access to the internet, by demographics

	% non-users		Average number of access points		% access at home		% broadband access		% bedroom access	
Boys	3		3.02	**	74		35		22	**
Girls	3		2.81		73		36		15	
9–11	4	**	2.30	**	70	**	36		10	**
12–15	1		3.02		74		33		19	
16–17	2		3.32		83		40		26	
18–19	8		3.18		69		33		24	
AB	0	**	3.38	**	91	**	43	**	20	**
C1	3		3.13		83		35		22	
C2	3		2.74		77		31		21	
DE	7		2.41		47		25		13	
Average	3		2.92		74		35		19	

Base: All 9–19-year-olds in UKCGO survey (N = 1511).
**Differences significant at $p < 0.01$.

• Table 4 Extent of internet use, by demographics

	Frequency of internet use (scale 1–8)		Years of internet use		Average time online (scale 1–7)	
Boys	6.01	*	3.7	**	3.6	*
Girls	5.84		3.4		3.4	
9–11	5.30	**	2.4	**	2.9	**
12–15	6.22		3.3		3.7	
16–17	6.41		4.3		4.0	
18–19	5.66		4.9		3.6	
AB	6.26	**	3.8	**	3.7	**
C1	6.06		3.7		3.6	
C2	5.97		3.3		3.5	
DE	5.45		3.4		3.3	
Average	5.93		3.6		3.5	
N=	1511		1229		1459	

Base: All 9–19-year-olds in UKCGO survey (N = 1511).
*Differences significant at $p < 0.05$.
**Differences significant at $p < 0.01$.

experienced users although, unsurprisingly, the older the child is, the more years they have been online. Last, working-class children make systematically less use of the internet than do middle-class children.

Does equivalent access eliminate demographic differences in use?

In the above analyses, we have compared cohorts for internet use, not taking into account the variation in home access. Does providing home access eliminate differences in use, as hoped by parents? Comparing frequency of

use by demographics, just for those with home access, Table 5 shows that age and gender differences persist, even when home access exists: boys, and older teens, use the internet more frequently than girls and younger children. Ono and Zavodny (2003) found this also to hold for adults, when comparing those with equivalent access. However, interestingly, the SES difference observed in Table 3 disappears if we compare only those with home access.

In other words, children from lower SES homes who have home internet access use it just as much as those from higher SES homes: it seems that providing home internet access in low SES households helps to close the gap in use, potentially reducing disadvantage. The same cannot be said for age and gender differences, and so an alternative approach must be taken to reducing differences in use, if such is the policy objective. A 1997 survey of UK children and young people's computer use showed, similarly, that age and gender differences, but not SES differences, persist in amount of use once home access was equalized (Livingstone, 2002). It appears that, although children from different backgrounds make equivalent use of the internet if they have equivalent access, existing inequalities in access have important consequences: children and young people with home access tend to have spent more years online, to use the internet more often, to spend more time online per day and to have higher levels of online skills and self-efficacy (see also Livingstone et al., 2005).

Who are the non-users?

Although most children and young people use the internet, some do not. As we have seen, they tend to be either younger or older, and they tend to be

• Table 5 Frequency of use for those with home access

	Frequency of use among those with home access (scale 1–8)	
Boys	6.40	
Girls	6.20	*
9–11	5.70	
12–15	6.45	
16–17	6.69	**
18–19	6.37	
AB	6.41	
C1	6.28	
C2	6.28	
DE	6.18	
Average	6.30	
N=	1115	

Base: All 9–19-year-olds in UKCGO survey with home access (N = 1116).
*Differences significant at $p < 0.05$.
**Differences significant at $p < 0.01$.

poorer. A more detailed account of who they are and why they do not use the internet would seem warranted, now that nearly all of their cohort use the internet. Four types of non-users were identified and, since access and use are non-linearly related to age, we divided the types by age (Table 6).

It seems that for the youngest age group, the lack of access keeps them from using the internet. The picture is different for the oldest age group of 18–19-year-olds: while lack of access is still a problem, some in this age group seem to drop out voluntarily. Among younger teenagers, most non-users are voluntary drop-outs.

Who are the low users?

Since the category of 'users' encompasses nearly all children and young people, masking considerable variation in amount and nature of use, we also

• Table 6 Types of non-users, by age (%)

	Age				
	9–11	**12–15**	**16–17**	**18–19**	**All**
Voluntary drop-outs (have access, stopped using)	7	50	83	42	38
Involuntary drop-outs (lost access, stopped using)	7	0	17	5	6
Potential users (have access, never used)	27	25	0	16	19
Internet excluded (no access, never used)	60	25	0	37	38
	N = 15	8	6	19	48

Base: Non-users(N = 48/1511, 3.2% of population).
Note: The age differences should be taken as indicative only, as the sample sizes are small and the differences are not statistically significant.

• Table 7 Types of occasional users, by age (%)

	Age				
	9–11	**12–15**	**16–17**	**18–19**	**All**
Voluntary drop-outs (have home access, use less now)	18	26	24	32	24
Involuntary drop-outs (lost home access, use less now)	14	13	28	43	22
Choose-nots (have home access, never used much)	39	32	36	9	30
Marginal users (no home access, never used much)	29	30	12	16	24
	N=83	47	25	44	199

Base: All those who use the internet less than 'once a week' but more than 'never' (N = 199/1511, 13% of population).
Note: Differences significant at $p < 0.01$ ($X^2 = 28.61$).

identified four types of occasional users depending, as above, on their access and use (Table 7).

For the youngest children, the largest group is those who have access at home but make little use of it (choose-nots), followed by those who lack home access and make little use of the internet at school or elsewhere (marginal users). Given their youth, it makes sense that there are fewest drop-outs among 9–11-year-olds, leaving low use to be explained as a mix of lack of access and lack of interest.

