Net Gains? Young people's digital lives and well-being

A research review and new findings

The Children's Society

The internet is part of everyday life for most young people, but how much is known about what they do online and the impact this has? Is their health and well-being in jeopardy, or do the benefits outweigh the risks? This report looks at research on how young people live their digital lives during adolescence and the effects this has on them. It also considers how parents try to manage and support their children's experiences online. Where the views of young people on these topics are known, these are presented – but often they have been missing. The report concludes with findings from new, exploratory research focused on what young people themselves say about their online well-being.

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(Chapter 5 co-authored with Louise Moore**)**

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1) Introduction

This report presents an overview of research on a range of aspects of young people's digital lives. It looks at information around inequalities in young people's access and use of the internet, evidence on the effects of being online and studies on parental 'mediation' – the methods parents or carers use to try to manage what their children do online. The report discusses what is known, the quality of the evidence that is currently available and where there is a need to develop clearer or fresh insights.

The focus is primarily on digital life during adolescence. This period of development has features which distinguish it from earlier childhood and from adulthood. A young person is maturing and developing an active stake in their own life, consciously negotiating a path from dependence on parents or carers to autonomy and independence. As discussed later in this introduction, studying issues related to adolescence presents challenges for researchers and looking at digital life during this transitional phase of growth and change adds further complexity.

As part of our commitment to understanding young people's lives – particularly those who are disadvantaged, vulnerable or marginalised in contemporary society – The Children's Society has begun to conduct research on young people's digital lives, in particular looking at whether and how online well-being is linked to overall happiness in adolescence. Findings from initial exploratory work are described in the report, including on how young people regard their own digital lives, how online well-being relates to well-being in general, and on how parents can support their adolescent children with their digital engagement with a view to preserving and enhancing their well-being.

Published research has given some direction for efforts to improve the online safety, health and well-being of young people throughout their adolescence, but there are still many important gaps in understanding. The aim of this exercise was to summarise current learning and knowledge from the study of young people's digital lives, but also – in part through the publication of our survey findings – to suggest how this might be augmented in the future. The report will be of interest to young people, parents, policymakers and anyone who works with young people.

1.1 Context

Use of the internet is now firmly embedded in young people's lives. Socialising, learning, playing and exploring are all now done virtually to a greater or lesser degree and the majority of young people take this for granted as part of their everyday existence.

Ready access to the internet and to mobile communication has undoubtedly brought a significant amount of freedom to young people's lives. This makes for a huge difference from the experience of previous generations. The parents of today's teenagers were brought up in an era where few households had their own

personal computer (PC) and the 'Internet' was a new concept[1], but their children can now have access to online content from myriad sources, watch footage and films of all kinds at the touch of a screen or click of a mouse, communicate instantaneously, sharing information and images via mobile devices and engage in virtual gaming with opponents worldwide.

Whether and how this constitutes a 'generation gap' is hard to say, but discussion about generational difference has tended to characterise *all* young people as being internet savvy, keen users and willing innovators – as 'digital natives' – from whom adults have become increasingly alienated as outsiders or 'digital immigrants' (Herring, 2008). Recent research suggests that, even if this was true in the early days of the world wide web, the current situation has become rather more complex with a number of factors contributing to how competent and happy, safe or unsafe a young person may be online – including how competent and happy online their parents are.

At the same time, concerns are frequently expressed about the impact of digital technology on young people. As worries wax and wane about contemporary social problems the internet – and, more recently, social media – has become a frequent scapegoat, responsible for declines in the mental health and well-being of adolescents, for increased vulnerability to abuse or other malicious influences (such as radicalisation), for the rise in obesity among the young. These fears have often served to narrow the focus for research to lines of inquiry which seek to confirm negative effects – of the risks of exposure to content which may be harmful, of engaging in interactions which may be hurtful, or of spending 'too much' time online.

Some researchers and commentators have asserted that the digital lives of young people have become unnecessarily pathologized, and that problematic online behaviours, 'excessive' time spent online, and many of the negative impacts which have been linked to internet use by young people may be symptomatic of more fundamental issues (sexism, objectification, violence, abuse) which reside in wider culture. This would suggest that artificially separating the online and the offline and studying one in isolation from the other may not lead to the enlightenment about young people's lives that was hoped for.

Whether or not the worries about young people's digital lives that surface in the headlines are valid it is notable how many of them echo the fundamental issues related to safety and risk, choices and autonomy, which resonate with universal tensions around growing up – tensions that existed long before the digital era.

Dependence on the internet has accelerated as never before during the COVID-19 pandemic, with long periods when a digital education, supported by parents, was the only option for young people and virtual communication the only way to keep in touch with friends and non-resident family. It seems timely, then, to reappraise views on young people's digital lives and to reconsider how to ensure that they derive the many benefits that can come from time online without suffering ill effects.

1.2 Why adolescence? A note on age

The report focuses throughout on young people aged 10-17 – on adolescents. Adolescence marks a significant period in every child's life, a period when they undergo physiological, psychological and emotional changes which are common to all, but can be unpredictable in terms of timing or duration for each individual, and all of which are underpinned by a drive towards becoming independent and developing a sense of identity and 'self'.

This combination of changes can be turbulent for a young person and for their family, and with a corresponding growth in agency (i.e. the capability to make choices and to act outside of parental control), adolescence is particularly distinct from earlier phases of development. The stereotype of the impulsive, sensation-seeking adolescent has some truth – confirmed to be characteristic of this phase of development in young people across the world (Steinberg et al, 2018) – and these behaviours have been found to be normative and adaptive (helpful to success in the maturation process) (Romer, Reyna and Satterthwaite, 2017). However, the proclivity of adolescents towards sensation-seeking, allied to other drives common to adolescence – e.g. the need to belong, to be affirmed, not to suffer 'social risk' (Blakemore, 2018) – are closely linked to an innate psychological vulnerability that can also arise during this period of development, highlighted in the growing numbers of young people who suffer mental ill health during their teens (McLaughlin and King, 2015; NHS Digital, 2018; 2020).

Accounting for the complexities of adolescence is challenging for research. Many studies fail to do this, instead treating 'childhood' as one homogeneous entity, and this limits insight, especially for how well findings can be used to inform improvements to the lives of adolescent children.

