

The learner and their context – Interim report: Benefits of ICT use outside formal education

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Executive summary

This report from research commissioned by Becta investigates what, how and why people learn outside formal educational settings using technology. This study, *The Learner in Context*, explores the:

- ways in which many learners individually and as members of social groups manage and develop their engagement with digital technologies in order to adapt it to their needs
- sources of frustration, lack of skills and lack of opportunity that separate many other learners from the benefits of the same new technologies.

This research is designed to inform the revised *Harnessing Technology* strategy¹ and, in the first year, consists of three phases:

- Phase 1 involved analysis of existing literature on this topic and, at the time of writing, interviews with 85 learners.² It was decided that data-gathering in this first phase should focus on learners with moderate to high experience of using technology, in order to learn as much as possible about what young people do when they are able to make use of technologies away from their formal education settings.
- Phases 2 and 3 of this research will explore these issues in greater depth and breadth. Phase 2 will consist of 40 case studies, carried out mainly in learners' homes, and Phase 3 will involve a representative national survey of 1,000 learners across the age range. The case studies will be carried out with selected individuals from the initial interviews, and will provide an opportunity to explore in greater depth issues of skills, internet safety, family learning, formal and informal learning, and children in the care of children's services. The national survey will enable the study to contextualise the findings from the first two phases in terms of the national picture, and provide greater insight into issues of entitlement, access and options for flexible learning for all learners.

This document describes the findings from Phase 1 of this research, which are summarised below.

¹ See *Harnessing Technology: Next Generation Learning 2008–14* (Becta, 2008).

² The target for Phase 1 is interviews with 100 learners; interviews are ongoing.

Section A: High-quality resources available to learners

This section presents evidence concerning the extent and nature of the technological resources available to learners outside school and college, especially in the home, as well as the conditions and opportunities which learners experience for making use of these technological resources.

Access and usage

Computers and connectivity:

In general, the level of access to internet-connected computers was very high in our Phase 1 study, exceeding national norms partly because of the social make-up of the sample, but also reflecting the more general ongoing increase in the possession of these technologies by young people nationally.

Family regulation:

We encountered a fairly high degree of parental regulation among our sample, with young learners of secondary school age, in particular, happy both to work within the rules in many respects, but also quietly subverting them on a number of occasions. Young learners show a strategic sense of how to manage and respond to their parents' concerns without sacrificing the freedom to act independently when using computers and the internet.

Time spent on the computer:

Our sample reflected national norms in computer use, with young moderate users spending less than an hour per day, older moderate users between one and two hours, and high users often over three hours per day using computers and the internet.

Learners' engagement with technologies

Attitudes to technologies:

We encountered considerable variation in the ways in which young users wanted to present themselves as technology users, with some stressing their independence from the need to use computers, gadgets and the internet, while others expressed strong enthusiasm. This variation in attitudes did not reflect differences in the actual amounts and range of use encountered.

Range of activities:

A wide range of uses were encountered in our data, with variations according to gender in terms of games playing (mainly boys) and social networking (predominantly girls) that reflect many other studies. Most users with regular access to broadband-connected computers tended to combine some amount of school work

with some communication with friends using either instant messaging or social networking sites such as Bebo or Facebook, some viewing of TV (via viewing on demand on PCs), some games play, and some homework or college work.

Section B: Engaged and empowered learners

In this section, we consider the ways in which learners are able to benefit from the availability of technology resources in the home, especially in terms of whether or not such a level of opportunity enables them to become more engaged and empowered in their learning.

Learners' technology-related proficiencies, skills and understandings

Confidence, competence and understandings:

For the most part, learners appeared satisfied with the ICT skills they possessed, with only a small minority clearly articulating aspirations for learning new ICT skills, either because they wanted to or needed to. Such general satisfaction in fact appeared to cover a fairly broad degree of variation between a minority of highly skilled young users and a majority of basically competent users.

Competence in searching:

Internet searching for information was a very common activity at home, both for reasons of personal interest or convenience and in support of school work. Some of the younger learners displayed quite naïve understandings about the reliability of the information they found, but pupils in secondary school and upwards showed quite well-informed understanding about the possible unreliability of some internet information sources. It appeared that for some young people, using Google at home (which they are often not able to do at school) was valued highly both for convenience and for reassurance about the quality of what they wrote in their homework.

E-safety awareness:

Similarly, there was quite a high degree of awareness across the sample of the existence of risks and dangers on the internet, although this was not always matched by accurate understanding, especially on the part of the primary-age respondents, many of whom communicated quite high degrees of anxiety about encountering unexpected dangers such as viruses or frightening material. The older learners were mostly able to talk quite knowledgeably about how to protect their own safety and identity online, but were less convincing as to whether they manage to act in such sensible ways when online.

Formal learning in the home

Ways in which technologies are used for formal learning:

Despite increasing efforts on the part of some of the schools, especially Secondary 1 (Sec1), relatively little homework was done using schools' learning platforms, although a small number of learners were happy to use such resources. Most learners appeared to use a limited range of computer resources in their homework – Word, PowerPoint, Google, Wikipedia – in order to make homework look good and avoid errors. A number of users talked of using MSN communications or similar to gain guidance and advice from fellow students during homework time – it appeared to be mainly girls who worked in these collaborative ways.

Blending formal learning with wider technology activities:

Despite some efforts on the part of older learners, and some efforts at regulation by parents, it was clear that many young learners prefer to blend their learning activities with their other uses of computers and the internet, thus carrying out their homework while engaging in online social networking, for example. There was no evidence that these practices distracted them from their work in ways that were particularly harmful, and it was clear that in some cases this degree of freedom encouraged them to work and, on occasions, enabled them to work collaboratively with their peers online.

Informal learning in the home

We encountered a wide range of uses of technology to support self-motivated information-gathering with relation to personal interests and hobbies. It is often very hard to distinguish in these cases between practical information-gathering (such as finding out times of trains) and personal interest (for example, following up historical information gained from playing online games). This is an area for more profound probing in the case study phase of the research.

Section C: Improving personalised learning experiences

This final perspective on learners' experiences emerges especially from evidence in our study about young people's processes of learning to use and manage technologies in their lives. Our evidence suggests that learning how to use new technologies for a wide variety of purposes constitutes a significant area in which young learners engage actively in constructing for themselves a kind of personalised learning experience that accords with the description in *Harnessing Technologies: Next Generation Learning*: 'learning which reflects learners' interests, preferred approaches, abilities and choices, and tailored access to materials and content' (Becta, 2008, p.33). We also encountered a good deal of evidence to suggest that the home context of such learning can be a powerful means of engaging family learning, and somewhat more ambivalent evidence about the role of schools in this process.

Support and shared engagement

One of the most striking findings of the Phase 1 study was the evidence of young learners' sense of agency as learners when it came to learning how to use different forms of technology in their daily lives, as well as being co-constructors of such learning in partnership with family members (most often, but not exclusively, fathers). There was marked variation in this respect between those who had, for one reason or another, become largely autonomous, and those who participated in joint processes of learning within the family. However, the pattern for the majority of learners appeared to involve a productive balance in terms of autonomous and experimental approaches to such learning, made possible by learning being carried out in a supportive environment of shared family learning around this particular aspect of new knowledge.

The relationship with school experiences of learning with ICT

There was a clear divide between those who expressed strong approval for the help they received, especially when younger, from their schools when it came to learning how to manage technologies, and those who felt that school ICT was a waste of time for them because they had already advanced far beyond what it had to offer.

Conclusions: Emerging themes

The following themes reflect a relatively early stage of the research and should not be considered as generalisable. They reflect the emerging understandings and will be subject to further development and discussion as the project develops.

Learners able to exercise choice among flexible learning options

The evidence from these interviews suggests that technology-based activity and ownership in young people's lives continues to expand and consolidate in ways that have significant implications for how young people manage their lives and their learning; the underlying pattern is of multiple activities managed across a range of applications and technologies. Learners typically locate their learning activities, whether school or college related or otherwise, within this multi-tasking context.

Less positively, while there is evidence that the learning of these young people was enabled in many respects, and possibly on occasions enhanced, by their access to new technologies, there was very limited evidence of young people engaging with the apparently creative scope of Web 2.0 or using these technologies in markedly original ways.

Learning to use technology confidently and safely to support learning

There is compelling evidence of the family unit being a key factor in ensuring a healthy balance and amount of technology use in the home, for formal learning and for other purposes, as well as providing a secure and supportive environment for learning and developing advanced technology skills. This suggests that parents need to be helped wherever possible to understand the ways in which they can work with

young people to help them develop mature, responsible and – eventually – independent approaches to using technologies in their lives.

Engaged and empowered learners

Many of the young people describe their approach to learning skills in using new technologies in terms that express a considerable sense of agency and ownership of the learning process. The most successful models of learning appear to involve an autonomous and proactive approach to experimentation, supported by access to the expertise of a known adult or more advanced peer.

Continuity of learning

Evidence from this phase of data-gathering suggests a mixed picture at best. Early experiences at school were cited by many learners as having provided useful foundations for helping them to become effective technology users, but learners' perceptions of the value of such learning at secondary level tended to be more critical. Learners' feelings were markedly mixed regarding efforts made by school to support home learning through the school learning platform.

Introduction

This is the first report from research commissioned by Becta that investigates what, how and why people learn outside formal educational settings using technology. This study, *The Learner in Context*, explores:

- the ways in which many learners individually, and as members of social groups, manage and develop their engagement with digital technologies in order to adapt it to their own needs; and
- the sources of frustration, lack of skills and lack of opportunity that separate many other learners from the benefits of the same new technologies.

Over the course of this study, both of these broad perspectives will be contextualised in terms of the concerns and perspectives of employers and parents, and in the numerous contexts within which learning supported by technology may take place outside formal education. The research is designed to inform the *Harnessing Technology* strategy (Becta, 2008).

The research is being conducted in three phases:

- Phase 1 has involved analysis of existing literature on this topic, and interviews with 85 learners. It was decided that data-gathering in this first phase should focus on learners with moderate to high experience of using technology, in order to learn as much as possible about what young people do when they are able to make use of technologies away from school. (You can find further information about methods and sample in the Appendix.)
- Phases 2 and 3 of this research will explore these issues in greater depth and breadth. Phase 2 will consist of 40 case studies, and Phase 3 will involve a representative national survey of 1,000 learners across the age range. The case studies will be carried out with selected individuals from the initial interviews, and will provide an opportunity to explore in greater depth issues of skills, internet safety, family learning, formal and informal learning, and children in the care of children's services. The national survey will enable the study to contextualise the findings from the first two phases in terms of the national picture, and will, in particular, enable greater insight into issues of entitlement, access and options for flexible learning for all learners.

Findings

Section A: High-quality resources available to learners

This section presents evidence concerning the extent and nature of the technological resources available to learners outside school and college, especially in the home, as well as the conditions and opportunities which learners experience for making use of these. This issue, and all subsequent issues in this report, is explored by considering evidence from published research and by presenting and discussing a wide range of extracts from interviews which we conducted with learners between May and August 2008.