The 12–15-year-olds are divided among voluntary drop-outs, choose-nots and marginal users, while the 16–17-year-olds are mainly choose-nots, followed by voluntary and involuntary drop-outs. For the oldest teens, most are 'involuntary drop-outs', for they use the internet less than they once did because they have lost access at home (perhaps because some have left home), though again, a sizable proportion do have home access but make less use of it ('voluntary drop-outs'). Thus, the proportion of drop-outs rises with age, and access remains an issue, especially for the oldest group.

Reasons for low and non-use

Although little research has asked why some children don't use the internet, there is a growing body of research examining reasons given by adults. Ofcom (2004) lists lack of interest and costs among the main explanations for non-use. The OxIS survey found that, besides access and interest, a lack of skills was an important reason as well as a certain fear of technology (Dutton et al., 2005; see also Selwyn, 2003; Wyatt et al., 2002). Similarly, the main reasons for adult non-use in the USA include lack of access, followed by lack of interest and not knowing how to use the internet (Cole, 2004).

Similar questions were asked in the UKCGO survey of 9–19-year-old occasional and non-users to discover why they do not use the internet (more). The findings, combined for the two groups for reasons of sample size, are shown in Table 8.

As for adults, and across all age groups, limited access is the most important reason that prevents children and young people from using the internet (more). The second main reason is lack of interest, and this is significantly more common among teenagers compared with 9–11-year-olds. Although not statistically significant, there is a hint that, for the youngest group, safety, parental restriction and lack of skills are also important. Lastly, the differences between the UKCGO children's survey and the Oxis adult survey are striking – lack of skills appears a greater barrier for adults than for children.

Lower levels of interest from some children and young people may seem puzzling, given the enthusiastic reception of the internet by the majority. Occasional and non-users were asked what they would do if they used the internet (more) (Table 9).

• Table 8 Reasons for low/non-use (multiple responses), by age (%)

	Age				
	9–11	12–15	16–17	18–19	All
I haven't got internet access	39	42	48	57	46
I'm not interested**	13	35	32	33	26
I don't have time	15	13	16	11	14
It's not really safe	10	4	6	8	8
It's too expensive	8	7	0	8	7
My parents don't let me access the internet	8	7	3	2	6
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 given	6	2	0	5	4
	N = 100	55	31	63	248

Base: 9–19-year-old-occasional and non-users (N = 248).
**Age difference significant at $p < 0.01$.

Most 9–11-year-olds would play games if they used the internet (more often), followed by using the internet for school, and creative uses such as making a drawing or a story, these being less popular among the other age groups. The oldest teens would download music, get information for things not related to school, and send/receive emails; they are the least interested in games. The middle age group (12–17 years) would use the internet for school work and exam revision sites, play games and also download music.

A comparison between these expectations and the online activities of frequent internet users reveals that, in part, low or non-use is a matter of misplaced expectations. Notably, given the general interest in instant messaging (70% of daily users and 30% of weekly users), 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. In general, the percentage of the non- and occasional users who say that they would undertake a certain activity online if they were using the internet is far lower than the percentage of current users that actually undertake these activities (on average, almost twice more; Livingstone and Bober, 2004), suggesting that low and non-users cannot anticipate how the internet could become embedded in their daily routines (Dutton, 2005) or that these young people have different priorities altogether.

Gradations of digital inclusion

In this article, it is not our purpose to assert a new binary divide – between, say, non-/low users and frequent users – in order to replace that between the haves

• Table 9 If you did use the internet (more often), what would you do online? (Multiple responses) (%)

	Age				
	9–11	**12–15**	**16–17**	**18–19**	**Total**
Play games**	62	52	40	36	51
Do work for school/college**	54	43	33	19	40
Download music*	25	39	55	57	40
Get information for other things**	22	27	47	45	32
Send/receive emails**	21	19	40	49	30
Computer/video games and cheats	37	24	21	26	29
Look for information on careers/ further education**	14	29	49	42	29
Look for cinema/theatre/concert listings and what's going on	23	24	25	40	28
Make something**	40	21	9	10	24
Look for products or shop online*	16	20	32	34	24
Exam revision sites to help prepare for a test or exam*	18	37	27	15	22
Watch/download video clips	19	11	19	23	18
Look for news**	20	5	10	28	18
Plan a trip**	7	9	12	29	14
Use instant messaging	7	16	15	19	13
Use a chat room*	2	11	10	15	8
For clubs groups, or sports teams that you are a member of	8	2	11	13	8
Look for information on ICT	6	4	13	10	8
Use message/bulletin boards*	3	4	0	12	5

Base: 9–19-year-old occasional and non-users (N=248).
*Age differences significant at $p < 0.05$.
**Age differences significant at $p < 0.01$.

and the have-nots. Rather, we seek to map a continuum of use, with gradations from non-use, through low use to more frequent use. Having considered the low and non-users, we now turn to consider variation within the 84 percent of frequent (daily plus weekly) users. How shall we examine the nature and breadth of their internet use, to discern differences or inequalities if they exist?

Characterizing the nature or quality of use is tricky, and the literature offers little guidance here. Curiously, even policy or intervention-focused discussions pay far more attention to the conditions that encourage or hinder use than to the kinds of uses to which the internet might, or should, be put. A pragmatic way forward asks what choices are being made by those who spend most time online. In other words, we suggest that the benefits of the internet (and hence the disadvantages of non- or low use) can be examined, at least initially, by mapping the number and types of online opportunities taken up. As we show below, this permits us to map a continuum in the breadth of internet use.

However, we do not, at this stage, offer value judgements about which kinds of use are 'better' than others, since long-term evaluations of the consequences of differential internet use remain to be conducted.

In the UKCGO survey, we asked 9–19-year-olds who use the internet at least once a week whether they engage in any of 15 online activities or opportunities. Table 10 reveals a neat relationship between the number of opportunities, and the nature of the opportunities, that children and young people take up. For clarity, we have shaded those opportunities taken up by at least half of the respondents.