This report prioritises research which relates specifically to adolescents. Most relevant studies focus on particular age-groups within adolescence and these are noted in the text. Three distinct developmental phases within adolescence have been identified and cognisance of these is helpful for interpreting research findings (see Appendix 1 for a description of the features of early, mid and late adolescence).

More specifically in terms of the focus on adolescence in relation to digital lives it is relevant that:

- The main 'developmental tasks' of adolescence (Coleman, 2011) are aligned to the features and capabilities of digital devices. Communication with peers to build and maintain relationships outside the family, planning and managing experiences, sourcing and consuming information perhaps related to life-changing as well as lifestyle choices, all of these and many other aspects of becoming independent and exercising autonomy are now related to being online. This means that balancing a young person's growing desire for choice and freedom as they mature in a digital world with a parental impulse to mitigate any harm their child might come to can be a particularly difficult conundrum for parents to resolve.

- The age of 10 has recently become a watershed in mobile internet access with more than half of 10 year olds in

England now owning a smartphone (Ofcom, 2020a). This adds to a sense that the current generation of adolescents experience their burgeoning independence in an era where accessibility to the internet and navigating a digital existence have become fundamental to growing up.

1.3 Terminology

A range of terms is used in relation to this area of study – the internet (or 'Internet'), 'being online', the use of 'digital technology' or 'digital media.' These have similar meanings and have been used interchangeably in the research and in this report, although, where a clear distinction is required, this is explained.

'Young person / people' is used throughout the report to refer to older children – those aged 10+. The term 'adolescent(s)' is used to refer more specifically to young people aged 10-17. Where necessary, more specific age-groups are noted in the text (e.g. 12-15 year olds), and the term 'young adults' has been used to refer to young people aged 18-24, although some reports present data on young people aged 15+, grouping older adolescents together with young adults. A failure to distinguish between age groups within adolescence can make it challenging to understand the experiences of young people at different stages in their development.

Where the term 'parents' is used in the text this is intended to refer to parents *and* carers.

A list of abbreviations is included at the end of the report (p55).

1.4 Research for the report

This report was informed by a scoping review of research literature and by findings from surveys by The Children's Society which tested hypotheses on how young people might view internet use and links between their subjective well-being[ii] and different aspects of their digital lives (attitudes, experiences online, parental support).

Scoping review of literature

The literature scoping exercise for this report was based on a two-fold, brief review of published academic research and 'grey literature'. The principle aims were to note the main areas of interest, gain an understanding of key debates, look at the quality of evidence available and bring together and reflect on findings.

Initial searches were conducted in mid-2020 in order to understand the contemporary research context for the study of young people's digital lives, to surface gaps in knowledge and to develop ideas for further study, including through survey work linked to The Children's Society's Good Childhood report series.

Searches were conducted using Google Scholar and deployed broad terms – e.g. 'young people' or 'children' or 'youth' and 'internet use' or 'social media'; 'screen time', 'online risk' or 'online harm'; 'parental monitoring', 'parental mediation'. From the large number of articles found, selective reading was undertaken, based primarily on articles published since 2010 and focused on topics including access and exclusion, online activity, risk and parental mediation. It is important to note that the review should not be regarded as being systematic, in the sense of aiming to provide comprehensive coverage of all published work. This would have been an unrealistic goal, given the scale of the literature on the broad range of subjects which relate to topics of interest in this review. So, for example, there was a reliance on meta-reviews of prior research and meta-analyses of data across earlier studies.

To draft this report, this was further complemented by (i) searches of the websites of relevant organisations – e.g. The Office of Communications (Ofcom), the Pew Research Center, CEOP, the Internet Watch Foundation (IWF), NSPCC – to acquire and read 'grey literature'; and by (ii) reading of key texts, some 'snowballed' from articles sourced through the first search (for example, studies cited in meta-reviews) and the most recently-published articles focused on aspects of online 'risk' for young people (e.g. solicitation, online pornography, cyberbullying) and parental mediation.

Reading and analysis of this literature was brought together with earlier work (which had been done to explore research on adolescence and parenting during adolescence) to provide an overview of online life during this important and distinct period of childhood development.

Survey

The Children's Society conducts an annual online survey of children's well-being, through an existing household panel. In 2020, the survey included just over 2,000 children and their parent/carer from all four nations of the UK for the first time. Alongside questions on subjective well-being, the survey asked young people questions about how they viewed their own internet use (e.g. whether and how they thought it affected their relationships or their school work; how happy they were with different aspects of their online life – such as how they felt they came across to others, how safe they felt). This was undertaken primarily to begin to explore these issues and for initial consideration of the links between online and overall well-being, and this – alongside the fact that data was collected between April and June, coinciding with the first COVID-19 lockdown – means that findings should be interpreted with caution.

1.5 Report structure

This report shares the findings and reflections from literature review and exploratory research. It offers an overview and critique of studies on different aspects of young people's online lives, within a narrative that questions the degree to which research has, thus far, provided a sufficiently thorough and insightful understanding of young people's digital lives.

Following this introduction, the report consists of three chapters which outline the findings from literature scoping and a conclusions chapter. Each of the first three chapters can be read as a self-contained piece. The first focuses on access to the internet – what research says about how young people use the internet and how different aspects of digital inequality can affect the quality of their digital lives. The next chapter considers the literature on 'impact', looking at studies on the experiences of young people in relation to issues such as time spent online and activities or exposure to content that might be linked to harm of some kind. Findings on prevalence and impacts are summarised, and gaps in understanding are discussed. Parents have a unique role in supporting their children's online life and chapter four of the report outlines research on the ways they do this. It describes research on the different forms of 'parental mediation' of online activity and on how this affects young people's and parents' own experiences. The final conclusions chapter draws together key points and reflects on learning and important messages. It ends with a description of findings from survey work by The Children's Society on young people's digital lives and their well-being.

Throughout the text there are boxes which summarise key issues (coloured in green) and boxes which highlight or discuss issues that are relevant to the context of the COVID-19 pandemic at the time the report was written (coloured in blue). Each chapter (and some longer sections in Chapter 3) also has a summary at the end of research findings and a brief outline of their possible implications (coloured in orange).

A full listing of references is available as a separate document (via a link on The Children's Society's website).

It is important to note that the literature on young people's internet use is vast, diverse and rapidly expanding. As a consequence, although this report offers an overview of research on relevant issues, highlights key messages, considers weaknesses in methodology and discusses where there are gaps in current understanding of young people's digital lives, the account here is not exhaustive.