Access and usage

Computers, connectivity and personal ownership:

Given the fact that our interviews for the first phase concentrated on learners making moderate to high use of computers, it was to some extent to be expected that we would encounter a generally good quality of technology resources being available to learners. In the interviews, we encountered no cases of learners without access to some form of computer. There were, however, a very small number across the full age range without any form of internet access. A slightly larger minority had to share computers with other members of the family group either because there was only one computer or because learners preferred to use the only computer that had broadband connectivity.

Similar levels of access and connectivity have been found in other studies for these groups of learners. For example, in relation to 9–19-year-olds, the UK Children Go Online (UKCGO) project reported that 87 per cent of the children interviewed for the study had a computer at home and very few did not use the internet at some location, either home, school and/or elsewhere (Livingstone and Bober, 2005). Facer *et al.* (2003) found that over four-fifths of 9–14-year-olds claimed to be using computers outside school. Finally, in relation to younger children, the Learners and Technology: 7–11 study (Cranmer, Potter and Selwyn, 2008) found that most of the children surveyed had access to a computer at home; 7 per cent of children relied on other households, libraries, community centres and youth clubs for access.

In fact, not everyone even in this sample has access to the internet or connectivity at home. The digital divide in terms of access, skills, attitudes and usage is still very much prevalent in Britain. For a full discussion, see Dutton and Helsper (2007). Once people have access at home, as was the case in our study, access to computers and the internet are not equal. This is not just in terms of the quality of the connection to the internet (see for example Cranmer, 2006; Livingstone, 2006; Peter and Valkenburg, 2006), but also quality of access in terms of the degree of independence and exclusivity of access available in the home (Valentine *et al.*, 2005).

The majority of children in our sample have access in their homes to multiple computers of varying ages and quality, and it is clear that family life involves varying degrees of negotiation over who has which machine and for which purposes:

DL “Well if [...] yeah. [inaudible] if it was homework then they’d say ‘Oh go on, you can go on it until you’ve finished.’ But if I’m like on Bebo or anything, just doing... looking at stuff then I always say ‘You can go on it now.’” [male Y10 Sec2]³

SF “I like playing on it because all... my mum and dad always go on it and they never let me... well, they do let me have a go but there’s some... there’s important stuff like their tax or something and they always take a lot of time to do it, so I wish I had my own computer so I could just go on it any time.” [female Y4 Prm1]

SH “I think that was more school-related, yeah, because I think – well we – I think like, um, me and my sister and my brothers, we wanted it anyway and then – my mum and dad used to always say ‘Oh yeah yeah, we’ll get it, we’ll get it’ and then when it came to like coursework and research and stuff, when it was actually important and they thought that yeah we really do need it now, then that’s when we got it. Yeah, I think like – yeah, my parents got it more for us to help us with our school work rather than for us just to go on there like messing about and stuff.” [female 20yrs HE1]

Parents clearly sometimes prioritise their children’s perceived need to access the internet for educational reasons. Indeed, it is likely that these young learners generally tend to negotiate their access to, or ownership of, computers largely on the basis of arguments about their educational efficacy. This seems to be a productive strategy, as computers are more frequently found in households with children, with education being cited as one of the key motivations for their acquisition (Livingstone and Bovill, 1999; Lally, 2002; Facer *et al.*, 2003; Gorard and Selwyn, 2003; Selwyn, 2004). Further, a number of studies have demonstrated that parents see computers and the internet as being beneficial for their children’s learning in some way (Valentine *et al.*, 2005), although exactly how is less clear to them (Buckingham, 2002; Lally, 2002).

In effect, it does not appear that access is a major problem for most of these young learners, although it is by no means obvious that sole possession is necessarily of benefit to learning in the long run. Access is tied up with issues of parental regulation of computer use, and clearly some parents choose to keep the most usable computers in more public spaces in the home.

³ Learners are described throughout by the following information: gender, year of schooling or age if in further or higher education, and the particular institution attended. Thus [male Y10 Sec2] indicates that the respondent is a boy in Year 10 at Secondary School 2 (demographic information about schools is provided in the Appendix).

Family regulation:

Studies suggest that secondary-age children tend to view themselves as more expert than their parents and act accordingly. Indeed, the extent to which parents are able to regulate their children's online use has been questioned; there are also concerns that not all parents have the skills to do so (Livingstone, van Couvering and Thumim, 2005, p.41). In addition, other studies have shown that there are differences between the rules parents set and the rules children follow. For example, in the UKCGO study, most parents (86 per cent) whose children have home access reported that they do not allow their children to give out personal information online. While 49 per cent of children acknowledge this rule, nearly half (46 per cent) of 9–19-year-olds who go online regularly (at least once a week) say that they have given out personal information (Livingstone and Bober, 2005).

A considerable number of the secondary school respondents in our study appear to cope with parental regulation by strategic displays of co-operation, often in the knowledge that their parents are not always aware of what they are really doing. Their aim in doing this is often simply to ensure their freedom to work in their own preferred ways:

Int “So are they like aware of anything you do with the computer or do they just think you work?”

OR “No, they know I go on like MSN and that but they don't think I go on MSN while I'm doing the work.”

Int “So you have to keep it hidden?”

OR “Yes.” [male Y10 Sec1]

Other young learners, though, do appear to accept and even welcome more strictly regulated uses of technology as part of their particular experience of family life and its associated values:

OT “We're told that that's something we should be careful about. So we thought what harm is it to not have it, so.” [male Y10 Sec2]

Primary school learners in our study, all in Year 4, generally appeared to be more compliant with parental regulation, which reflects – as will be apparent later when discussing issues of safety – a higher degree of anxiety on the part of many younger learners about half-comprehended dangers of the internet or technology more generally:

AW “Oh yes, the rules are, if you find an email, if I find any that I am not familiar with, then either delete it or leave it for Mum or Dad.” [male Y4 Prm2]

AJ “I know the password for my normal proper email address, but I’m not allowed to email anyone, only my mum and dad.” [male Y4 Prm1]

KF “I can run very fast down the stairs because my mum and dad are fed up.”

Int “Oh, what if your sister does something that she shouldn’t?”

KF “If she does something wrong, I go screaming to mum. [...] I don’t mean scream as in not that, I mean really shouting like, and they say ‘Hannah’s on some sort of website’ and I have not a clue.” [female Y4 Prm2]

However, even these eight- and nine-year-olds seem, in many cases, to have learnt how to keep their heads down as a means of moderating parental efforts to regulate their computer uses:

Int “What does your mum think about it?”

LC “Well, it’s like as long as it keeps me quiet, she doesn’t really care.” [female Y4 Prm2]

Time spent on computer:

It is not easy to quantify the amount of time spent using computers by the Year 4 learners – children at this age tend to be quite vague about time – but what evidence we have from this group suggests that they spend about 30–60 minutes a day in front of the screen. The amount of time spent increases markedly with the secondary learners. The moderate to high users in their teens who we interviewed typically report spending at least one to two hours per day, with high users often going well over 3 hours. This is hardly surprising given that a good number use computers in their bedrooms to socialise via instant messaging or social networking sites, play games, do homework and watch TV on iPlayer, and so on:

PO “... 7 until I go to bed, I’m on the computer.” [male Y8 Sec2]

LM “Um, well, when I get home, I normally go on my computer and chat to my friends, like on MSN and stuff like that. Sometimes I call them and I usually call them quite a lot, and I go on my computer quite a lot as well, and texting and stuff like that.”

Int “So how long would you say you spend on the computer at night then?”

LM “Quite a while. Um, like hours [laughs].” [female Y8 Sec2]

A small number claim to spend far less time – that is, less than 30 minutes – but no respondents in this sample of mainstream learners claim never to spend time in front of a computer.

While not generalisable, the usage data from our study seems to be supported by other data on this topic. Internet usage increases with age: 5–7-year-olds spend an average of 2.2 hours per week online, 8–11-year-olds spend 5 hours per week online, and 12–15-year-olds spend 10.5 hours online. This trend is similar (although the number of hours far higher) for television (14.2 hours, 15.7 hours, 17.2 hours respectively) and radio (2.2 hours, 2.2 hours, 4.3 hours respectively) (Ofcom, 2007).

Learners' engagement with technologies

Attitudes to technologies:

In studying the ways in which young learners continue to harness the benefits of new technologies in their own, often highly personalised, ways, it is important to try to understand the full spectrum of learner engagement with new technologies, from intense enthusiasm, through competent but low key engagement, to the negligible benefits that result from either restricted access or principled avoidance of new technologies.

In our study, we encountered clear variation in terms of the degree to which learners expressed enthusiasm for using technologies in their lives. A number took up a position of mild distaste or indifference towards technologies that they needed to use. Such an orientation tended to be more evident with some of the older respondents such as older secondary pupils and first-year undergraduates:

AJB “Um, I think for my own personal life it’s not really that important, but like lecturers like to contact me so I need to check like emails and things just to make sure I know what rooms I’m in or if I’ve got a meeting or something. But other than that, um, like when I’m using it, I wouldn’t really care to be honest if the internet vanished. Actually, I suppose I like contacting friends on Facebook actually...”
[female 21yrs HE1]

AC “And then obviously the internet, as well, is quite a big time-waster.” [female 18yrs HE1]

Indeed, this seems to be supported by a recent analysis of user experiences and expectations by Ipsos MORI conducted for JISC. This study reported that the typical response by students was a realistic attitude to IT, and a selective one based on what was needed. Technology was not used for technology’s sake (JISC, 2007).

Interestingly, quite often these positions of indifference towards technology were betrayed by subsequent admissions of considerable dependence:

ER “No. [laughs] I never like spend a lot of time on like... well on the computer. That’s a lie. I do spend quite a lot of time on the computer, I don’t spend long on my PlayStation because I like... because sometimes teenagers get like really obsessed with them, and I really don’t want to get like that because I enjoy reading and like

socialising and like going out with my friends and stuff, and I don't want to be like a self-obsessed like computer freak." [female Y8 Sec2]

Such learners were possibly keen to avoid giving the impression of being geeks. More typically, there were a large number of learners who were entirely at ease with enjoying what they saw as clear benefits of technology:

Int "If you had to live... if you couldn't live without something, what would you choose as the most important?"

MH "Just the internet..."

Int "Why is it so important to you?"

MH "Because it's got a... because it's got so much stuff that you can do." [male Y8 Sec2]

Int "What's the most important to you?"

OR "Well, probably the computer because I use it for my like music, phone, as well as the actual just doing stuff on it. Whereas with the telly I only watch it and..." [male Y10 Sec2]

For the most part – with the exception perhaps of a few extremes in terms of approval or disapproval – it is notable that the range of attitudes expressed towards using technologies appeared to signify very little actual variation in the degree of use or integration with daily activities.

The range of activities:

This section gives some flavour of the range of activities that involved uses of technology in the home that the learners in our sample most commonly or most notably reported. In the interviews, games playing and social communication and networking were by far the most common, with PC-based TV viewing – through iPlayer and 4oD – also becoming increasingly common with the school-age learners. There was, however, rather less evidence of learners engaging in the kind of content-producing activities associated with Web 2.0 technologies. In general, a higher proportion of boys spoke of playing games, and a higher proportion of girls spoke of engaging in social networking (which is similar to other studies such as Cranmer, Potter and Selwyn, 2008) but there was a considerable number of exceptions to that pattern, and obviously some games-playing such as World of Warcraft has a social networking element.