It seems that going online is a staged process, with systematic differences between those who take up more and those who take up fewer opportunities.[3]

- Step 1 centres on information-seeking. This is the first step for everyone, and characterizes internet use among those who only take up 1–3 online opportunities in total. They may be termed *basic users* (16% of the population).

• Table 10 Type of opportunities taken up, by frequency of take up (%)

	Number of opportunities taken up						
	1–3	**4**	**5**	**6–7**	**8–9**	**10–14**	**Average**
Use for school	77	91	94	93	94	91	90
Look for general information	73	94	99	98	100	99	94
Play games	41	62	66	76	83	89	70
Email	22	48	73	89	97	97	72
Instant messaging	7	21	45	73	87	92	55
Download music	4	20	26	59	75	81	45
Do a quiz	10	27	42	48	65	80	44
Create website	6	17	24	33	56	81	34
Vote for something/ someone	3	7	10	19	38	67	22
Chat	1	5	14	21	40	53	21
Contribute to message board	1	3	2	10	32	70	17
Send pictures or stories	0	2	3	15	35	56	17
Offer advice to others	0	1	2	7	11	41	9
Sign a petition	0	0	1	4	12	39	8
Fill in a form about myself	0	1	2	4	13	39	8
% of sample	16	15	14	27	16	11	99
	N = 198	192	177	347	207	138	1263

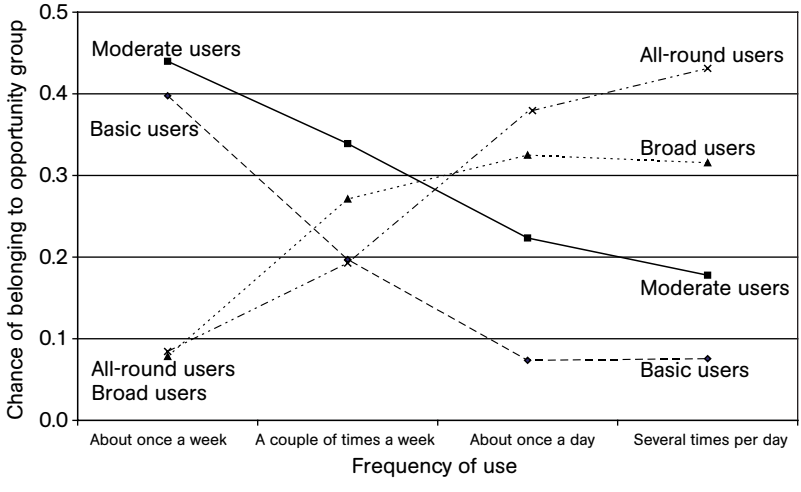
Base: All those who use the internet at least once a week (N = 1263, 84% of population).
Note: Some columns are combined for reasons of sample size. The shading indicates those opportunities taken up by more than 50% in the relevant column; just one person ticked all 15 opportunities.

- Step 2 adds in games and email. Thus, those who take up 4–5 opportunities are likely to use the internet for information, entertainment and communication. These may be termed *moderate users* (29%).
- Step 3 adds in instant messaging and downloading music. Those who take up 6–7 opportunities continue to seek information but they expand their peer-to-peer engagement. They may be termed *broad users* (27%).
- Step 4 adds in a wide range of interactive and creative uses, while continuing the foregoing uses, making for a diversity of uses among those who take up at least eight opportunities online. We call these *all-rounders* (27%).

The consistency in this pattern is intriguing. It seems that if one knows that a child does four things on the internet, one can make a fairly safe bet that these will include information-seeking, games and email. Similarly, one is most likely to find that website creation and chatting, for example, are only taken up by those who undertake all other activities as well.

Thus far, we have proposed two possible ways of thinking about a continuum of use, one based on amount of use (non-users, low users, weekly, daily), the second based on breadth of use (range of opportunities taken up). Importantly, if unsurprisingly, the two are strongly related, supporting the overall argument for rethinking the binary divide in terms of a continuum of inclusion (see Figure 1).

Figure 1 shows that, for those who use the internet once or more than once per day, the chance of belonging to the all-round group is between 0.38



• Figure 1 Chance of belonging to one of the four opportunity groups based on frequency of use
Base: All those who use the internet at least once a week (N = 1263).

and 0.43; this chance drops significantly to 0.19 for those who use it a couple of times per week and to 0.08 for those who use it once a week ($X_2 = 220.99$, $p < 0.001$). Similarly, the chance of belonging to the basic user group is 5.3 times larger for those who use the internet about once a week than for those who use it daily. In other words, when one knows that a young person uses the internet once a week, one can assume that he or she will do one to five things on the internet and that these will be mainly information, games, email and perhaps quizzes. Note further that the four lines separate as frequency of use increases, with the all-rounders being much more common among those who go online several times per day (while the broad group is as likely to go online twice a week as twice a day).

Explaining gradations in the nature of internet use

What do these four steps mean? Are the all-rounders more skilled in using the internet, or is it a matter of demographics, or both? Is frequency of internet use sufficient to account for breadth of use? To predict variation in opportunity-taking, General Linear Modelling (GLM) was used. Seven variables (gender, age, social grade, frequency of use, years of use, skills and self-efficacy) were entered into the full model.[4] The application of this technique permits modelling the relationships between predictor variables and online opportunities, taking into account any relationships among the predictor variables themselves. Interaction terms[5] among the socio-demographic, internet use and online expertise variables were all entered, of which three contributed significantly. The resulting model explains 40 percent of the variance in opportunity-taking (see Table 11).