2) Connectedness and engagement – or division and exclusion? The diverse contexts of young people's digital lives

Figures that highlight the rapid growth of internet access and spread of technology suggest that the digital world is now firmly embedded in many aspects of our everyday lives can imply that all young people are living a similar digital existence. Some commentators have suggested that society will soon reach a 'saturation point', where new technology and applications are quickly introduced (and available to 'all'), rapidly assimilated and soon achieve the status of being 'essential' to everyday life. As a consequence, they say, we are all becoming 'hyperconnected', constantly online and in communication with others and with machines which store and share our data, whether we are aware of this or not (Gaines, 2019).

But does this tell the whole story? This section of the report looks at current data on the scale and scope of young people's digital lives and asks how much is known about difference, especially about the experiences of disadvantaged or marginalised young people.

2.1 Young people's use of the internet

Evidence of the reach of digital technology shows that the majority of young people in the UK and other high income countries now have the means to be online whenever they wish to be, as shown by figures, including on:

- **Internet access**

Data from the Office for National Statistics (ONS) showed that in Great Britain in 2020, 96% of households had internet access – a greater proportion than most other European countries, where only Iceland and the Netherlands had higher levels.[3,4] The same dataset indicated that 100% of households with children had internet access.

However, in the same year Ofcom's Technology Tracker noted that 4% of homes had only mobile access (no fixed broadband) – and that this was more likely for the 'most financially vulnerable'[5] households. (Ofcom, 2021).

- **Digital devices**

Much of the data on device use is for older adolescents (aged 16 / 17) or for adults (18+), where it might reasonably be assumed that the device in question is owned by the respondent and that they will control its use. Information on young people's access to and use of devices is more piecemeal, but research by the Ofcom suggests that for England and Wales (Ofcom, 2020a):

- 9 out of 10 children aged 5-15 access the internet through a range of devices – with a significant fall in the use of desk top computers over the previous five years and a concurrent increase in the use of mobile devices (tablets and smartphones).

- The age of 10 had become a significant milestone in 'digital independence' with over half of children reporting ownership of a smartphone (a doubling of the level for 9 year olds) – the proportion growing to 83% of 12-15 year olds.
- Half of 12-15 year olds said they mostly use mobile phones to access the internet.

By the following year, 93% of 12-15 year olds who responded to Ofcom's tracker survey reported smartphone ownership, a 10% increase (Ofcom, 2021).

This highlights a key aspect of the growth of internet use by young people in recent years – the rapid expansion of mobile access. UK, EU and US data show a similar picture across all high-income countries (Livingstone and Smith, 2017; Anderson and Jiang, 2018) and developing countries are catching up (Kardefelt-Winther, 2017).

These figures can tend to suggest that availability of the internet for young people is no longer an important issue – and have led to commentary that makes an assumption about the universality and equality of internet use by young people in contemporary society. However, they also obscure some important elements of 'accessibility' – including whether there are impediments to use, such as the quality or speed of a connection or limits on data (in the case of mobile connections). Information on the availability of devices to young people can also hide the fact that, for a significant minority, access may be limited to a shared PC (desktop or laptop), or, perhaps more frequently, to a smartphone.

It is likely, then, that even relatively basic aspects of young people's access to and use of the internet comprise a wide range of different lived experiences – and these remain underexplored in published research. When it has been measured, there have been consistent findings about which groups in the adult population are least connected – those aged over 60, adults with a disability, welfare benefit claimants and households with low incomes. How much this affects young people (e.g. whether young people with a disability are more likely to have issues with internet access) is less known, but – given that 53% of adults who are offline say that cost is a barrier (Lloyds Bank, 2020) – it seems likely that the socio-economic context for their family will have a marked impact on the digital lives of many disadvantaged young people.

Disparities in accessibility of the internet, especially in terms of access to suitable devices for home-learning or compromised connections in some families, have been clear during the COVID-19 pandemic. The need to offer laptops to many disadvantaged young people in order to facilitate home-based education, or to supply additional data allowances to help some families – or young people, including those who have recently left care – to help them to maintain communication and contact with services is clear evidence of digital inequality.[6]

How much time do young people spend online – and what do they do?

Understanding what 'time online' means can be complex. Most of the data that has been collected and published focuses on one aspect of this, usually total time spent online during a defined period (a day or a week), or sometimes time using particular apps (e.g social media apps, TV or films on demand). Less often it covers what a young person is doing (e.g. chatting, searching, etc.) – or the number of different things they may be doing at the same time. Determining how time and activity online coalesce, or how this equates to young people's lived experience, is something that remains elusive.

Ofcom tracks some aspects of online media consumption and behaviours and its annual report provides some insights into the digital lives of young people in the UK. For example, it suggests that for 12-15 year olds (Ofcom, 2020a):

- 81% play games (72% of this group playing online) for 11 hours and 36 minutes a week
- 83% have their own smartphone (and 74% of them are allowed to take it to bed with them)
- 71% have a social media profile
- 98% watch TV programmes or films (on any device) for 11 hours and 48 minutes a week, 88% watch TV on a TV set, while 46% use a tablet, and 41% use a mobile phone to watch TV
- 75% watch live broadcast TV, and 88% watch video-on-demand content (e.g. Netflix, BBC iPlayer)
- 89% watch YouTube for 11 hours a week

For wider age groups, Ofcom also found that:

- 98% of 8-15 year olds had used a video sharing platform the past year and 59% of them had made a video and uploaded it, with 54% saying that they commented on others' videos at least once a week (Ofcom, 2020b).
- 48% of 16-24 year olds and 50% of 5-15 year olds had played games online – and an even higher proportion, 56% of 5-15 year olds, said they had watched videos of game play online (Ofcom, 2020b).

Looking more specifically at the scope and nature of young people's internet activity (Ofcom, 2020b):

- Half of 8-15 year olds had only visited online sites or apps they had used before when they were online.
- The younger age group (8-11s) were more likely to stay with what they were familiar with than 12-15 year olds (61% vs. 43%) – and, of the older group, 41% said they visited one or two sites or apps they had not used before when they went online and 14% said they visited lots of sites or apps they had not used before.