HY "Mostly playing games rather than actual university work, I have to admit." [female 19 HE1]

CR “I would hate it if I didn’t have my Xbox, because it’s just something to do if there’s nothing, nothing else to do. It just like fills in any gaps sort of thing, so I probably wouldn’t... I’d just die of boredom if I didn’t have it, because it just fills in everything. Like in between like space if I’m like doing a bit of sport or something, to watch a show in an hour I’ll just play it.” [male Y10 Sec2]

DH “I’ve got a phone, I’ve got an Xbox 360, I’ve got TV I’ve got um... I think I’ve got a stereo and everything, I’ve got loads of things. [...] Text. It’s always text. Um, it’s rarely I do talk on voice, it’s when I’m like getting... when I’m like talking to them at a party or something like that it makes it a lot easier. And, um, I use my phone for taking pictures, taking videos, sending pictures, sending videos. Um, going on the internet occasionally, because you can go on the internet by phone. And, um, that’s about it.” [male Y10 Sec2]

Some committed social networkers make considerable use of their mobile phones for this. Learners use mobile phones for talking, texting and accessing social networking sites increasingly, but mainly learners used computers for emailing, communicating via Bebo or Facebook, and of course MSN.

SH “Always on Facebook, like ‘Do you want to meet tomorrow?’ – yeah – I think that’s like one of the main that we do use. It’s like – obviously like mobile phones and stuff. [pause] Yeah, I think Facebook is definitely like, one of most important things in my life!” [female 18yrs HE1]

Int “What do you enjoy about doing Bebo?”

KC “I don’t know, it just gives me something to do really.” [female Y8 Sec2]

DH “Um, MSN, um, I just log on practically every day, see who is on, talk to people over there. Um, and Skype, since I’ve got friends in Essex who have it as well, like my best friends over in Essex, and since I can’t see them most of the time, I have to talk to them on that. And I use that quite regularly as well. I normally have Skype and MSN on at the same time so I’m talking on that, talking on that...”

Int “... do you just talk to one person or is it...?”

DH “On average, probably about six people a night maybe, that’s about it.” [male Y10 Sec2]

Participation in social networking often involved the exercise of specific technological skills, such as photography, without any clear gender preference:

KM “I know a lot of people who listen... who use their phone as a camera, because they’ve got a couple of megapixels on there which is quite good, and an MP3 because they’ve got enough space to listen to all their music. ... I can get internet on mine but it costs me a fortune, but I know people who use Bebo on it because you

can get like mobile-enabled Bebo, so you can go on your mobile but you're on Bebo." [female Y10 Sec2]

A small number of respondents report using technologies as a medium for creative activities such as writing, photography and music:

HF "I like doing story... I like, um, typing up stories on my computer and um, printing them out. And I like um, pretending that um, we're playing schools with my sister and pretending that um, a child made this and I have to read it." [female Y4 Prm2]

JB "I have like this account on this thing called DeviantArt and it's like a big art thing and you can do... and everyone's got a page on it and like just upload all their art. And you can just like look at it all and it's like a really, really nice club, it's not just like... and it's anything you want, it can be like a drawings, um, photographs, anything you want. So it's like really, really good." [female Y10 Sec2]

Int "Right, but about um... let's stick with the music for a minute. So sometimes you might, um, be using it for composing?"

AC "Yeah."

Int "And what about the software for that?"

AC "Um, Sibelius. I used to use EJay but now I use Sibelius."

Int "Right, you have Sibelius; is that easy to use?"

AC "Um, yeah, it's really easy because you just type in the note you want and it plays for you." [male Y10 Sec2]

Rather more uncommon are the two respondents below who represented the few cases we have so far encountered of young learners engaging in activities that cross the line between consumer and creator of content in the way that supposedly has been made common with the advent of Web 2.0 practices and resources (see, for example, Rollet *et al.*, 2007):

OR "A picture, stuff I like, music, I've done like a video of some music, comments and just like a blog of what's going on."

int "Okay, what sort of stuff do you write in your blog – just your daily life?"

OR "Yeah, sort of but not... I'm not like one of those people who writes everything, I just write a little bit and I leave it for a couple of months and then come back and change it." [male Y10 Sec2]

Int "What do you watch on YouTube?"

CK "I have some videos on there."

Int “Oh, do you?”

CK “Yeah, me and my friends we sort of dance, so we put some videos of us dancing...”

Int “Did you actually upload them yourself?”

CK “Yeah we did, yeah. We had, um, in our group we had somebody who does all of the recording and the uploading, everything, so he was normally the one who’s uploading them onto Bebo and YouTube.” [male Y10 Sec1]

This finding from our qualitative data seems to be supported by other work in this area. Earlier studies from the UK also found disappointingly low numbers of young people creating their own internet content (Facer *et al.*, 2003; Livingstone and Bober, 2004). This is potentially problematic, as creating content is viewed as an important aspect of developing media literacy (Facer *et al.*, 2003; Livingstone, 2003).

Section B: Engaged and empowered learners

In this section, we consider the ways in which learners are able to benefit from the availability of technology resources in the home, especially in terms of whether the opportunity to use technology resources enables them to become more engaged and empowered in their learning.

Learners’ technology-related proficiencies, skills and understandings

Confidence, competence and understandings:

A variety of aspects are relevant to the skills required to use the internet (or other technology) effectively, such as operational skills and managing the hardware and software (Dijk and Hacker, 2003). National survey evidence has demonstrated that as technology develops, people are aware of the need to be updating their skills to keep up (Dutton and Helsper, 2007).

Those who believe they are competent in using new technologies tend to use them more. For example, in a study of 1,145 Flemish adolescents aged 13–17, Broos and Roe (2006) showed that a person’s self-efficacy beliefs towards usage, and expectations of control of computer and internet use, reflect the actual amount of time spent using the computer.

A number of the learners who talked to us expressed low confidence in their ability to use technologies effectively. Notably, some of the first-year undergraduates were uncomfortably aware of their lack of knowledge:

AB “Yeah, because part of our course we have to do the European Computer Driving Licence so, you know, I thought I knew how to use Word, but I didn’t [laughs], you

know. And stuff like that, and stuff like Access that I'd never even heard of, let alone used." [male 40yrs HE1]

In contrast, only a minority of younger learners admitted to having significant difficulties using computers. It is, of course, very difficult to assess some of the claims of expertise made during a single interview, and claims of competence cannot always be taken at face value, but some learners reported with some confidence that they had developed real expertise in some areas of using technologies:

CW "Yeah, probably. I mean, in IT I do learn quite a lot, but now – this year – I'm sort of learning more. But there are just websites – when I had MySpace, because you use HTML for all the pages, I learnt all that from websites. They just told you about it. So I learnt a lot then. And then when you go back to Bebo, you don't do any of that. It just does it itself – so it's a lot easier! But it's a bit like I feel like I'm glad I've learnt that, because I feel like I know that a lot more." [female Y10 Sec2]

KM "Yeah. Um, basically I like to put photos on the internet because like, it'll just be... I take my camera with me basically everywhere, so if I meet up with my friends on a Saturday we'll just take loads of photos and I'll put them up. And then people can look at them and they can comment on them and... yeah, and stuff like that. And I can edit them as well with some really basic Windows stuff where I can put it into black and white, or change the colour or get rid of red-eye. Which is quite useful because sometimes people will say, 'Oh no, my skin looks really blotchy and that, can you put it in black and white?' So I do." [female Y10 Sec2]

Many younger learners expressed reasonably high levels of competence on the basis of scant evidence:

AJ "And sometimes I explore, like, really advanced things maybe, because I once copied and pasted a picture onto my – onto Microsoft Word – and I put it as a background. And I sometimes use – I'm not sure if you've heard of it – it's Task Manager so, if something stops working so – internet and all of a sudden it goes blank for a little while – then I normally go onto Task Manager and delete it." [male Y4 Prm1]

TW "Well, I'm quite good at typing, I like just messing around, just going on all sorts of things, you know. [...] Well, with the computer I know quite a lot and not much problems really come up usually." [male Y4 Prm2]

However, much of what is described above represents what are in fact fairly low-level skills that are typically shared freely within the peer group – even if generally unfamiliar to most adults. Whether deservedly or not, most learners gave the impression of being relatively satisfied with their existing ICT skills set, although we did find some instances of evidence of where skills were felt to be lacking, when learners spoke to us about their aspirations for learning new skills. First-year

undergraduates, in particular, spoke of skill areas that related to skill demands in possible future employment:

AJB “I’d like to become a secondary teacher, so maybe a SmartBoard, because I was using those last year actually. Um, and possibly the internet, um, still but just like looking for teaching resources, so the use will change. Um, yeah, I’ll probably use things like PowerPoint a lot more as well for presentations and things, yeah.” [female 21yrs HE1]

AB “I’ll probably be using it a lot more for working I would have thought with the next five years certainly. Because a lot of the systems seem to be going that they’re now giving social workers laptops, and then you type up your contacts so it goes straight onto the mainframe.” [male 40yrs HE1]

The secondary-age pupils tended to talk of learning new skills in three broad respects:

- developing skills they think might prove useful for their school studies
- developing skills that will suit them for the job market in various ways
- extending areas of personal technology interest.

The school focus generally related to issues concerning spreadsheets and databases, which learners in secondary school tend to perceive as aspects of technology learning associated more with school than home:

CC “It would probably be more handy if I did know a bit more about spreadsheets and things like that. But I think, yeah, doing IT at school, and because I’m doing treble sciences we have more classes, we’re learning quite a lot about that kind of thing. [...] I think it would be useful so you can keep finance under control and that kind of thing.” [female Y10 Sec2]

DH “Um, well probably something like Microsoft Access or something like timetable and all that and formulas. Maybe something like that, that’s probably what I’d like to learn, but I know basically... I know the basic principle of how to use the formulas and all that anyway so...” [male Y10 Sec2]

Given the strong emphasis over many years on the importance of ICT in schools for developing a new generation of knowledge workers, it is notable that relatively few pick up on this aspect of future need, and those that do, do so in fairly vague ways:

CW “We just had an assembly saying about how jobs are changing and the jobs that we’ll get don’t exist at the moment really, and so that’s quite hard because it does change, because things that exist now didn’t exist five years ago, and so in five years it could be completely different. So I think it’s hard to teach you skills when things that haven’t been invented yet are what you have to use, so that’s quite hard.” [female Y10 Sec2]

CE “I definitely think they will... a lot of computers, because just yesterday we went to, um, the doctor’s because my sister’s got a chest infection and, um, it’s all electronic now, you have to sort of sign in on the computer and stuff. So I think computers will be used even more in a few years because they’re just advancing.” [male Y10 Sec2]

The choices of areas for further development of technology learning relating to users’ personal interests or aspirations were interestingly varied. Some learners simply expressed a general readiness and interest in engaging with a future bursting with new technological possibility:

MD “Well, probably there will definitely be like more technology available, so it depends what is available to me to what I’d use. If a lot of good stuff would come out in the next like five years then I’ll probably get it and use it. Because there is always different things coming out every second of the day really.” [male Y8 Sec2]

Others simply wanted to get up to speed with good technology practices:

SB “I think I’ll like be using like more advanced kind of all the Publisher and not Word all the time... and they’d get a bit better or bring more structure to your homework.” [male Y8 Sec2]

The most technologically confident secondary pupils appeared to see technology-based activities as aspects of future activity that they would find ways of developing:

RR “I’d probably like to go into, um, creating something like that with like um, a film editing kind of thing.” [female Y10 Sec2]

DH “Um, possible something like, um, like I’m into astronomy as well, so I’d like something like a telescope. [...] And I’d love to have something like that. I’ve love to... because it’s like, it is technology, it’s like... put something like M33 or something which is Andromeda galaxy, it will go to that.” [male Y10 Sec2]

It was, though, relatively rare to find such well-focused aspirations being articulated within this sample.