• Table 11 Linear regression of socio-demographics, use and expertise on opportunity taking

	B	Std. error	Beta	Sig.
(Constant)	−3.21	1.27		0.01
Gender (dummy female = 1)	1.81	0.58	0.35	0.00
Age	0.20	0.09	0.22	0.03
SES	0.10	0.05	0.04	0.05
Frequency of use	0.25	0.12	0.09	0.04
Years of use	0.11	0.04	0.08	0.00
Skills	1.44	0.18	1.06	0.00
Self-efficacy	0.30	0.10	0.08	0.00
Interaction between age and gender	−0.12	0.04	−0.38	0.00
Interaction between age and freq. of use	0.03	0.02	0.17	0.03
Interaction between age and skills	−0.06	0.01	−0.71	0.00

Dependent variable: number of opportunities taken up (0–15).
Base: 9–19-year-olds who use the internet at least weekly (N = 1263).
$R^2 = 0.40$ ($F_{10,1213} = 78.70$, $p < 0.001$).

Table 11 shows main effects for gender, age, amount of use (frequency of use, years of use) and online expertise (skills, self-efficacy). Over and above differences due to age and gender, it seems that experience of the internet matters. Children and young people who have been online for longer, and who use the internet more often, take up more online opportunities. Similarly, greater online skills and self-efficacy (Eastin and LaRose, 2000) encourage children and young people to take up more opportunities. Conversely, those who have gained access more recently, and who lack confidence in their online skills, use the internet more conservatively, taking up fewer opportunities and, as the sequencing of online activities suggests, sticking with the more popular uses. These significant main effects also play a role in the three significant interactions, and so will be discussed in more detail in that context, below.

Note that although the demographic, use and expertise variables each make a larger difference in determining opportunity taking, there is also a main effect for SES of borderline significance ($p = 0.05$). This suggests that middle-class children take up more online opportunities than do working-class children, even controlling for the other variables. As shown earlier (see also Livingstone et al., 2005), this can be explained in terms of differential access to the internet at home, a benefit disproportionately enjoyed by middle-class children and one that results in greater use.

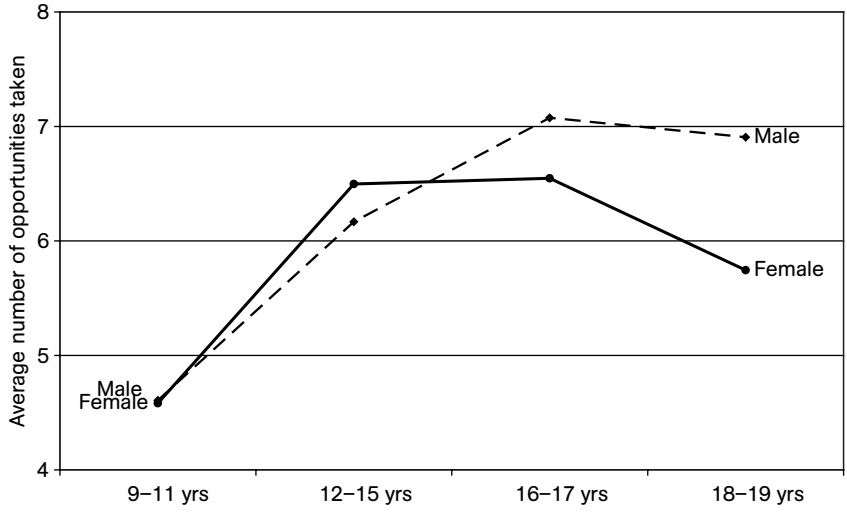
Next, the three interaction terms must be unpacked and understood. Note that, as each is an interaction with age, the observed age patterns may reflect either developmental or cohort effects, thus raising a question which cannot be resolved in the absence of longitudinal panel data. Developmental differences are, of course, to be expected when considering 9–19-year-olds (including the tendency for older teens to turn away from screen-based media, especially television; Livingstone, 2002). One explanation might be that as older teens expand their social lives, time spent online is displaced by time spent on other activities (interestingly, mobile phone use increases linearly with age and does not show a similar drop off at the age of 17). However, the non-linear age patterns observed, in which 18–19-year-olds' access and use is less than that for 16–17-year-olds, also suggests a cohort effect, for this group first acquired the internet at a later age (see Table 4) and they may have missed the major efforts to introduce the internet into schools.

First, why is there an interaction between age and gender? There has been growing discussion in the literature about whether gender differences in internet use still exist, now that the culture of computer anxiety has dissipated, along with the once-nerdy image of computer users. Figure 2 shows clearly that, among younger children, there is little if any gender difference. However, by the early to mid-teens, by which time the number of opportunities taken up is expanding, a gender difference has opened up, with the girls reaching a plateau at around six or seven opportunities while boys continue to expand their online opportunities until they too reach a plateau

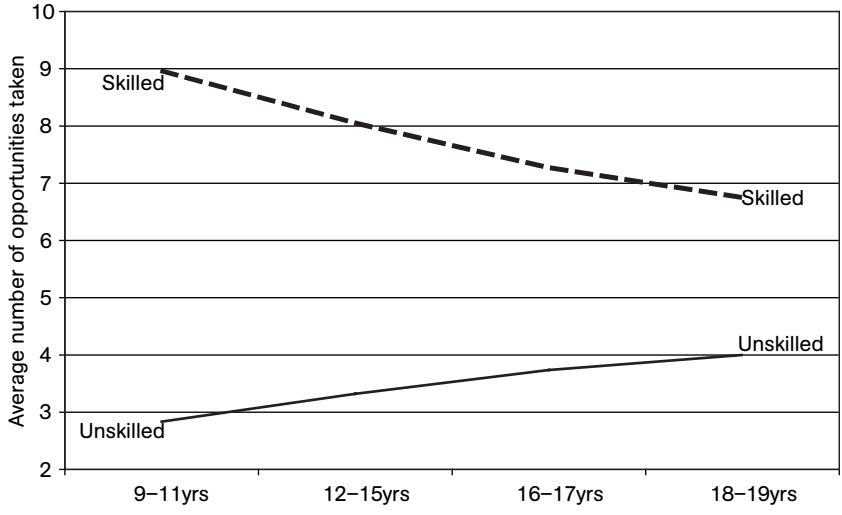
by the age of 16–17. The drop in opportunity taking evident for both genders by 18–19 probably reflects the lower levels of access and use already noted among this cohort. In the future, it may be that boys will continue to expand their opportunities, though it may instead be that the present cohort, when older, will not manifest gender differences as they enter their teens. However, the present fall-off in girls' opportunities in their early teens fits feminist theories of adolescent development, pointing to a gendered culture that disadvantages teenage girls (Gilligan, 1993).