When compared to findings in 2018:

- Boys had become more inquisitive in seeking out new online experiences; 12% had visited lots of sites or apps they hadn't used before (up from 8%) compared with 7% of girls (unchanged).
- Children living in households in higher socio-economic groups were much more likely to visit one or two unknown sites (40% vs. 28%), while there had been no change for children in less affluent families (27%).
- 12-15 year olds in England and Scotland reported visits to more sites they had not visited before (10% and 9% respectively) compared with children in Wales (5%) or Northern Ireland (4%).

These findings point to the variety of ways that young people spend time online, but

also to some of the challenges in fully understanding this. For instance, it is clear that many of these activities can be coterminous – young people (and adults) often multi-task when they are online, perhaps messaging friends while watching a film or playing a game (Dickson et al, 2018).

Some research has begun to explore the issue of how young people live their digital lives in more detail. For example, one longitudinal study found that young people's 'socio-digital participation' varied, with the majority of adolescents primarily using social media as a way to 'hang out' virtually with an extended network of peers, spending most of their time exchanging instant messages and regularly updating their status. Only a minority engaged in more 'interest-driven' activities such as 'seeking knowledge on the internet, cultivating advance computer or media skills or actively participating in various network communities that are likely to provide meaningful socio-digitally mediated learning experiences' (Ito et al, 2010 – referenced in Salmela-Aro et al, 2017). Other studies have made a distinction between 'active' and 'passive' use of social media – suggesting that there may be benefits of proactive engagement, rather than just viewing content posted by others (Orben, 2020; Kim et al, 2020; Also see Selfhout et al, 2009, for longitudinal research on the benefits of interactivity online for those with a limited social network), as opposed to passive surfing of content. However, a lack of clarity in most research about what young people *do* when they go online (as opposed to the time they spend online) can make it difficult to interpret findings on the impacts of the internet.

How have young people's digital lives changed in recent years?

There is clear evidence of increases in time spent online in recent years. For example, studies coordinated by the Organisation for Economic Co-operation and Development (OECD) as part of its PISA programme[7] found that between 2012 and 2018 the average amount of time 15 year olds across Europe spent online outside the school day increased by more than one hour per day (to three hours on weekdays and three and a half at weekends) (Scheidler, 2019). Research in the US conveyed a similar picture with 15-17 year olds spending on average around 3 hours per day on 'screen time' – although boys were spending almost an hour longer than girls (Pew Research Centre, 2019[8]).

General use of online communications platforms has grown rapidly in recent years (e.g. ten-fold for WhatsApp – from 6% of internet users in 2012 to 62% in 2017 – Ofcom, 2020b) and young people have been in the vanguard for this too – though most have a minimum age requirement of 13 (or 16 for direct messaging functionality or online calls). Ofcom's 2019 research found that 48% of children aged 12-15 used Snapchat, 47% used Instagram and 43% used WhatsApp (despite its minimum age requirement of 16[9]). Even in younger cohorts, these services are used to a significant extent, with 9% of 8-11 year olds using WhatsApp or Snapchat. TikTok recently introduced a minimum age of 16 for direct messaging – but Ofcom also found that 4% of 8-11 year olds and 9% of 12-15 year olds had used TikTok (Ofcom, 2020b).

2.2 'Digital exclusion': What does it mean, and how does it affect young people's lives?

Debates about 'digital exclusion' have tended to focus on particular factors linked to low or non-use of the internet – such as the absence of high quality internet connections for households, or the lack of PCs (desktop or laptop) for children and young people within families – and related these to socio-economic factors (e.g. poverty). The growth in 'affordable' broadband, widespread use of computers within school and other developments had begun to address some constraints on young people's digital lives before the advent of the smartphone, and the rapid spread in smartphone ownership then helped to further reduce some aspects of their digital exclusion.

However, it is important to adopt a wide perspective on what can impair a young person's use of the internet or hinder them in taking advantage of what is available. Reference to a 'digital divide' in some of the literature can restrict inquiry to issues related to socio-economics (factors such as household income, gender, age and employment) (Vicente and Lopez, 2011), but this has now largely been superseded by a growing emphasis on a more nuanced understanding of the wider contextual factors (e.g. level of education, level of digital skills, status – e.g. regarding citizenship) or psycho-social reasons (self-reported motivation, etc.) which can limit effective digital engagement.

This section presents the evidence of structural or 'hard' factors as part of young people's digital exclusion (e.g. a reliable connection or a suitable device) and also discusses the relevance of 'softer' factors, such as levels of 'digital literacy' and skills in preventing some young people from enjoying the full potential benefits of their digital lives,

How many young people do not have internet access?

Recent national figures show that *all* households with children have the internet and suggest, therefore, that access is universal among young people in England and Wales (ONS 2020), but studies have found that some have what might be called 'compromised' access.

In 2018 the proportion of young people (aged 11-18) who reported no access at home to the internet via a computer or tablet was 12% (700,000), while a further 60,000 reported no internet access at all (Lloyds Bank, 2018). Unfortunately, data has only been collected from this age group once in the five-year series of 'Consumer Digital Index' reports – so this is just a snapshot from a few years ago.

According to a recent report which considered the high relative cost of internet access for low income households, poverty plays a significant role (Bowyer, 2019). However, as the same report explains, there are also 'degrees of connectivity' – different ways in which young people's access is incomplete – giving examples of this, including:

- The 'homework gap' for young people who only have access at school (Moore, Vitale and Stawinoga, 2018).
- The limitations (and dangers) of using public wifi networks.

- The constraints of having smartphone-only internet access (citing the example of young refugees).

Factors beyond connectedness that contribute to digital exclusion

Digital skills and confidence

Research has pointed to the importance of digital skills and confidence in digital capability as being important factors in determining how much benefit is gained from use of the internet. These are complex issues – and have rarely been studied specifically in relation to young people – but research on adult digital literacy and confidence provide some insights.