Competence in searching:

The retrieval of information is an important aspect of using the internet to learn about new things (Selwyn, 2003; Dijk, 2004). Indeed, in Britain, the internet is the first port of call for the great majority of people when trying to find out about something – it is a more important resource than family members, colleagues or libraries. Our study and others suggest that search engines are becoming increasingly important for people to access information online. In 2007 in the UK, almost two-thirds of users depended primarily on search engines to find information, up from one-fifth in 2005 (Dutton and Helsper, 2007). This can also be seen in studies of our target groups. For example, the Becta 7–11 study found numerous examples of children retrieving

information using search engines such as Google and Ask.com and sites such as Wikipedia (Cranmer, Potter and Selwyn, 2008).

Many of the young people in our study appeared quite confident in their ability to find things online and make good judgements about what they found, although it is not always clear that this confidence is justified:

Int “What sort of things do you look up?”

MD “Like the first bit of homework I got for maths was ‘What is zero degrees Celsius in Fahrenheit?’ I think it’s 32.”

Int “Very clever, more than I know. So when you look that up, what did you do?”

MD “We type in ‘what is zero degrees in Fahrenheit’ and then you click on Web and then it will like... it will come up with different programmes and you click on one...”

Int “And you choose the one you want.”

MD “And there’s like one, two, three, four, five, six, seven.”

Int “What would you choose?”

MDI “... it’s usually the first one’s the best, but it’s not always.” [male Y4 Prm2]

Int “And how do you know which is the most useful thing that comes up?”

AM “The most attended I think. Or like a famous engine like Wikipedia or something like that.”

Int “Then you just... You’ve got a sort of instinct to know whether what you’ve found is accurate or whether it’s not?”

AM “Yeah, well, basically you like read it and not just copy and paste anything.” [male Y8 Sec1]

Most were aware that they did need to rationalise their choices to some extent, but fewer respondents were actually able to talk about ways of acting responsibly while searching for information on the internet. Again, predictably, it is the undergraduates who are most aware of the dangers in this respect, although a moderate number of school learners show such awareness also:

IJ “Don’t take everything from the same site, because you might go onto a website and find something different about the same thing. So you just look on a different one and see which one it is. Mostly I write out the websites at the bottom where you got them from, and it helps because if it’s wrong, then the teacher can tell you not to go on that one.” [female Y8 Sec2]

SH “I was a bit worried about like how valid the information was and whether it was actually from a reliable source or not, but I think like once I read it through and I try and like, because it’s actually really difficult to like find out whether you know, if it’s actually reliable or not.” [female 20yrs HE1]

Int “And how do you decide that; how do you make your judgement?”

AJB “Um, usually on like the preview thing, I’ll just have a look and see what context it’s in and... but sometimes I’ll just click on something just to hope for the best and hope something comes up.” [female 21yrs HE1]

The opportunity to use Google and Wikipedia (it is very specifically these tools that learners name) in the home is valued highly, even if simply as a means of avoiding the discomfort and embarrassment of coming up with wrong answers. Given that learners have less opportunity to use Google in school, the availability of Google is possibly something that is specifically valued about being able to use the internet in order to do school work at home:

BLG “I’d use the internet, Wikipedia, whenever I need to or I feel I need to.”

Int “Okay, well tell us a bit about that then. So what sort of subjects do you use that for?”

BLG “English a lot, I’m not amazing at English so it helps.”

Int “[...] Do you think you might use it more when it’s a subject you don’t feel so confident in?”

BLG “Yeah, probably. It’s just nice to have the accurate information... It was a biography; I just wanted to get some background on him because I wasn’t entirely sure.” [male Y10 Sec2]

While there are significant differences between children, it seems that, in general, critical evaluation skills are often underdeveloped. For example, Bevort and Breda (2001) found that children do not spontaneously question the credibility or trustworthiness of websites. Facer *et al.* (2003) found that young people lacked both knowledge and interest in how information was produced for and within digital environments; digital resources were ‘often seen as originating not from people, organisations and businesses with particular cultural inclinations or objectives, but as a universal repository that simply existed “out there”.’ (p.86). Facer *et al.* argue that children are generally ‘ill equipped’ for the online world. Likewise, Livingstone and Bober (2003) found that children’s awareness of the motives behind the creation of websites, and a critical approach towards their reliability and authority, appears to be little developed. Similarly, research by Seiter (2004a; 2004b) shows that young people continue to experience difficulty in evaluating the information they find on the

web, and that young people who are very critical of mainstream advertising are less likely to recognise its use on websites or to accept it as a ‘fact of life’.

While speaking about the US context, but equally applicable here, Harris (2008) points out that it is difficult to teach children about critical skills to use the internet when schools use powerful filtering systems that block ‘inappropriate’ content and also block more recreational uses such as email and social networking sites. Thus, restrictions on internet access practices possibly limit the extent to which more informal learning opportunities using the internet might be encouraged within school (Harris, 2008).

E-safety awareness:

A series of reports, headlines and campaigns have alerted the public in the UK to the potential risks for children and young people of going online. There are a number of risks in using the internet and other technologies, such as online bullying and harassment, breaches of privacy, hoax emails, credit card fraud, meeting strangers online, encountering inappropriate content, developing anti-social behaviours such as increased aggression as a result of playing of violent video games (see, for example, Anderson and Dill, 2000), and internet addiction (for example, Kandell, 1998; Nalwa and Anand, 2003).

In our study, the children in primary school seemed uncertain about the exact nature of the dangers that might be encountered when using the internet, although they were clearly aware that dangers of some kind exist out on the internet, and that they may well encounter such dangers themselves.

AJ “I would just type it in, and I’m allowed to copy and paste without asking as long as it’s – yeah I’m allowed to...”

Int “As long as it’s for school?”

AJ “No, as long as it’s – it hasn’t maybe got a virus, which I don’t really know about, um, if it has. [...]” [male Y4 Prm1]

BB “And, um, a toddler could see something disturbing or, um, see something a bit rude and then copy it. But, um, at this age, um, we wouldn’t copy something rude, but we might get a bit disturbed by something quite dark.” [male Y4 Prm2]

It does, on a number of occasions, appear to be the case that these young learners are genuinely unsure about whether the dangers they have been warned of constitute threats to themselves or to the computer itself, with the notion of a virus as something equally capable of threatening both humans and the technology:

KF “Sometimes you get emails and then you have attachments and then you have viruses in it which could probably kill your computer. [...] Once my teenage cousins came round and they went on the computer and you know under the search... when

you go to search when under it says safe search is on or off, then they put safe search off. And I didn't know that, and when I went on the computer and I typed in Michael Jackson and – there was there was some really scary pictures came up because – do you know Michael Jackson's done a song called Thriller? Yeah, there's some of the pictures of him as a werewolf and a zombie – I saw the video after that but I just went 'Oh my God' and I was up the night." [female Y4 Prm2]

KF "You don't know what could happen because there could be somebody really bad on there wanting to meet you up and then just like take you away or something. Because sometimes you might feel like 'Oh, meet me at the park, I'm a nine-year-old boy, do you want to meet me?' and actually it could be like a 20-year-old man trying to take me away." [female Y4 Prm2]

BH "Sometimes I come across weird stuff so I quickly – quickly go 'let's der der der!' and I quickly slide up to the top and press the button, before it goes onto the rude stuff." [male Y4 Prm1]

Such a response is in line with the findings of other studies. For example, the UKCGO survey (Livingstone and Bober, 2003) indicates that when children and young people encounter online pornography, they leave the site, delete an email or pursue the image through looking at it, sharing it with a friend or going back to it. Secondary-age children tend to show better understanding of the risks, which is similar to the findings from other research (for example, O'Connell, Price and Barrow, 2004), although such understanding seems to be no guarantee that they will follow the advice they have received widely, from school, parents and older siblings (Livingstone and Bober, 2004).

JB "Random people, who like can come in and comment you, and I don't like that because then they can look at your photos as well, and you won't even know who they are. So I've put mine on Private and then they like have to add you, and then it comes up for you, when they add you, and then you can like say if you know them or something. And so, like, if you don't know them, you just don't accept it, and then it goes away." [female Y10 Sec2]

JB "Well, you can accept... I have, because I accepted someone because I thought I knew them, and then I was like ... you can talk to them, and I was like, oh yeah, do I know you and stuff. And then, um, if I like it, sort of okay, but like sometimes if you don't know them and you accept them, then you can just like decline them afterwards, because it's like really easy, because you just click like the little x in the box next to their band, next to the thing." [female Y10 Sec2]

ST "No, it's just like you get to know people in your area, and then you talk to them, and if they're nice we meet and then that's that." [female Y8 Sec2]

Int "You seem to have a lot of... a very good take on what might keep you safe and so on. Have you got this from your dad?"

RR “No, I haven’t. It’s just watching the news and things; oh someone’s been... someone’s met up with such and such who she met on dot, dot, dot website. [...] I don’t want that to happen to me. Just watching things like that, and they seem to come up quite a lot now, and I just find, okay well, there is the boundary, I don’t want to get into that because I’ll be in trouble. It’s better to be safe than have things like that, so.” [female Y10 Sec2]

It appears though, from what both primary and secondary pupils say, that advice from family members, and the fear of making mistakes online that might be viewed by family members eventually, is viewed as a strong disincentive to careless internet behaviour by many learners:

YK “Yeah, my dad makes me read about some other sites and like, talks to me about why I shouldn’t get carried away with the internet being paedophiles and people around who are not safe, and you should use it carefully and stuff like that, yeah.” [male Y8 Sec1]

SG “My dad makes me watch every documentary there is on like fraud and stuff. I don’t fill in personal details. If it says postcode and stuff, I just put in a fake one. So I generally just put my email address. Date of birth, I make up one. There’s nothing true, but then...”

Int “And where did you get that advice to do that from? Did it come from school or did it come from friends...?”