The second significant interaction in Table 11 is between age and frequency of use. Thus, not only do frequent users use the internet more broadly than infrequent users within any age group, there is also an interaction such that the difference in opportunity-taking between infrequent and frequent users is greater for older than younger teens. This suggests, then, that for older teens, encouraging more internet use will result in the take-up of disproportionately more opportunities than it would for younger children. This may be a developmental effect, with older teens more able and ready to benefit from internet use given the opportunity to use it freely.

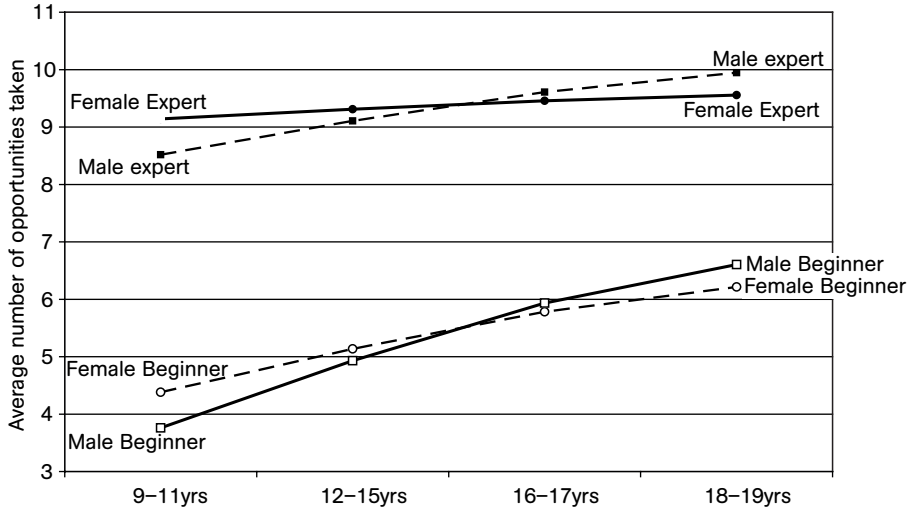
The interaction between age and skills is contrary to that between age and frequency of use. Differential levels of online skills make more difference among the youngest children than among the older teens (see Figure 3). In effect, skilled 9–11-year-olds get a head start in taking up opportunities compared with their peers, but by the late teens, differential skills make much less



• Figure 2 Relationship between age, gender and opportunity-taking
Base: 9–19-years-olds who use the internet at least weekly (N = 1263).
Note: Raw data were used to depict the relationship (i.e. this figure is not based on the model in Table 11).



• Figure 3 Interaction between age and skill level in determining opportunity take-up
Base: 9–19-year-olds who use the internet at least weekly (N = 1263).



• Figure 4 Relations between age, gender, expertise and opportunities taken, controlling for socioeconomic status
Base: 9–19-year-olds who use the internet at least weekly (N = 1263).
Note: An *expert* in this figure is a person who classifies themselves as expert, has used the internet for 4.3 years, has 4.5 skills and uses the internet once a day (these numbers being based on averages for a person self-classifying as an expert). A *beginner* is a person who self-identifies as beginner, has used the internet for 2.3 years, has one skill and uses the internet more than once a week but less than once a day. All those in the figure are from social grade DE homes.

difference. This suggests that interventions to improve young people's internet skills would be more effectively targeted at younger rather than older children.

Since the linear equation model permits a number of predictions, in Figure 4 we represent these interactions between age, gender, use and expertise, holding SES constant. Thus Figure 4 compares expert low social grade users with inexpert low social grade users, also showing the differences between boys and girls at different ages.

From Table 11, one can see how the relationship between age and opportunities differs for boys and girls (because age and gender interact). While for boys the number of opportunities taken up increases steeply with age, for girls it does so less steeply. Thus in Figure 4, there is almost no difference between young and older expert girls, but there is a difference for boys: young expert boys take up fewer opportunities than girls, but older expert boys take up more. A similar pattern is evident for beginners, with the important exception than older, inexpert girls take up considerably more opportunities than younger, inexpert girls. Still, the increase in opportunity taking for boys as they get older is greater than for girls, though inexpert boys use the internet less broadly than inexpert girls when they are younger.

In summary, four points can be deduced from the linear model presented in Table 11 and in Figures 3 and 4:

- In general, opportunity take-up increases with age: those who are older take up more opportunities, irrespective of gender and socioeconomic status.
- Girls use the internet in a greater variety of ways than boys at a younger age (9–15 years) but boys make broader use of the internet at an older age (16–19 years).
- Those who are more expert at using the internet (more years of use, more skills and higher self-efficacy) make a broader use of the internet.
- Expertise has a bigger impact than age: not only do skilled users take up more opportunities than unskilled users, and older children take up more opportunities than younger children, but the youngest group of experts takes up more opportunities than the oldest group of beginners.