The different ways in which skills can be understood and measured have been demonstrated in the methods used for the Consumer Digital Index, which looked at (Lloyds Bank, 2020):

- Seven 'foundation' skills (including knowing how to connect to wifi, find and open programmes or apps on a device, or change a password) – 16% of those aged 15+ in the UK did not have all these skills, with variations by age and region.
- Five 'essential digital skills for life' linked to (i) 'communicating' (e.g. I can set up an email account; I can communicate with others using video tools (e.g. Facetime or Skype); (ii) 'transacting' (e.g. 'I can manage my money and transactions online securely via websites or apps (e.g. bank account)'); (iii) 'problem solving' (e.g. 'I can use the internet to find information that helps me solve problems'); (iv) 'handling information and content' (e.g. 'I can recognise what information or content may, or may not be, trustworthy on websites / apps'); (v) 'being safe and legal online' (e.g. 'I am careful what I share online …', 'I can assess the risks and threats involved in carrying out activities online and act accordingly (e.g. use security software)'). Almost a quarter (24%) of young adults (aged 15-24) did not have all the elements of these essential skills (a higher proportion of older people did not have them).

It is not possible to extrapolate accurately from such findings to say with confidence that the same would be true of younger people – but since such a large number of 15-24 year olds appear to lack essential digital skills, it seems likely that many of their younger counterparts will also be 'digitally impaired'.

According to research by Ofcom, age and socio-economic status (SES) are key factors influencing how likely adult internet users are to report that they feel confident online. In 2019, 87% of internet users aged 16 and over said they were 'confident' in using the internet – a figure that had remained stable since 2014. Higher proportions of younger people than older people reported this (e.g. 77% of 16-24 year olds said they were '*very* confident'). Adults from households categorised as 'DE[10] for SES were the group least likely to report online confidence – with 9% saying they were 'not at all confident' online, compared to 6% of all adult internet users. (Ofcom, 2020b). It is likely that the confidence of parents in their digital capability will affect young people's experiences of internet use and research findings on this are discussed in Chapter 4 of this report.

Another study looked at the nature and impacts of digital exclusion on young people aged 16-24, including a subsample of young people who were not in education, employment or training (NEET) or who had a history of economic disadvantage.[11]

Why have social media become so popular among young people?

Many young people spend a lot of their time online using social media – Instagram, Snapchat and other more recently developed networks including TikTok (Livingstone, Mascheroni, Ólafsson and Haddon, 2014; Pew Research Center, 2018; Ofcom, 2020a) – but why has this become the norm? Although it is hard to provide a definitive answer, a number of theories which link to the developmental tasks or drivers of adolescence have been proposed, including that:

- Communication via the internet, facilitated within social media networks, is congruent with the aim of developing and maintaining relationships with peers as part of moving towards an independent existence beyond the family (George and Odgers, 2015).
- Communication via social media networks allows young people to have privacy and to manage the information they share with parents (Lionetti et al, 2018; Darling and Tilton-Weaver, 2019).
- The use of physical, public space by young people has become increasingly controlled and monitored by adults – virtual space allows for greater freedom and choice (Ballantyne, Duncalf and Daly, 2010).
- Children and young people's non-study time has become more managed and curated by parents – e.g. in the emergence of 'helicopter parenting.' (Ingen et al, 2015). Virtual networks provide the opportunity to 'escape' parental control, even when a parent is present.

Although they may not be fully representative,[12] findings included that (Helsper and Smirnova, 2016):

- Most (90%) of young people had a smartphone, but using the internet was more restricted for those who were NEET because of a narrower range of devices and fewer locations for access (e.g. sometimes having to rely on friends' wifi). This group were less often able to use the internet in their own home and, as a result, were more likely to experience social isolation.
- NEET young people reported feeling less confident in their digital skills – in particular 'softer skills' (e.g. around 40% struggled with 'netiquette' – how to manage their own behaviour or deal with the negative behaviour of others online).

Learning from a pilot programme designed to develop digital skills and to promote digital engagement among the most disadvantaged young people across the UK that worked over 3,500 young people was that in order to extend 'digital reach' there was a need for unrestricted internet access but also – more critically – for trusted relationships, confidence and motivation-building (Social Tech Trust, 2018).

Research has begun to highlight changes in young people's digital lives as a result of the COVID-19 pandemic and the restrictions that have been introduced to combat the virus. These include findings on time spent online, for example:

- A recently-published Ofcom report suggesting that between September and November 2020, children aged 7-16 spent an average of 3 hours and 48 minutes online, with the oldest young people – 15 and 16 year olds, spending almost 5 hours online each day (Ofcom, 2021c – citing research by Childwise).
- A study across 11 European countries[13] for which data was collected during the first lockdown in Spring 2020 which found that 10-18 year olds were spending on average 6.51 hours online on a weekday, with around half of this (3.61 hours) accounted for by use for 'school purposes.' The authors of this report make a comparison with earlier findings from pan-European research which indicated that the average in 2018 had been 2.7 hours a day – less than the average period for school activities only during the first lockdown (Lobe et al, 2020, p17).

There are, then, indications that young people are spending more time online than before the pandemic – although there is likely to have been wide variation for individual young people.

Some research has been published which looks at how young people are spending their time online. For example, a mixed methods study by Ofcom asked about the digital lives of 14 young people aged 9-16 between May and July 2020, finding that (Ofcom, 2020d):

- Most young people in the study were lacking structure and tended to fill their time with online activities.
- TikTok was hugely popular, rivalling other media activities.
- Socialising had moved online, but was often done in conjunction with other activities such as gaming, and while multi-screening
- Body-conscious exercise content was popular among the teenage girls
- After an initial surge in interest, children had disengaged with the news about Covid-19

Subsequent data collection, between January and February 2021 (during the third UK lockdown), with a refreshed interview sample and complemented by use of a 'media diary' and social media tracking, found that (Ofcom, 2021b):

- Young people continued to lack daily routine and structure and to spend much time online.
- Social circles were shrinking – and online-only friends becoming more common.
- Some young people were 'bingeing' on online content.
- Young people were often preoccupied with how they looked and came across in social media – and, for many, there was a focus on gaining attention online.
- Young people were mostly passively consuming news via social media platforms.
- Most of the group felt that online life was a poor substitute for their normal offline activities and some reported being lonely or pessimistic.

Although it is unclear how representative this small-scale study is, it offers some insight into how young people's digital lives have been affected by the pandemic.

Evidence of the level of digital exclusion for some families also emerged during the pandemic. Ofcom found that 2% of school age children (4-18 year olds) were reliant on smartphone only internet access, and that 20% did not have consistent access ('all of the time') to an appropriate device for home schooling during lockdowns (Ofcom, 2021a).