SG “It’s just all our friends do it, because generally one friend helps another set something up, and then there’s like a chain so the one who has already set one up will just pass on the information.” [female Y10 Sec2]

In accord with other research in this area, young people’s participation in social networking sites may be a new area for concern where their skills and proficiencies are underdeveloped. There are concerns that users who are not educated in how to properly control the preferences within these systems to protect personal data could be exposed to the stealing of private data, hijacking of web transactions, ‘phishing’ (Nagel, 2007) and stalking (Ellison *et al.*, 2007). Indeed, a survey by Ofcom (2008) noted that privacy and safety concerns did not appear to be key issues for those using social networking sites; 44 per cent of adults left their profiles open to anyone, and 17 per cent talked to people who they didn’t know on social networking sites. Interestingly, the UKCGO project found that all categories of risk increase with age, with the ‘privacy risk’ of giving out personal information most commonly taken by the 9–15-year-olds. Giving out personal information on a social networking site may not be a deliberate act of risk-taking, but does appear to be a relatively common practice at the time of our data collection.

In contrast to findings from other research, no one in our sample told us about meeting people face to face who they had met online, and few told us about

receiving unwanted messages from strangers. This is in contrast to the UKCGO study which found that one-third of 9–19-year-olds who go online at least once a week report having received unwanted sexual (31 per cent) or nasty comments (33 per cent) via chat, instant messaging or text messaging (Livingstone and Bober, 2004).

The challenge is to establish an ongoing educational programme which is able to keep pace with the emerging activities that young people are drawn to. One of the respondents in our study felt strongly that the school had a strong role to play in that respect:

CW “I think schools are big – cos parents, they’re going to tell you loads of stuff, and some things you just think, oh whatever! But if the schools have said, I think – I think it would be good if younger children get things talked about, like Bebo pages and MySpace, because you’re not told by school that much, you know, be careful what you’ve got on there.” [female Y10 Sec2]

The recommendations made within the Byron review highlight the importance of ensuring young people get support with e-safety both within and outside school (Byron, 2008).

Formal learning in the home

Ways in which technologies are used for formal learning:

Several studies have highlighted the extensive use made of the internet at home by young people to support formal education in the form of homework. In the UK, Livingstone and Bober found that among the 84 per cent of 9–19-year-olds who use the internet daily or weekly (at home, school or in other locations), 90 per cent use it to do work for school or college. Furthermore, 60 per cent of this age group in full-time education view the internet as the most helpful tool for getting information for homework (Livingstone and Bober, 2003).

Research suggests a gradual increase in the use of new technologies for educational purposes as the learner gets older. As children grow older, their uses and needs for the computer change in line with their priorities, moving more from interactions of play towards homework and information-seeking behaviour, as well as social interaction (DfES, 2002). Similar findings were echoed in the Children and Young People’s Home Use of ICT for Educational Purposes report, where older children (in this case, Year 11s) reported using ICT for more educational purposes than their younger counterparts, while their uses for fun also declined. Girls were more likely to use the computer for school work at home than boys were, probably reflecting their more conscientious attitude to homework, which has been reported elsewhere (Valentine *et al.*, 2005).

The 2005 study for the then Department for Education and Skills (DfES) by Valentine *et al.* (2005) highlights that teachers are reluctant to set homework which requires the use of ICT outside school owing to the differences in pupils' levels of access. Yet pupils with access implicitly understand that if they have it, they should use it. The secondary school learners we spoke to generally seem to have established what are for them satisfactory routines for doing this. When asked to talk specifically about how they use technologies to support their homework, respondents tended to report a fairly common and straightforward set of activities involving using Word, PowerPoint and Excel, and undertaking their own internet searches mainly using Google and Wikipedia:

Int "How do you use the internet for homework?"

CK "Um, just basically Google or Ask, and then type in what I need to find out and find out sites, and read the, you know, find out what I need to, ask what I want to know. And basically copy and paste then edit it and, you know, make it my own..."

Int "Okay, and do you usually find what you need?"

CK "Most of the time, yeah – yeah, most of the time. In school, not all the time because most of the sites are blocked."

Int "Okay, yeah."

CK "But at home, if I'm doing it at home, I'll definitely find what I need." [male Y10 Sec1]

This range of usage was reported very widely indeed by the school students, usually in very similar terms, with a large number of learners having access to search resources (as mentioned in the section above on internet search skills) that are largely unavailable in school and expressing a preference for using keyboards over handwriting.

The preference for writing using a computer instead of paper has been found in other work on this topic. Facer *et al.* (2003) argue that children and adolescents are not simply finding ways to present their work nicely but are learning by, for example, using fonts and styles in order to convey further meaning within their texts, making different vocabulary choices using the electronic grammar check, and using wizards to learn how to format important documents. The authors suggested that the use of such in-built program tools not only helps the children to notice their mistakes but also allows them to feel a certain level of independence with regard to not needing help from parents (Facer *et al.*, 2003).

One of the secondary schools whose pupils we interviewed had developed its learning platform to the extent that two subjects – geography and IT – regularly provide homework information, theoretically enabling homework submission over the

platform and obviating the problem of printing out work. While some students report collecting information from the platform, none report using it for work submission, however, preferring either to take it in hard copy or send it by email to their school email addresses for printing out when they get to school:

BLG “You can go on at home and you can get it from there [the school website], or you can do it at school or print it off. It’s a good way of doing it; it’s just easier for the class.”

Int “But not all subjects do that, do they?”

BLG “No, most of them don’t.” [male Y10 Sec2]

Int “And do you have like a school internet system that you use ever?”

AH “Er, at school I do; I don’t use it at home.”

Int “Okay, so you don’t really email teachers; they don’t really leave homework like on the internet for you or anything?”

AH “No.” [male Y8 Sec1]

This is very much in line with what is suggested in *Harnessing Technology: Next Generation Learning*, which, under the heading Continuity of Learning, points out that ‘although technology offers opportunities for continuity and flexibility in learning, and for parents and carers to be more closely involved, this use is not yet widespread in homes and few schools are making use of the extended learning opportunities now available’ (Becta, 2008, p.23). (This is an issue which will be explored in more depth in Phase 2 of the project, in the context of case studies in learners’ homes.)

Rather more positively, we also encountered evidence to support Becta’s claim that ‘learners’ reported preferred ways of learning are “in groups”, “by doing practical things”, “with friends” and “by using computers” (Becta, 2008, p.21) in the ways in which secondary school learners reported developing their own procedures for online collaborative homework support:

Int “Okay. What happens at home if you get stuck with anything; who helps you there?”

EB “Um, I normally talk to my friends on MSN about it all or just remember what I did in the lesson and just go back through it and stuff. Or just do it and then just do something at it and like try.” [female Y8 Sec2]

CW “I work better at night – I tried like to, when I get in, to do the homework, I just can’t do it. Um, come 9 o’clock, I’ll be like ready to do it, which makes me really tired the next day, so – but it’s the only way I can work so...”

Int “So what would be like your routine, would you go and do MSN and check Bebo and stuff first, and then do it, or – how?”

CW “Yeah, I would probably – I would go into MSN, I think, because you can... people about it, and they’ll be doing it at the same time, so you can sort of send them sentences and they can tell you if it was right or not, which is quite good.” [female Y10 Sec2]

PN “Um, like needing to like send someone like some work or something if I’m doing... because a lot it’s when you type it up and you’ve only got like a couple hours to do it, then re-read, it just sounds right, but if you send it to someone else it might not sound right and so they can like give you a pointer.” [male Y8 Sec2]

As noted above, very few interviewees report not being able to use the internet at home, but in the case of both secondary schools whose pupils we interviewed, provision was available and known about for doing work at school after hours if needed:

Int “Do you get homework which needs the internet explicitly?”

LH “Yeah.”

Int “Okay. So which subjects do you get homework on?”

LH “Um, sometimes it’s like, um, technology, and RE because we have to find out like charities and stuff.”

Int “Okay, yeah. And what about the PCs at the library, are those usable?”

LH “Yeah, they’re usable.”

Int “What are the ups and downs of that?”

LH “Um, there’s not really any. It’s actually quite useful, all we need is a library card to use it. You don’t have to pay.” [female Y8 Sec1]

It was considerably rarer to encounter Year 4 primary pupils being required to do much homework at all:

Int “And school work is...?”

SL “Once or twice a month.” [male Y4 Prm1]

When homework does happen, it tends to be in the form of one-off special projects:

TC “Um, I looked up – some information about the rainforests and how we affect it.” [male Y4 Prm3]

Blending formal learning with wider technology activities:

One of the most striking aspects in our conversations with learners concerned the ways in which they manage formal learning in relation to their wider pattern of technology-based activities, and the varying ways in which they attempt either to cordon off formal work in order to give it sufficient priority, or integrate it in order to make it more palatable. AC, one of the higher education students, was particularly conscious of the need to maintain some form of separation, although interestingly she actually uses technology as a means of creating a kind of (aural) boundary:

AC “It’s like I put on some music, some like chilled-out music, nothing too heavy and then just like shut MSN, make sure Facebook’s off and all that sort of stuff, and then it’s like – right, this is work time.” [female 19yrs HE1]

It is more common, among the secondary school students, to see learners integrating their work with their activities to the extent that for some there is very little differentiation at all – they report little difficulty in moving quite easily from work to more pleasurable activity and back again:

CK “Bebo, MySpace, yeah, and um, You Tube; just looking up research for homework; a lot of homework on there, um, music as well. Yeah, and sometimes games as well when it’s, you know, when I’m bored.” [male Y10 Sec1]

KM “Well, I can have like two or three conversations going at once by emailing, because like... yeah, it’s... and it’s cheaper [laughs] than ringing people, and it doesn’t mean that I’m just taken up by... because if I sit on the phone, I sit on the phone and I don’t do anything else. Whereas if I’m emailing people, I can email them and then maybe do five minutes of my coursework and then email them again, and it will work like that. So, yeah, it’s quite good.” [female Y10 Sec2]

However, many others report trying to draw a line between social or leisure activities and their school work. These two Key Stage 3 learners are already grappling with the need to balance work and play, and the second of the two seems to be reflecting parental (and possibly also teachers’) anxieties about the danger of contaminating formal work with the informal communicative practices associated with messaging and texting:

EB “Yeah. It’s like when I’m on MSN, I normally listen to it because it’s not a very important issue, it’s just like someone’s talking to you. But like when you do your homework, you can’t use it because it’s a distraction, so...” [female Y8 Sec2]

ER “I usually get on with my homework before I go on MSN, because if I’m on MSN I’ll find someone decent to talk to, and you talk for ages, and by the time it’s time to do my homework, I’d just be like... oh... [...] Well, I don’t usually, because I get distracted and stuff. And once I did it and like, you know how you write on MSN and

you write like slang and you don't like type properly; I did that on my English assessment, and so I've never done it again." [female Y8 Sec2]

As was suggested in the section on parental regulation, school-age learners are often adept at operating in ways that they consider appropriate and justifiable, but which they know their parents will not quite approve of or understand. This, we believe, is potentially a very significant aspect of how young people manage the technology-based aspects of their lives, and it is by no means obvious that their methods should be viewed as undesirable. It may well be the case that in negotiating, with their parents (often very persuasively, it appears), the opportunity to use broadband-based technologies (often in their own rooms) as a matter of course to support their school learning, learners do in fact create circumstances that enable them to work in quite productive ways, even if those ways are not exactly what parents imagine to be the case. This is an area for careful further probing in the second phase of our data-gathering, the case studies.