CONCLUSIONS

Since little academic attention has addressed the 'digital divide' among children and young people, by comparison with the body of work on adult populations, this article has examined the nature of access and use of the internet among a national sample of UK 9–19-year-olds. In addition to correcting the academic neglect of youth in this field, such findings may inform the growing number of policy initiatives addressing the digital divide among young people – these include the UK's Equity Digital Divide

Campaign, the EU's Best eEurope Practices campaign (BEEP), the Commonwealth Youth Programme and many others.[6]

As in other developed countries, the findings show that there are very few children who do not use the internet, unlike their parents and adults in general, making the simple assertion of a binary divide between haves and have-nots, or users and non-users, no longer applicable to young people. However, this is not to say that issues of access are no longer relevant, for the findings reveal inequalities by age, gender and socioeconomic status in relation to their quality of access to and use of the internet. Boys, older children and middle-class children all benefit from more and better quality access to the internet than girls, younger and working-class children. Further, these differences matter: the survey also reveals age, gender and SES differences in internet use although, interestingly, the SES differences in amount of use disappear if just those with home access are compared. In other words, boys and older children use the internet more whether or not they have home access, but the greater use among middle-class children is a result of their greater home access. Initiatives to equalize access could thus be expected to reduce differences in use across households (i.e. SES) but not within them (i.e. age and gender). Such initiatives will, however, be complicated by the 'moving target' of internet access, with the diffusion of broadband, the proliferation of platforms and the diversification of access locations all providing ways for middle-class households to maintain their advantage.

Even on the basis of a national survey, it is difficult to determine the reasons for low and non-use of the internet among children and young people, for the sample sizes become very small. Future research could usefully focus on these groups. The indications are, however, that a mixture of reasons accounts for their low or non-use: restrictions on access, lack of interest and, possibly, parental anxieties about internet safety (Livingstone et al., 2005). It may also be that those who make little or no use of the internet do not understand the benefits it brings to their peers, thus contributing to their apparent lack of interest.

The main focus of this article has been on the nature, quantity and quality of internet use. Given the paucity of discussion over why differences in access and use matter – in other words, whether differences in use result in inequalities in society – we began with a simple classification, dividing the population of 9–19-year-olds into four categories (non-users, occasional users, weekly users and daily users). The advantage of this approach is that it transcends the binary thinking of the digital divide and permits an exploration of a continuum of internet use, shifting attention to those who, while classed as 'users', may not yet be gaining all the benefits of going online. Our purpose was to reveal the complex factors that underlie the continuum of use and to identify the consequences of greater or lesser use in terms of the take-up of online opportunities.

Gradations in frequency of internet use (from non- and low users through to weekly and daily users) were found to map onto a progression in the take-up of online opportunities among young people (from basic through moderate to broad and then all-round users). In the absence, thus far, of long-term evaluations of the consequences of differential internet use, these findings suggest that going online is a staged process in which the benefits of internet use depend not only on age, gender and SES but also on amount of use and online expertise (skills and self-efficacy).

The four main gradations on the continuum may be characterized thus:

- Non-users are more likely to be from working-class households and from the 9–11 or 18–19-year-old groups. Only half of the non-users have access to the internet at school and very few have home access or access elsewhere. A fair proportion claims to have little interest in using the internet though, unlike adult non-users, they seem not to feel they lack the skills to use it; however, they may lack a sound appreciation of what users are doing online.
- Occasional users are again more likely to be working class, though over half have home access, and most have access at school. Their quality of access is poorer than for more frequent users (in terms of broadband, and bedroom access). Not only do they not go online very often, they also spend less time online and, like the non-users, they explain their low use in terms of difficulties of access and lack of interest.
- Those who go online at least weekly are spread across the SES categories. Most have access at home, school and elsewhere, and they spend longer online than the occasional users. They consider themselves 'average' in their skills, and they take up about five of the online opportunities we asked about – positioning them on Steps 1 ('basic') or 2 ('moderate') of our 4-step progression. Mainly, therefore, they use the internet for school work, information, games and email. In the past week, they claimed to have visited between one and four different websites.
- A little older than the weekly users, the daily users come from more middle-class homes and benefit from better quality internet access. One in three has the internet in their bedroom, for example, and nearly half have broadband. They have been online for longer than the other groups, and spend longer online each day. They also consider themselves more skilled (self-labelling themselves 'advanced' users), and they take up on average seven opportunities, putting them on Step 3 ('broad') or 4 ('all-round') of the opportunities progression. This makes their internet use less predictable: for example, they claimed to have visited five to ten different websites in the previous week. Over half use it for school work, information, email, instant messaging, games, downloading music and looking for cinema/theatre/concerts.

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 breadth of internet use, thus warranting continued attention to socioeconomic disadvantage in relation to internet use. The findings also show how age and gender shape and define the opportunities taken up by young people. Indeed, the complex patterning of demographic influences provides some clues for how to target interventions designed to reduce inequalities. It appears that for younger children skills-based interventions would be optimal, while for older teens encouraging more frequent use will enhance the take-up of opportunities. Attention is also needed to the apparent drop-off in girls' interest in exploring online opportunities by their mid-teens. As noted earlier, the importance of age, interacting as it does with the other influential factors, invites longitudinal research in the future if we are to disentangle developmental from cohort explanations.

Finally, we note that internet use is hardly a goal in itself. This article has sought to focus attention on what benefits internet use might bring, beginning with an examination of how more or less experienced users take up online opportunities. The findings support the implicit yet widespread policy assumption that basic use makes for a narrow, unadventurous, even frustrating use of the internet, while more sophisticated use permits a broad-ranging and confident use of the internet that embraces new opportunities and meets individual and social goals.

For the field, identifying the benefits, and tracking them over time and for different population sectors, is essential if research is to link patterns of internet use to the broader social inclusion/exclusion agenda. For the notion of *digital* exclusion, although much discussed in policy circles, remains unclear (Anderson and Tracey, 2001; Foley et al., 2003; Warschauer, 2003). This is partly because, problematically, research rarely considers the structured array of opportunities in people's everyday lives so as to contextualize the online within the offline. At present, for example, people may approach learning, careers advice, participation or any other social benefit through both online and offline means, with the balance of resources still greatly favouring offline routes to inclusion. If and when this balance alters, online routes to inclusion will become more important, and the costs of digital exclusion will become more apparent.