Critical thinking – appraising online content

Another facet of digital inclusion that is sometimes less appreciated – and has rarely been studied – is the capability to think critically. As one recent report notes:

> 'The more knowledge that technology allows students to search and access, the more important becomes deep understanding and the capacity to make sense of content. Understanding involves knowledge and information, concepts and ideas, practical skills and intuition. But fundamentally it involves integrating and applying all of these in ways that are appropriate to the learner's context. Reading is no longer mainly about extracting information; it is about constructing knowledge, thinking critically and making well-founded judgements.'
>
> (Scheidler, 2019)

The author asserts that among today's young people there may be a 'scarcity of attention' alongside the 'abundance of information' – pointing to findings from a PISA study that fewer than one in ten students aged 15 in OECD countries could distinguish between fact and opinion in online content.

SUMMARY: The diverse contexts of young people's digital lives

For the vast majority of adolescents access to the internet is straightforward, facilitated by ready and reliable connections and ownership of mobile devices, or the availability of appropriate hardware and resources when necessary (e.g. to undertake school work). However, there is a wide diversity of digital lived experience, for example in how young people spend their time online according to age, gender and socio-economic status.

The relevance of a lack of digital engagement to disadvantage is acknowledged for adults (Lloyds Bank, 2020) – but less so for young people – and there are many reasons to believe that the small minority of young people who are digitally excluded are falling behind their peers at an increasing rate, and are likely to become marginalised from the rest of society, given how much of day-to-day life is now managed online. Being unable to support their own education (e.g. to do homework), engage in the leisure activities which can promote a sense of belonging among peer groups (e.g. watching popular on-demand TV programmes, following celebrities' Twitter feeds), or maintain relationships when not in direct, face-to-face contact – all of these basic aspects of contemporary life for most adolescents – can be compromised for this group. Internet use may also be fundamental to pursuing opportunities around employment or training in late adolescence, as well as being critical for access to services, including health and welfare

It is important not to lose sight of the fact that many young people remain digitally excluded – deprived of the connectedness that is taken for granted by their peers and sometimes in ways that are less obvious than those that relate to internet access or ownership of devices. Digital exclusion may now be largely relative, rather than absolute, but it has a pernicious effect. Greater understanding of this is beginning to emerge, of the importance of a range of factors in contributing to digital inequality – including limited skills, poor online literacy, a lack of critical awareness or the inability to decipher online content. It is becoming clear that a primary role for research will be to explore the nuances of these impairments to an effective and fulfilling digital existence as a key part of improving young people's lives.

3. The impacts of young people's digital lives

The ubiquity of internet use and the variety of ways it has become embedded in everyday existence has led to worries about the effects that this might be having on young people – although it is interesting to note the imbalance between expressed concern and proportionate investment in research:

> 'While a significant amount of time has been spent discussing issues related to negative impacts of digital technologies on adolescents, most empirical research on the effects of digital technologies on well-being has focused on young children or adults … More specifically, the early adolescent period has been neglected in prior research, despite the fact it is likely to be one of the most relevant times for understanding linkages between mental health and social media, as young people are making the transition biologically and socially to adolescence and, simultaneously, entering social media platforms and more complex digital environments.'
>
> (Odgers and Jensen, 2020).

This chapter outlines some of the research on potential impact, looking at studies specifically about screen time and at those which have considered what young people see or do when they are online.

Research limitations

Research evidence on the impacts of young people's digital lives often has flaws – perhaps because of the narrow focus of a particular study, because of inconsistency around terminology within a topic, or due to the limitations of a research method. For example, many studies rely on cross-sectional data – where data was collected on just one occasion. This can show links between different variables (that they are correlated) but it cannot be used to determine causation (whether one thing preceded and influenced or led to another). The limited scope of many studies – what assumptions they were based on and what data was collected – can also impair insight (e.g. there may be factors additional to those considered in a study that would better account for the findings and would permit clearer interpretation). In addition, few studies have been done in a UK context.

A more pragmatic issue can also compromise the merit of research on impact – that the digital context is in rapid flux. Not only is the mode but also the manner of how we use the internet subject to constant change. The introduction and take-up of new digital devices and greater mobility and connectedness (via different apps with changing levels of popularity, speed or reach) can shift or alter the profile of digital engagement in unanticipated ways. This may make some hypotheses redundant by the time the data has been collected to test them and findings outdated before they are published, representing a period of technology use that has passed (e.g. most young people no longer use Facebook as their preferred app for communication with peers).

As a consequence, it is especially important to pay close attention to the details of methodology for any study on impact, to be cognisant of limitations on how well it represents a relevant and contemporary picture.

3.1 'Screen time': The potential impact of time spent online

Official guidance issued by governments in some countries telling parents to limit their children's screen time demonstrates widespread concern about the potentially negative impact of time spent online (e.g. in the US, Canada and Australia – see Stiglic and Viner, 2019) – and the worries of UK parents on this issue are regularly monitored by Ofcom, who have noted that young people too may think they spend 'too much' time online (Ofcom, 2020b).

There are different theories about why time spent online is harmful by default, but they mostly suggest that the displacement of other (more 'positive') activities – e.g. exercise, sleep – has associated negative effects.

Impact on social relationships

According to research in the US around 65% of parents worry about their teen losing the ability to have in-person conversations because of how much time they spend online (Pew Research Center, 2018) but, despite concerns about these kinds of impacts on social relationships, recent research has shown that (Kardefelt-Winther, 2017):

- Most young people use their online contacts to consolidate and maintain pre-existing offline friendships.
- More frequent contact online is generally linked to better quality relationships with friends.
- Online communication between friends can promote self-disclosure and feelings of belonging – and young people also report better connectedness to school.

These findings remain consistent regardless of gender or ethnicity and have been strengthened by studies on the growth in social media use among adolescents, which suggest that online communication reinforces friendships (Pew Research Center, 2018).[14]

Findings on family relationships have been less clear. Studies have more often highlighted the ways in which digital technology contributes to how young people and their parents manage their interactions rather than measuring the impact on quality of relationships (Mullan and Chatzitheochari, 2019). Some researchers have suggested that digital technology may serve to amplify rather than cause relationship difficulties within a family – for example, to make young people feel too closely monitored and controlled and to reduce how much information they choose to share with their parents (Weisskirch, 2009; 2011).

Impact on physical health

Research has linked screen time in adolescence to a number of impacts on physical health, including on obesity, fitness and heart (cardiovascular) health, but methodological limitations have often undermined the robustness of findings (see Appendix 2).