Informal learning in the home

This section looks at a rather less easily defined category of learning that is potentially enabled by home uses of technologies: informal, self-motivated, non-prescribed learning. In looking for instances of this in our study, we concentrated on evidence of when learners go beyond simply finding out practical information about areas of personal interest (such as using the internet to find out about addresses of vets) but also (perhaps simultaneously) engage in activities that substantively add to their knowledge and understanding in some way (for example, using the internet to learn more about the behaviour and health issues of horses). The example below illustrates the point:

SG "I've actually done that recently because my horse got a bad back, and so I just went on some back-specialist websites and found out some information about what could have caused it and what you can do to fix it. And I got some back people's like names off it and contact details, so that was really helpful." [female Y10 Sec2]

In the case of the higher education students, non-curriculum, non-prescribed learning quite often concerns their explorations of, or thoughts about, future employment:

AC "Yeah, I have been doing like searches on the internet, and there's the university careers website where you put jobs up on there, so I've been looking through those as well trying to find something, but..." [female 19yrs HE1]

Int "And what do you like about Sims then? What is it that really...?"

HY "I like the building bit. [...]"

Int "Has that come from anywhere else? Does that play out in any other part of your life or is it just there that you really enjoy doing it?"

HY “Um, I did toy with the idea of actually training to be an architect.” [female 19yrs HE1]

Distinct from this are the ways in which the HE students also explore wider aspects of their developing intellectual and cultural lives:

HY “And a lot of the things I find like on the internet have been about feminist issues and women’s issues. So those ones I’ve actually taken further and read further, so I think having like the little eight-minute things is like, it gets you interested and you’re going to find out more. It encourages you to find out more rather than telling you everything, well, most of everything, so you don’t really want to go and pursue it further.” [female 19yrs HE1]

TS “On the academic research bit, sometimes the guy that lives next to me is a really bright chap and we have occasionally political or historical kind of conversations; it’s really good, you know, it’s part of the uni vibe. And so every now and then that’s when I feel more confident in using things like Wikipedia or just Googling bits and pieces, just as kind of... it’s kind of unrelated to the course.” [male 21yrs HE1]

There is very little pattern to much of the informal and self-motivated learning undertaken by school students through the internet, but the various things that they report do provide some invaluable points of reference for ways of identifying and characterising the kinds of thing that may constitute self-directed informal learning on the internet:

OT “... throughout the game, it does come up with where historical events happened. It’d come up with, saying that a historical event had happened and it affects the game, it’ll tell you a bit about the history behind that as well. [...] Sometimes I just learn totally new stuff that I didn’t realise happened.” [male Y10 Sec2]

CW “I tried to learn Russian, but it really didn’t go well.” [male Y8 Sec2]

HF “I like, um, typing up stories on my computer and, um, printing them out. And I like, um, pretending that we’re playing schools with my sister and pretending that a child made this and I have to read it.” [female Y4 Prm1]

LB “PowerPoint you can put pictures on and explain about... I had one about my family and the front page was My Family by LB, obviously. And then, um, on the other pages there’s pictures of my family, and I wrote what I like about them and what annoys me. And another one said... it’s like a diary to myself. I write a lot of diaries in Word and stuff like that, but because it was on my laptop, I never let anyone go on it.” [female Y8 Sec2]

As the extract from SF below indicates, primary-age children are particularly attracted to exploring activities that focus on topics, such as animals, that are suited to their enthusiasm for games-playing:

Int “So you’ve like got a lot of games where you look after things and you feed them and stuff?”

SF “Yeah, I like the nature.”

Int “Does it ever teach you anything, do you think?”

SF “ “Being kind to animals, and never take them out of their home if they don't want to... to be... like if I take a worm out their home, they might find it hard to stay alive or something.” [female Y4 Prm1]

It is less easy, within these criteria, to claim that the following examples involve substantive learning, but they are interesting as instances of how exploration across the internet can potentially encourage young learners to reach out towards nascent conceptual understandings. At the very least, these suggest a level of intellectual activity that goes beyond straightforward entertainment or practical information-gathering:

MJ “I was going to Thorpe Park... so I watched the videos on there of people who have actually been on them. So they helped me conquer my fear in a way.” [male Y8 Sec2]

SB “I go on stuff like BBC 4 and stuff and look at the headlines and things.” [male Y8 Sec2]

ST “Obviously you... obviously I’m trying to be an architect, so I go on the internet and see what you have to do further to be an architect. [...]”

Int “What have you found out then; is it quite hard?”

ST “Yeah, you have to be like good in arts, and then be a bit creative in myself. And so we try... I’m actually... I’m just starting it and – I ... see critics, artists, people... architect people, and I just look at their works and how they do it, and I get inspiration from that. And then do it.” [female Y8 Sec1]

Int Do you think you learn things from using technologies? I mean, I’m not talking about school work but all the other uses, you know, do you think...?”

DH “Um, yeah, I think you learn to be more safe of yourself; you learn to be more protective. You learn to be more social. Um, you learn loads of things. I mean you... of course you learn, you get better knowledge and stuff, and so it all comes down to that.” [male Y10 Sec2]

Many studies into individuals' engagement with technology focus on use. There is only a limited amount of work that explores the use of technologies to support learning. For this study, we need to know about the learning that may be facilitated when using new technologies for different activities such as information-seeking, interacting, and creating. While it is difficult from one-hour interviews to fully understand the processes of learning using new technologies, the examples above reflect patterns of activity have been identified in other research. For example, one common finding among a number of studies suggests that when children are given the freedom to choose what to do at home on the computer, they focus their efforts on something that builds on pre-existing interests (Facer *et al.*, 2003; Kent and Facer, 2004). There are also specific activities that are prevalent in the interview data and also explored in other research; for example, information-seeking for all kinds of purposes such as one-off events in their everyday life, regular activities and information for friends and family (see, for example, Rieh, 2004); game-playing to help learn factual information and more generic communication, problem-solving and mathematical skills (Facer, 2003); and developing language skills (Cranmer, Potter and Selwyn, 2008).

Another interesting trend to consider is the dramatic rise in the use of social networking sites, which may have significant implications for learning. There are now numerous social networking sites that have different orientations (for example, work, music or college group membership) that enable people to present themselves online and establish and/or maintain relationships with others who they already know offline or just meet online (Ellison *et al.*, 2007). While we do not yet know a great deal about the learning that may occur from using social networks, some research does support this potential. For example, a study by Ellison and colleagues of undergraduates at Michigan State University indicated that the use of Facebook (but not internet use in general) was positively related to the maintenance and creation of social capital, in particular 'bridging social capital'. Utilising the work of Granovetter (1982), bridging social capital is defined as 'loose connections between individuals who may provide useful information or new perspectives for one another but typically not emotional support' (Ellison *et al.*, 2007). The significance of these opportunities for learning may be compounded also by the growing trend towards accessing social networking sites via 3G mobile phones.

Section C: Improving personalised learning experiences

This final perspective on learners' experiences emerges especially from evidence in our study about their processes of learning how to use and manage technologies in their lives. Our evidence suggests that learning how to use new technologies for a wide variety of purposes constitutes a significant area in which young learners engage actively in constructing a kind of personalised learning experience that accords with the description in *Harnessing Technologies: Next Generation Learning 2008–14*: 'learning which reflects learners' interests, preferred approaches, abilities and choices, and tailored access to materials and content' (Becta, 2008, p.33). We

also encountered a good deal of evidence to suggest that the home context of such learning can be a powerful means of engaging family learning, and somewhat more ambivalent evidence about the role of schools in this process.

Support and shared engagement

A study by Livingstone and Bober (2003) found that children often consider themselves to be the internet experts in their homes, in spite of having computer-literate parents, because of their willingness to experiment. However, other studies have shown that despite this, some parents' skills far exceed those of their children, particularly where parents carry out high-level ICT functions in their jobs (Holloway and Valentine, 2003).

From our study, support from family seemed generally to be reported in positive terms. This is in contrast to other work that has demonstrated that in relation to the sharing of skills within families, these relationships can be difficult. For example, Facer *et al.* (2003) note in their study that the contacts between sisters and brothers are often characterised by a combination of support and rivalry, with the computer entering into this already stormy relationship. In relation to children teaching parents, Holloway and Valentine (2003) comment that these role-reversal situations involve 'reinterpretations' of power relations in the home. While children frequently enjoy this position of power and use it to tease their parents, they are also irritated by their parents' slowness in picking up new skills. Equally, parents may be critical of their children's teaching skills. While Kiesler *et al.* (2000) found that teenagers teaching parents were viewed by parents as a 'convenience', they also found that teenagers could be thoughtless and unsympathetic about their parents' struggles to learn.

In some ways, our findings so far contradict concerns that the growing expertise of children is leading to the individualisation of the family. Livingstone (2006) suggested such individualisation may be occurring owing to the increasing move towards computers in bedrooms reducing the number of opportunities for families to take part in activities regarding technology together – and that this was a particular problem for those families who are technologically advanced. In fact, in our study we saw more examples of support and collaboration even among those who were confident users, which may be due to the age of the people we spoke to, the fact that technology is constantly changing so skills constantly need to be updated, or because so many parents were working in jobs that used computers that they may be promoting and developing a higher level of skill in their children and for themselves.

The ways in which people acquire technical skills seem to vary according to age. For example, for younger people, the user is rarely 'taught' anything: through trial and error they learn how to turn technologies on, use a particular program and open a particular file. By contrast, older people are more likely to take formal training courses.

The importance of this aspect of learning – when learners ‘teach’ themselves – concerns not merely the direct and practical benefits learners gain from being able to use technologies for various purposes, but also potentially significant indirect benefits which many describe: experiences of agency, self-efficacy (perhaps through the experience of a higher than normal equality of expertise with adults), and some degree of metacognition that is revealed when some talk of how they or other family members learn to use digital technologies. Self-efficacy is closely linked to the level of effort and persistence that is put into mastering the use of computers and the internet (Eastin, 2005), and the family context and peer group play key roles in supporting and encouraging people to use the internet to the fullest potential for learning (see, for example: Giacquinta, Bauer, and Levin, 1993; Kerawalla and Crook, 2002; Livingstone, 2006).

The most frequent model of learning reported by learners in our findings involves a marked degree of experimentation that occurs in the context of support from a trusted family member or advanced peer. The first two extracts below summarise what is for very many the broad picture of their technology learning, in which they expect to take a leading role in finding solutions and good practice, both through experimentation and by being able to draw on the expertise of more advanced peers, teachers, and – most frequently – a family member who has become designated to carry out this role of expert:

Int “But if you want to do something – suppose, I don’t know, suppose you wanted to learn how to change a whole bit of text from lower case to capital letters and you didn’t know how to do it – where would you go to learn?”

DS “I’d call my dad.” [male Y8 Sec2]

Int “You’d ask your dad? What about you, CP?”