Within policy circles, it would also seem that certain kinds of uses are normatively judged more 'legitimate'. For example, it is a persistent finding that those seeking to provide access to overcome disadvantage are dismayed when new users take up online games over educational or career advancement (Buckingham et al., 2001; Clark, 2003). Similarly, it is evident that the quotation from Kofi Annan (2003), with which we opened this article, values information uses, and that the UK government prefers educational, commercial and civic activities over e-mail and browsing. The

progression of online activities identified in this article suggests that the route to such socially-valued activities may best (or only) be reached through facilitating entertainment and communication online, these being the activities, for children and young people at least, that encourage broader and more confident use of the internet. In this way, the habits and skills that underpin more advanced or all-round take up of online opportunities are established and this, too, has implications for policy initiatives – in schools, workplaces and communities – to enhance multiple dimensions of use.

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Notes

1 In random location sampling, interviewers are given little choice in the selection of respondents, and respondents are drawn from a small set of homogeneous streets selected with probability proportional to the population after stratification by their post-code characteristics and region. Quotas are set in terms of characteristics known to have a bearing on individuals' probabilities of being at home and so available for interview, and strict rules are given which govern the distribution, spacing and timing of interviews.

2 For a more detailed explanation of selection of the scales, see Livingstone et al. (2005).

Opportunities scale: A composite variable was calculated as the total number of opportunities that each child takes up online (scale 0–15). The reliability coefficient for this scale was considered acceptable (alpha = 0.69).

Skills scale: A single skills scale was created which summed the internet-related skills that each respondent claimed to be good at (scale 0–7). The reliability coefficient for this scale was considered acceptable (alpha = 0.70).

Years of use: Constructed by subtracting from the respondent's age from the age at which they first used the internet.

Self-efficacy: 4-point scale (Beginner–Average–Advanced–Expert) taken from Eastin and LaRose (2000).

Frequency of use: 8-point scale, ranging from 8 (uses more than once day) through 5 (uses once a month) to 1 (never uses).

Average time per day online: 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.

3 The split in stages is based on a four-way split of the composite 'opportunities' variable.

4 These variables were shown to be related to literacy in Livingstone et al. (2005), therefore these same variables were selected to study their relationship to gradations of inclusion.

5 Interaction terms were created by multiplying one variable with the other.
6 See http://www.equitycampaign.com, http://www.beep-eu.org and http://www.thecommonwealth.org/cyp.

References

Anderson, B. (2005) 'Latest Evidence on Users and Non-users', paper presented at the 'Whose Responsibility is Digital Inclusion?' conference, London, 14 April.

Anderson, B. and K. Tracey (2001) 'Digital Living: The Impact (or Otherwise) of the Internet on Everyday Life', *American Behavioral Scientist* 45(3): 456–75.

Annan, K. (2003) 'Secretary-General's Message' [delivered by Amir Dossal, Executive Director, UN Fund for International Partnerships], paper presented at the 'Net World Order: Bridging the Global Digital Divide' conference, New York, 18 June.

Bourdieu, P. (1984) *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge & Kegan Paul.

Bradbrook, G. and J. Fisher (2004) *Digital Equality: Reviewing Digital Inclusion Activity and Mapping the Way Forwards*, URL (consulted April 2007): http://www.citizensonline.org.uk/site/media/documents/939_Digital Equality1.pdf

Bromley, C. (2004) 'Can Britain Close the Digital Divide?', in A. Park, J. Curtice, K. Thomson, C. Bromley and M. Philips (eds) *British Social Attitudes: The 21st Report*, pp. 73–98. London: SAGE.

Broos, A. and K. Roe (2003) 'The Digital Divide in the Computer Generation: ICT Exclusion among Adolescents', paper presented at the 'Digital Dynamics: Control, Participation and Exclusion' conference, Loughborough, November.

Buckingham, D., M. Scanlon and J. Sefton-Green (2001) 'Selling the Digital Dream: Marketing Educational Technology to Teachers and Parents', in A. Loveless and V. Ellis (eds) *Subject to Change: Literacy and Digital Technology*, pp. 20–40. London: Routledge.

Castells, M. (2002) *The Internet Galaxy: Reflections on the Internet, Business, and Society*. Oxford: Oxford University Press.

Chen, W. and B. Wellman (2003) *Charting and Bridging Digital Divides: Comparing Socio-economic, Gender, Life Stage, and Rural–Urban Internet Access and Use in Eight Countries*. Global Consumer Advisory Board, URL (consulted April 2007): www.amd.com/us-en/assets/content_type/DownloadableAssets/FINAL_REPORT_CHARTING_DIGI_DIVIDES.pdf

Cho, J., H. Gil de Zúñiga, H. Rojas and D. Shah (2003) 'Beyond Access: The Digital Divide and Internet Uses and Gratifications', *IT & Society* 1(4): 46–72.

Clark, L. (2003) 'Challenges of Social Good in the World of "Grand Theft Auto" and "Barbie": A Case Study of a Community Computer Center for Youth', *New Media & Society* 5(1): 95–116.

Cole, J. (2004) *The Digital Future Report*. Los Angeles: USC Annenberg School Center for the Digital Future.

Compaine, B.M. (2001) *The Digital Divide: Facing a Crisis or Creating a Myth?* Cambridge, MA: MIT Press.

Dutton, W. (2005) 'Latest Evidence on Users and Non-users', paper presented at the 'Whose Responsibility is Digital Inclusion?' conference, London, April 2005.

Dutton, W., C. Di Genarro and A. Millwood-Hargrave (2005) *The Internet in Britain: The Oxford Internet Survey* (*OxIS*). Oxford: Oxford Internet Institute.