One example of this which is illustrative of how difficult it can be to interpret research in this area is in findings for sleep. Adolescents need a minimum of eight to nine hours of 'good' sleep per night, although some experts suggest up to 10 hours.[15] It has been suggested that, on average, the current generation of children and young people sleep less than previous generations, largely due to later bedtimes (Iglowstein et al, 2003) – and, in particular, that adolescents are sleeping

less than their predecessors, with differences for different subgroups. For example, girls, black and minority ethnic young people, those living in urban areas and those with a lower socio-economic status were less likely to report getting seven or more hours of sleep in one study (Keyes et al, 2015). However, these findings have generally been through retrospective self-report or based on the view of parents. In contrast, research using contemporaneous sleep diaries has suggested the opposite – that teenagers are on average sleeping 9.5 hours per night, significantly more than their counterparts in the 1990s (Pew Center, 2018).

Clearly establishing the relationship between sleep patterns in adolescence and the use of digital technology is, therefore, challenging, and reviews of research have made contradictory statements about what the research has found:

> 'Sleep is one area where there is now compelling evidence that adolescents' use of new technologies is having adverse effects on sleep duration and quality.' (George and Odgers, 2015; see also Hale and Guan, 2015).

As opposed to:

> 'There is weak evidence that screen time is associated with poor sleep outcomes including delay in sleep onset, reduced total sleep time and daytime tiredness.' (Stiglic and Viner, 2018).

Impact on mental health or psychological well-being

The rising level of mental ill health among young people and parallel increases in the use of digital technology has led to concerns that the two issues may be linked and to a growing body of research, most recently on the impacts of adolescents' engagement with social media (Livingstone, Mascheroni and Staksrud, 2018; Keles, McCrae and Grealish, 2020; Orben, 2020)

Some studies have pointed to the associations between higher levels of internet or social media use and feelings of depression (e.g. Ikeda and Nakamura, 2014; Ferguson, 2017) and suicidality (Twenge et al, 2018). But other studies, where 'effect size'[16] has been reported, have begun to challenge the ways in which results have sometimes been interpreted. Recent examples of this include:

- Analysis of nationally representative datasets from Ireland, the United States, and the United Kingdom (including over 17,000 9-17 year old participants), deploying measures of well-being such as the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001) and the Rosenborg Self-Esteem Scale (Robins, Hendin and Trzesniewski, 2001) and complemented by time-use-diary measures of digital-screen engagement, found few significant negative associations between digital screen engagement and well-being in adolescents. Even where effects were found these were so small (described as 'miniscule' by the researchers) as to be irrelevant in the bigger picture of the factors linked to adolescent well-being (Orben and Przybylski, 2019b).
- Analysis of datasets from three studies in the UK (the 'Youth Risk Behaviour Survey' – YRBS – 'Monitoring the Future' and the 'Millennium Cohort Study' – MCS) which found that use of digital technology explained 0.4% (at most) of the variation in the well-being of adolescents. Being bullied or smoking marijuana had much larger negative associations with young people's well-being (2.7x and 4.3x respectively for YRBS). The researchers also found that; '… regularly eating potatoes had an

almost equivalent effect (0.9x, YRBS) and wearing glasses was more negatively associated with well-being (1.5x, MCS).' (Orben and Przybylski, 2019a).

Research looking at data collected over time (measuring trends through regular surveys or sequenced data collection from longitudinal cohort samples) has also added to the sense that the links between time spent online and reported declines in mental health or psychological well-being are complex. Pre-existing difficulties may be a salient factor, as shown, for example in a four-year longitudinal study of Australian young people aged 13-17 which found that although 'compulsive internet use' (measured through a short set of self-report items – not by time spent) predicted poor mental health, effects were small after controlling for pre-existing mental ill health (Ciarrochi et al, 2016).

Studies have also found differences for different aspects of mental or emotional health as young people age, as well as highlighting the importance of other factors in influencing change. For example, analysis of the MCS dataset found that (i) 'frequent' (daily) social media use at 11 was associated with worse well-being and greater levels of psychological distress at 14, but not with lower self-esteem; and (ii) 'heavy' social media use at 14 (7+ hours per week) was associated with worse self-esteem and higher psychological distress at age 17 (but not lower well-being) (Crenna-Jennings, 2021). The same study found that factors other than social media use (e.g. the socio-economic status of a young person's family) had a greater influence on mental and emotional health.

A more balanced view on young people's use of social media?

The issue of 'excessive' time spent on social media by young people has often been portrayed in terms of links to mental ill health – but research is emerging (based on qualitative work which helps to explore the nuances in this and surfaces the views of young people) that reveals the complexity around young people's engagement with social media. This shows that young people understand the drawbacks to their use of social media – but that they feel they can learn ways to deal with them and regard restrictions as being unhelpful. Young people also particularly value the benefits that digital technology – often their smartphones – have for them, and many who have diagnosed difficulties with mental ill health rely on their connectedness as a resource to actively reduce stress and as a source of information and support. This has led to suggestions that it would be more productive to accept the embeddedness of social media within young people's lives and more helpful to re-direct research in this field to consider the ways in which the distinct features of social media platforms, and the practices of young people when they use them, as the means to promote positive mental health (O'Reilly et al, 2018: O'Reilly, 2020; Hollis, Livingstone and Sonuga-Barke, 2020).

SUMMARY: The potential impact of time spent online

The amount of time that young people spend online is slowly increasing, but it remains unclear what this means for their relationships, health and well-being. In research articles, and often in discussion of the findings from research, there is an established narrative that conflates time online, use of social media and 'things getting worse' for adolescents, especially observable declines in young people's mental health. Although some commentators continue to assert that online activity among the young corresponds to relationship difficulties (with family or peers) and poor physical or mental health, the evidence that the former leads to the latter is far from conclusive. Meta-analytical or systematic review exercises which have brought together research findings to date consistently find that this position is unsupported – that there remains little to suggest a causal link between any form of internet use amongst adolescents and the problems in their lives.