CP “I’d probably do the same or like ask a teacher at school. Or maybe look it up on the internet.” [female Y8 Sec2]

Int “Where did you learn to use things like Word? [...] Who told you that?”

GM “I learnt to use Word... I learnt Word from my uncle a bit, and then I figured out the thing a bit more myself and then from the school, figured out.” [male Y4 Prm2]

Very often, the trusted family member is the father:

Int “Do you help your sons a lot, or do they tell you stuff, or is it like...?”

AB “A bit of both really. Yeah, because my eldest did a project on Movie Maker, and I didn’t even know I had Movie Maker on my machine. And he showed me how to use that and then I showed him how to download sort of music to put as backing tracks. So it’s quite a sort of co-operative thing in our house really, the IT.” [male 40yrs HE1]

Int “Do you enjoy sitting there looking at it in front of the computer with him?”

RR “I do, I do.”

Int “Yeah?”

RR “It’s quality time, you know... It is, isn’t it? Because he’s always working and when he comes home you really want to talk to him about something, but because he’s got so much on his mind, like computers, it’s like you just feel that you can go join him in that life.” [female Y10 Sec2]

Fathers do not hold this role exclusively, however: mothers, siblings, cousins, uncles and family friends all get involved (including respondents themselves in their turn, of course), sometimes to the extent that different family members are designated as the experts in specific aspects of technology learning:

OT “My sister usually does the like iTunes and stuff.”

Int “Right.”

OT “She handles the music aspect of stuff.”

Int “Yeah.”

OT “And we also – for the more complex stuff that not even my dad understands, we have a good family friend who’s a bit more IT technical.” [male Y10 Sec2]

Int “Who would you ask if you got stuck?”

IJ “My mum, because she works with computers every day.” [female Y8 Sec2]

Int “It’s your mum who tends to give you most help, is it?”

KC “She’s probably on her computer all day, because she works in a freight company and she has to like do stuff on the computers.” [female Y8 Sec2]

SH “Of my brothers, the one who’s doing his GCSEs, is like really into computers and stuff so yeah, he’s really good at... I think most of the time he helps me like if I don’t understand anything.” [female 20yrs HE1]

Parents do not universally provide help, however; this is consistent with other studies which have suggested that many parents tend not to spend a significant amount of time supporting their children’s use (Kerawalla and Crook, 2002), perhaps because of a lack of skills and time (Giacquinta, Bauer and Levin, 1993) and/or because children are resistant to the notion of adults helping, apart from with homework tasks (Kerawalla and Crook, 2002). Certainly, some of the learners in our study exercised a considerable level of autonomy in learning to use technologies, by knowing where

to look for help but depending mostly on their own particular versions of trial and error learning:

HY “I know I said I don’t use many social sites and stuff, but I do know of enough places where I can get it if I need to. I mean, I do have a tendency to learn from a couple of forums about computers and stuff, so if needs be I can find the help.”
[female 19yrs HE1]

Int “Where did you learn that?”

OT “Um, you just pick it up really.”

Int “Pick it up, yeah.”

OT “As you go along, just work out... Just like, play it by ear, I guess. See stuff and you go, ‘Oh what does that icon do?’ – trial and error really.” [male Y10 Sec2]

Int “So how did you learn how to use technology? Did your dad show you or did you teach yourself?”

CR “Use technology? I don’t know. Pretty... I don’t know, it just seems easy; it’s just like press stuff and it works.”

Int “Yeah? So you work it all out yourself?”

CR “Yeah, yeah, work it out.” [male Y10 Sec2]

It seems that taking possession of the learning in this way involves some of these young learners articulating learning processes – their own, and those around them – in quite perceptive ways:

Int “Are you something of an expert or...?”

SR “Not really, just me and my dad and my little brother just like share little tricks that we’ve got. Like little shortcuts, how to do this, how to do this. So that’s how I get such a broad knowledge, because I share it with other people.” [female Y10 Sec2]

RR “She’s [sister] asking how to do such and such, how do you start the text message, how do you add a number to the phone book? And it’s like I know and let her get on with it. Explore it for herself. Never take the fun out of exploration. [laughs]” [female Y10 Sec2]

SR “I think that he’s one of those people that has to learn for himself. He doesn’t like learning from other people and their mistakes; he has to go out and make the same mistake himself, and then he’ll learn from it so I think that – he does get his work done although it’s hard [...] starting to flip now. I think that I’m just going to leave him

because I know how it is, when someone keeps interfering with you and how annoying that can get. So I'm just gonna leave him." [female Y10 Sec2]

AC "We just learnt on the go really." [male Y10 Sec2]

What was most striking about what the young people we interviewed had to say was the fact that becoming skilled in using technologies appeared to constitute, for many learners, a markedly positive experience of learning, in which they seemed to experience more than usual degrees of control over the processes of learning that occurred.

The final part of this section explores this final theme from a slightly different additional perspective by considering some of the (mostly unsolicited) references, by a number of respondents, to the role of school in their learning to use technologies.

The relationship with school experiences of learning with ICT

Livingstone and Bober argue that schools are central to redressing the digital divide, for they can 'equalise the effects of inequalities in resources at home'. However, the earlier part of the same study, utilising focus groups, suggests that the home is where young people 'gain most in confidence and expertise, making inequalities in home use of continuing significance' (Livingstone and Bober, 2004, p.17). Given the evident importance of the family unit as a context for such learning, a number of respondents frequently acknowledge that school – especially experiences early on – plays a part also in providing the foundations for this increasingly autonomous aspect of young people's learning lives:

SH "From primary school, that was when I slowly started getting my computer skills and like my typing and stuff, and I think since then it's just kind of developed because the more I've been using it the more I've like... I think most of it's probably from like school and then just stuff which I've done at home which has helped me to progress and improve my skills." [female 20yrs HE1]

Kent and Facer (2004) have provided examples which show that children and young people may learn skills at school which they then bring with them into the home. For instance, they describe how an 11-year-old girl who had just tried PowerPoint for the first time in her school was willing to take home her knowledge to show her novice father. This form of 'expert-imitation' displayed by the child is evident in a number of studies and shows the knowledge that children can acquire and relay, both to their family and even teachers. Through this display of 'adult-teaching' it can be argued that children are in fact not only learning skills to present information to others and simple rules of etiquette, but through active reiteration of the facts and speaking aloud, the overt speech that is heard transforms into a much deeper structure within the mind (Haenen, 2001).

The Government has invested large sums of money in linking schools to the internet: over £1.8 billion between 1998 and 2004 (Office of the E-Envoy, 2002). Yet, the UKCGO study has shown that nearly one-third (30 per cent) of pupils between the ages of nine and 19 report that they have not received lessons on using the internet (Livingstone and Bober, 2004). However, the majority who have been 'taught something' report having received 'a lot' (23 per cent), 'some' (28 per cent) and 'just one or two' classes (19 per cent).

Among other studies reflecting the limitations of school-based learning of digital media, Buckingham (2001) says that compared with the exhilarating experience of multimedia outside school, many children complain that use in schools is far too limited and restrictive. Facer *et al.* conclude in *Screenplay* that over-prescriptive and linear practices limit school-based learning of ICT (Facer *et al.*, 2003).

Although concentrated on learners' experiences of learning to use technologies in the home, reference was often made by learners in our own study to the equivalent experience in the school context. Opinions about the role of school in supporting the learning of technology skills are sharply divided, and despite the strong negativity expressed by some learners regarding their experiences of school ICT learning, a significant number of students were very positive about these experiences, especially in terms of the foundations they provided for their own subsequent efforts to learn about using technologies:

Int "How did you learn to use a computer?"

LC "Well, when I was little, my cousin like told me how to get on to like the internet and everything. But since I came to school, I have learned a lot more." [female Y4 Prm2]

DH "Computers are like a main thing of the school really. They help to advance learning in a more vibrant way."

Int "Is it used enough in school?"

DH "They use it quite a lot, yeah." [male Y10 Sec2]

RR "ICT lessons here, they are quite, um, you learn a lot of things in ICT lessons here, so, yeah. I'd say my skills are above average... We learn to use really different Microsoft packages and it's just... at home it's generally just email and MSN. Um, again, just looking at websites for such and such a product that I want to look at. Um, it's a lot different really. Two different scales I think, so yeah." [female Y10 Sec2]

A significant number of respondents do touch on the value they think they derived from some aspect or other of the ICT learning they have encountered in schools, but the fact remains that others see such learning as either unsatisfying or an actual waste of time:

CW “I find it quite easy, IT, I always found it really easy because the courses are just very simple – very frustrating, but so simple...”

Int “These are school ones? They’re just very, er...”

CW “Yeah – they’re always quite basic but, er, you also have to do a lot of it just to show you can do it, you have to show you can write a Word document – and I’m like ‘No, I can do that, I want to do the other stuff!’ and it’s a bit like ‘No, but you have to show it,’ so that gets frustrating and like, show you can open an email and I’m like ‘I can do it! I’m 15!’” [female Y10 Sec2]

Int “Does the school give you guidance on what you can look at or what’s a useful kind of engine to find things on?”

OR “Um, I think so yeah, but I don’t really listen to that. I just try to find out myself and like ask rather than them tell us what to do.”

Int “Do you think you learn more anyway by finding out yourself?”

OR “Yeah.” [male Y10 Sec2]

Int “Yeah, and what do you think of, um, the computer skills they teach you at school? Are they helpful or are they not?”

CR “No, they’re not helpful, they... they don’t teach you computer skills, they teach you like simple stuff that’s just stupid.”

Int “Like what?”

CR “Like, they just teach you like stuff, like formula for Excel which you could just like go onto a web page and just read. And they spend like five weeks teaching you that, and it’s just like, what’s the point? It’s just stupid. [...] I can see how like some of the things could be related to like jobs and stuff, but nothing the job could like... the employer or whatever couldn’t teach you before you start the job or anything, like in a week, so.” [male Y10 Sec2]

Given the positive feelings some learners express for the role of schools in being a point of reference, early on in the learning process especially, the negative feelings about such learning from more confident and competent users of ICT present a real challenge for teachers of ICT. This is an area where the school clearly has an important role to play, and the need to differentiate provision is exceptionally high.

Conclusions

In this final section, we outline key themes that we see as emerging from this relatively early stage of the research.

It seems that while some of the activities reported have been around for a long time now – online and offline games playing, chat-room communications, using mainstream word processing and presentational applications for producing work for school, using the internet to follow up personal interests – the rate of development in these respects over the last three or four years has been dramatic. A number of activities that, five years ago, were the domain of a minority of young people, have spread widely among the age group and down the age range. In addition, a number of new activities have very rapidly become normalised, such as: downloading music onto the computer and from there onto MP3 players (in the process, learning how to manage complex databases); watching TV viewing online, using both iPlayer and 4oD, so that many young people schedule and manage their own TV viewing alongside other online activities, often in the privacy of their own rooms; using the internet freely, because of wireless broadband connectivity for extended online games playing; using Google and Wikipedia as a matter of course to support and enhance school work done at home; participating in extended social worlds through a variety of online communicative media; and participating to some extent in global cultures via Web 2.0 resources.