Eastin, M.S. and R. LaRose (2000) 'Internet Self-efficacy and the Psychology of the Digital Divide', *Journal of Computer-Mediated Communication* 6(1), URL (consulted April 2007): http://jcmc.indiana.edu.vol6/issue1/eastin.html

Facer, K. and R. Furlong (2001) 'Beyond the Myth of the "Cyberkid": Young People at the Margins of the Information Revolution', *Journal of Youth Studies* 4(4): 451–69.
Foley, P., X. Alfonso, K. Brown and J. Fisher (2003) *Connecting People: Tackling Exclusion? An Examination of the Impact on and Use of the Internet by Socially Excluded Groups in London*. London: De Montfort University/IECRC/CitizensOnline. URL (consulted April 2007): www.london.gov.uk.
Foley, P., X. Alfonso and S. Ghani (2002) *The Digital Divide in a World City*. URL (consulted April 2007): www.london.gov.uk
Gilligan, C. (1993) *In a Different Voice: Psychological Theory and Women's Development*, 2nd edn. Cambridge, MA: Harvard University Press.
Golding, P. (2002) 'Forthcoming Features: Information and Communications and the Sociology of the Future', *Sociology* 34(1): 165–84.
Golding, P. and G. Murdock (2001) 'Digital Divides: Communications Policy and Its Contradictions', *New Economy* 8(2): 110–15.
Hargittai, E. (2002) 'Second Level Digital Divide: Differences in People's Online Skills', *First Monday* 7(4). URL (consulted January 2006): www.firstmonday.org/issues/issue7_4/hargittai/
Hellawell, S. (2001) *Beyond Access: ICT and Social Inclusion*. York: York Publishing Services for Joseph Rowntree Foundation.
Hoffman, D., T. Novak and A. Scholsser (2001) 'The Evolution of the Digital Divide: Examining the Relationship of Race to Internet Access and Usage Over Time', in B. Compaine (ed.) *The Digital Divide: Facing a Crisis or Creating a Myth?*, pp. 47–98. Cambridge, MA: MIT Press.
Holloway, D. and L. Green (2003) 'The Sesame Street Effect: Work, Study, Play and the Family Internet', paper presented at the Australian and New Zealand Communications Association (ANZCA03) conference, Brisbane, Australia, July.
Larsson, K. (2003) 'Children's On-line Life – and What Parents Believe: A Survey in Five Countries', in C. Von Feilitzen and U. Carlsson (eds) *Promote or Protect? Perspectives on Media Literacy and Media Regulations*. Goteborg: Nordicom.
Lenhart, A. (2005) *Protecting Teens Online*. Washington, DC: Pew Internet and American Life Project.
Livingstone, S. (2002) *Young People and New Media: Childhood and the Changing Media Environment*. London: SAGE.
Livingstone, S. (2005) 'Critical Debates in Internet Studies: Reflections on an Emerging Field', in J. Curran and M. Gurevitch (eds) *Mass Media and Society* (5th edn), pp. 9–28. London: SAGE.
Livingstone, S., M. Bober (2004) *UK Children Go Online: Surveying the Experiences of Young People and Their Parents*. London: London School of Economics and Political Science.
Livingstone, S., M. Bober and E.J. Helsper (2005) *Internet Literacy Among Children and Young People: Findings from the UK Children Go Online Project*. London: London School of Economics and Political Science. URL: www.children-go-online.net
Loges, W.E. and J.Y. Jung (2001) 'Exploring the Digital Divide – Internet Connectedness and Age', *Communication Research* 28(4): 536–62.
Mackay, H. (ed.) (1997) *Consumption and Everyday Life*. London: SAGE.
Murdock, G. (2002) 'Review Article: Debating Digital Divides', *European Journal of Communication* 17(3): 385–90.
Norris, P. (2001) *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge: Cambridge University Press.
Ofcom (2004) *The Communications Market 2004*. London: Office of Communications.
Office of the e-Envoy (2004) *UK Online Annual Report*. London: Office of the e-Envoy.

Ono, H. and M. Zavodny (2003) 'Gender and the Internet', *Social Science Quarterly* 84(1): 111–21.
ONS (2005) *Internet Access: 52% of Households Online in the UK*. Office of National Statistics: London. URL (consulted January 2006): http://www.statistics.gov.uk/
Rice, R. and C. Haythornthwaite (2006) 'Perspectives on Internet Use: Access, Involvement and Interaction', in L. Lievrouw and S. Livingstone (eds) *Handbook of New Media: Social Shaping and Consequences of ICTs* (2nd edn), pp. 92–113. London: SAGE.
Rogers, E.M. (1995) *Diffusion of Innovations*, *Vol. 4*. New York: Free Press.
Selwyn, N. (2003) 'Apart from Technology: Understanding People's Non-use of Information and Communication Technologies in Everyday Life', *Technology in Society* 25(1): 99–116.
Selwyn, N. (2004a) 'Reconsidering Political and Popular Understandings of the Digital Divide', *New Media & Society* 6(3): 341–62.
Selwyn, N. (2004b) 'Technology and Social Inclusion', *British Journal of Educational Technology* 35(1): 127.
Spears, R., T. Postmes, A. Wolbert, M. Lea and P. Rogers (2000) *Social Psychological Influence of ICTs on Society and Their Policy Implications*. Amsterdam: Infodrome. URL (consulted January 2006): http://www.infodrome.nl/download/ pdf/surv_spears.pdf
Warschauer, M. (2003) *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: MIT Press.
Wyatt, S., G. Thomas and T. Terranova (2002) '"They Came, They Surfed and Then Went Back to the Beach": Conceptualizing Use and Non-use of the Internet', in S. Woolgar (ed.) *Virtual Society? Technology, Cyberbole, Reality*, pp. 23–40. Oxford: Oxford University Press.

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