Most striking perhaps is the rapidly expanding nature of ICT use out of school, in terms both of the proportions of young people involved, and the range of digital-technology-supported activities that these increasing numbers of young people (mostly from unremarkable and not particularly prosperous homes) are able to access. We are, of course, very conscious that we have yet to measure the levels of access encountered in this group with a nationally representative sample, and we are certain to find significant numbers of young people with far lower levels of advantage. It is particularly important to examine where the advantages actually lie in having such generous access to all these technologies, in order to avoid the negative aspects of spreading these kinds of access more widely.

It is evident that many younger people are becoming quite advanced consumers of a wide range of technologies which, a few years ago, would have been seen as largely targeted at adults; for example, we encountered two nine-year-olds discussing the functionalities of the 3G phone and agreeing that they wanted to own the current brand leader. The ownership of internet-capable phones, with high-specification cameras and music-playing capacity, as well as ownership of MP3 players, dedicated digital cameras, laptops and games consoles, also appears to be increasingly common, with the consequence of rapid redundancy and wastage of older technologies in some cases.

These findings also show how these mainly well-resourced young people have become highly skilled in negotiating access for themselves. Many young people act

in highly strategic ways in order to ensure that they can possess and manage a wide range of technologies, ostensibly for the purposes of learning but, in reality, for many other purposes also. This access to technology is not in itself necessarily undesirable, as parents probably recognise well enough, if young people find ways of combining their preferred personal activities such as games-playing, video watching or communicating with friends with effective learning activities that are truly enhanced by the technologies they are able to use so freely. The evidence of this phase of the research cannot really tell us to what extent young people manage to benefit from these technologies, which provides an important challenge for subsequent stages: we need to understand more about what separates those learners who do benefit from these opportunities from those who are overwhelmed and distracted by them. The key issue here concerns the ways in which learners locate their learning activities within this context of multiple uses of technologies.

The evidence in this report points to the considerable importance of the family context in terms of how young people's digital lives are bound up in, and influenced by, the wider nature of shared family activities and values. We need to balance the picture (clearly accurate in many cases) of young people locked away in their rooms engaging either in lengthy online games playing, TV viewing or participation in sometimes risky MSN, Bebo or Facebook networks for several hours each evening, with an alternative picture which also emerges of a positive and engaging family life where the use of technologies constitutes a meeting place and shared interest between multiple family members, and where young people can develop expertise on a par with adults, enhancing self-confidence and achievement accordingly. There are strong polarities of value implied in these contrasting pictures, and considerable variation occurring along the continuum between such extremes, and it is by no means self-evident what messages can be drawn from this about the situation for less advantaged learners.

The evidence of these findings about the crucial nature of the family as a secure, supportive and involved context for learning with technologies is very compelling, but not all families are capable of providing that, and there is much evidence here to suggest that some young people function very effectively and productively on their own within the digital sphere. We do see evidence of these experiences of being able to use technology freely contributing to young people's learning lives in a number of ways. While the evidence here of both formal and informal learning being achieved or improved through the medium of internet-supported computers is patchy, learners report quite a wide range of worthwhile learning taking place, and in ways that the learners themselves are increasingly capable of generating for themselves (such as the interesting examples of self-generated collaboration over homework tasks via MSN, email and Bebo, which, while not necessarily of a high level, are viewed by the learners themselves as useful). In respect of both formal and informal learning broadly, it appears that there is some evidence from our findings to suggest that sustained access to new technologies in the home is associated in a

number of cases with increasingly engaging and empowering experiences of learning.

In terms of becoming engaged and empowered learners, the evidence is more striking in relation to learners' processes of learning to use technologies for a wide range of purposes. This evidence is striking not merely for the technology skills that are achieved, but also for what learners discover for themselves about productive processes of learning, and their own capacities for managing these. While we are very cautious about making too much of the notion of young people as digital natives, there is no doubt that many of them experience what is potentially an unusually high degree of ownership and agency with regard to knowledge and practices around new technologies – of a kind that they do not necessarily experience in much of their school learning. While they may experience such feelings of ownership and agency with regard to other aspects of their own youth culture – hobbies, music, and so on – new technologies represent a relatively rare instance of a field of knowledge and expertise that can be shared on equal terms with adults. Confident learners in this respect express a capacity both to try things out for themselves and to draw on the expertise of adults, within the family and, to some extent, within the school.

This does not mean, of course, that young learners necessarily possess adult skills, and their understandings of issues relating to safe and effective uses of the internet are a clear illustration of where confident behaviour cannot always be equated with competent behaviour. But this is the case throughout these data, in fact: these findings show young learners engaging in exciting and active ways with a wide range of desirable behaviours, but the boundary that separates the desirable behaviours from more problematic activity may be fairly narrow and easily missed. We are also struck by the fact that, despite the considerable claims made in favour of the creative and productive potential of Web 2.0 resources, we encountered minimal evidence of new forms of creativity and productivity actually taking place across the cohort.

In summary, we see these as the key topics that we will aim to develop as themes emerging from the data as we move forward through the next stages of reporting:

Learners able to exercise choice among flexible learning options

The evidence from these interviews suggests that technology-based activity and ownership in young people's lives continues to expand and consolidate in ways that have significant implications for how they manage their lives and their learning; the underlying pattern is of multiple activities managed across a range of applications and technologies. Learners typically locate their learning activities, whether school or college related or otherwise, within this multi-tasking context.

Less positively, while there is evidence that the learning of these young people was enabled in many respects, and possibly on occasions enhanced, by their access to new technologies, there was very limited evidence of young people engaging with

the apparently creative scope of Web 2.0 or using these technologies in markedly original ways.

Learning to use technology confidently and safely to support learning

There is compelling evidence of the family unit being a key factor in ensuring a healthy balance and amount of technology use in the home, for formal learning and for other purposes, as well as providing a secure and supportive environment for learning and developing advanced technology skills. This suggests that parents need to be helped wherever possible to understand the ways in which they can work with young people to help them develop mature, responsible and – eventually – independent approaches to using technologies in their lives.

Engaged and empowered learners

Many of the young people describe their approach to learning skills in using new technologies in terms that express a considerable sense of agency and ownership of the learning process. The most successful models of learning appear to involve an autonomous and proactive approach to experimentation, supported by access to the expertise of a known adult or more advanced peer.

Continuity of learning

Evidence from this phase of data-gathering suggests a mixed picture at best. Early experiences at school were cited by many learners as having provided useful foundations for helping them to become effective technology users, but learners' perceptions of the value of such learning at secondary level tended to be more critical. Learners' feelings were markedly mixed regarding efforts made by school to support home learning over the school learning platform.

These developing themes are presented here for discussion rather than as definitive statements. The themes clearly need to be developed considerably further, for instance with respect to what they mean at different ages and in different circumstances. We do believe, nonetheless, that the findings emerging from this first stage of our research will prove to be of considerable value as our exploration of them continues over the coming months.

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Appendix: Methods used for gathering data

As noted in the main text, this report highlights the key findings from the analysis of 85 interviews with learners, together with a review of the existing literature in this area.

The sample

At the time of writing, 85 learners across the Reading area have been interviewed, drawn from a range of learning institutions.⁴ Reading Borough Council (2006) notes that Reading was estimated to have a population of 145,100 in the middle of 2005. As an area, Reading is extremely diverse, with 86.8 per cent of the population being of white British origin in comparison to the 90.9 per cent average in England. Reading also has a high proportion of residents with a degree of higher level qualification (26.1 per cent), and ranks 12th in the South East. Reading sees a higher proportion of the population working in higher social grades: 58.6 per cent people compared with 51.9 per cent for England (Reading Borough Council, 2006).

Some 22 of the sample learners were children aged between eight and nine who were currently attending Year 4 classes at primary school. Thirty children were in Year 8 at their secondary school and aged between 12 and 13. Some 21 of these young people were in Year 10 at school and aged between 14 and 15. Lastly, six young people were within higher education and aged between 19 and 40.

Participants at each level were drawn from a range of institutions. Three primary schools were targeted for the youngest group of pupils. When compared on published results achieved in 2007 on Key Stage 2 tests, the average point score for Primary 3 (Prm3) was 26.9, Primary 2 (Prm 2) was 30, and Primary 1 (Prm1) was 28.1, against a national average of 27.9 (BBC, 2008). As such, two of the primary schools can be classed as 'over-achieving' against national averages. Five children were drawn from Prm3, 10 from Prm2 and seven from Prm1.

The Year 8 and Year 10 pupils were taken from two secondary schools: Secondary 1 (Sec1; 10 Year 8s and one Year 10) and Secondary 2 (Sec2; 20 Year 8s and 20 Year 10s). Compared to a national average of 46.7 per cent of students achieving five or more GCSEs (including maths and English) at grade C and above, Sec1 achieves only 33 per cent. Comparatively, within Sec2, 65 per cent of students achieve five or more GCSEs at grade C or above.

The six higher education students are taken from Higher Education 1 (HE1). It is intended that extra students will be taken from other higher and further education institutions, including Higher Education 2 (HE2). HE1 was awarded 32nd place out of 120 institutions in the Sunday Times University Guide (TimesOnline, 2008). Comparatively, HE2 is ranked 118 out of 120 since its merger in 2004.

⁴ The target for Phase 1 is interviews with 100 learners, and interviews are ongoing.

No schools are located within the eight super output areas in the Reading Borough that rank within the most deprived super output areas in England for the overall index of multiple deprivation. However, one school is located within one of the 24 super output areas in Reading that rank within the 20 per cent of most deprived super output areas in England for the education, skills and training domain and the crime and disorder domain (Reading Borough Council, 2004).

A further 20-plus learners will be interviewed for this phase of the research, including a cohort of students in further education and skills learning, and children in the care of children's services.

Literature review

To find relevant documents for the literature review, six electronic databases were searched, encompassing a period from January 1998 to September 2008. The databases used were SCOPUS, BEI, ERIC, Education Online, Papers First and Proceedings. While the strategy varied slightly according to the specific database, the search strategy was first to identify all words that described the population of interest using a combination of keywords and MESH headings (such as 'learner', 'young people', 'child', 'student', '14–19', 'youth', 'undergraduate', 'adolescent', 'pupils', 'teenagers', 'kids', 'adults', 'netizens', 'digital natives' and 'NEET') and then to reduce the number of articles included in the search either by using terms for technology (for example, 'technology', 'new technologies', 'information technology', 'information and communications technologies', 'online', 'Web 2.0', 'new media', 'virtual', 'mobile technologies', 'educational innovation', 'mobile phones', 'internet', 'WWW', 'gaming', 'virtual worlds') and/or activities and outcomes we are interested in (such as 'access', 'use', 'learning', 'literacy', 'skills', 'informal learning', 'social capital') and/or learner characteristics (such as 'motivations', 'attitudes', 'opportunities') and/or learner context (such as 'home', 'peer group', 'school', 'college', 'university', 'work', 'online cultures', 'digital cultures', etc). In addition to this process, other reports and articles located by discussions with experts or known by the project team were also added to the database. The most relevant articles and reports were reviewed, and key highlights have been included in the discussion.