Much of the research has tended to oversimplify inquiry – to focus on the amount rather than the nature or quality of time spent online, and to rely on cross-sectional data – and this may have led to narrow conclusions. There are increasing indications that high levels of time online are more likely to be symptomatic of difficulties a young person is having, rather than being the root cause of their problems – although 'excessive' use may exacerbate pre-existing issues. In this sense, digital technology may serve to amplify the negative aspects of a young person's life (e.g. where relationships are poor they may become even worse, or when a young person suffers from mental ill health this may deteriorate further because they spend more time online in ways that reinforce negative feelings). Conversely, where a young person has beneficial relationships these are likely to thrive, or, where they are mentally well, this will be supported by their digital engagement.

For research studies to help develop greater clarity on the effects of time spent online there needs to be a focus on the collection and analysis of data on a multiplicity of factors, and, ideally, to look at effects over time. There should also be transparency about the limitations of methodology, the assumptions made in a study, and a cautious approach taken to the interpretation of findings.

Have we been here before? The study of 'media effects'

'For some children under some conditions some television is harmful. For other children under the same conditions or for the same children under other conditions it may be beneficial. For most children under most conditions, most television is neither particularly harmful nor particularly beneficial.' ('Television in the lives of our children' – Schramm, W., Lyle, J., and Parker, E.B. – 1961)

This quote – summarising the results of a comprehensive study of the social and psychological impact of commercial television on American children in a report published 60 years ago – has an eery resonance with the findings emerging from current research on the impacts of digital technology on young people today. It also highlights a phenomenon that continues to be replicated over time, that of societal concern about new technology and its effects on the young and impressionable. Strongly-felt, but poorly-evidenced worries about young people's behaviour or psychological health became focused on the impact of television in the 1950s and 60s, but had earlier been directed towards the negative impacts of radio dramas (Preston, 1941), comic books (Wertham, 1954), and, subsequently, to video games. This ongoing cycle is now manifest in early 21st century disquiet about digital technology.

It seems reasonable to believe that qualitative changes in the characteristics or reach of new technology *may* be affecting young people and having new impacts, both positive and negative. But the 'technological determinism' that informs these debates has often been characterised by narrow assumptions and a self-perpetuating cycle of misinformation. A discourse gathers pace about how 'harmful' the new 'threat' is to young people's health and well-being, unconnected to any reliable evidence, *and* in the absence of robust evidence that the 'old' threat had led to the harms that had been attributed to it.

In a bid to expose this and to test whether new technological developments do link to worsening mental health in young people analysis was undertaken of three large datasets (the 'Monitoring the Future' and 'Youth Risk Behavior Surveillance System' in the US, and 'Understanding Society' in the UK) comprising over 400,000 10-15 year old participants and looking at behaviours and technology use over 9-26 year periods (Vuorre, Orben and Przybylski, 2021). The researchers analysed changes in reports on four aspects of mental ill health – depression, suicide ideation and conduct and emotional problems (e.g. 'I get very angry and often lose my temper'; 'I worry a lot' – measured using the Strengths and Difficulties Questionnaire). These were compared to changes in daily TV viewing and digital technology or social media use over time.

The study found mixed but stable associations between viewing TV and the use of digital technology or social media and mental ill health over time, and that the magnitude of any changes had been small, with no differences for girls or boys. For example, associations between digital technology use and conduct problems or suicidal ideation were stable, although social media's relations with emotional problems had increased. Links between social media or television use and depression had decreased.

On the basis of their analysis, the researchers asserted that, 'the ideas that technologies people no longer worry about are becoming less harmful, or that technologies people worry about the most now are becoming more harmful were not supported in the data' (p9). They were also careful to say that limitations in their methodological approach meant that drawing firm conclusions or accurately interpreting findings for their wider meaning would be unwise – and urged the need for more robust and comprehensive studies to provide authoritative understanding of these complex issues.

3.2 Content, conduct and contact: The potential impact of what young people see or do online

Use of the internet for communication, discovery or entertainment brings the potential for young people to have upsetting or even harmful experiences and this has frequently been highlighted in debates about their digital lives.

This section of the report outlines findings from research on some online activities or behaviours and the interactions or content online that may link to harm of various kinds. As with studies on time spent online, the scope of research in this area has mostly been narrow and focused on negative impact – but for these topics assumptions and findings often mirror concerns about the 'risk-taking' behaviours of adolescents (e.g. linked to emerging sexuality) and to 'new' problems (e.g. 'cyberbullying'). Assertions are frequently made that young people are more likely to have negative experiences as their access to the internet grows and platforms diversify, and they tend to be portrayed as vulnerable victims or reckless risk-takers who need protection from the malevolence of others or from themselves. Their own views, agency and rights are rarely considered.

Online activity related to sex and sexual relationships

Societal concerns about the burgeoning sexuality of adolescents are not new and it is not surprising that much attention has been paid to the impacts of this in relation to young people's digital lives and online 'risk' (Temple-Smith, Moore and Rosenthal, 2016).

Sharing messages with sexual content – 'Sexting' and online solicitation

'Sexting' – the exchange of sexual messages, photographs or videos[17] – has been one focus for research. A recent meta-analysis of international studies of prevalence conducted since 1990 found that 1 in 4 under 18s receive sexts, 1 in 7 send them, and around 1 in 12 have their sexts shared beyond the recipient without their consent. The trend had been upwards over time, but this is likely to be accounted for by the exponential rise in internet access over this period and, latterly, by increases in smartphone ownership (Madigan et al, 2018a; Anderson and Jiang, 2018; Ofcom, 2020b).

Adolescent sexting has been linked to risk-taking behaviours. For example, studies have found a higher likelihood of 11-16 year olds who exchange sexual messages having engaged in sexual activity, or reporting alcohol or drug use (Mori et al, 2018). However, such behaviours were also found to increase with age, and to almost exclusively be comprised of communications between peers, reflecting normative developmental behaviours for most young people.

Many large scale studies of impact have used a binary categorisation to look at the impacts of sexting – i.e. whether a young person has *ever* sent or received a sexual message – and have not considered the nature of messages exchanged (e.g. whether there is pictorial content or video images as well as text) or the frequency of exchanges. This significantly impairs the prospect of clear insights. More sophisticated methods have shown, for

example, that relatively few young people send or receive messages containing images or film (7.1% and 2.1% respectively of Spanish 12-17 year olds in one study), and even fewer do this more than once (Gamez-Guadix, deSantisteban and Resett, 2017).

Different factors have been found to play a part in the likelihood of young people engaging in sexting. For example, boys send more sexual messages than girls, and sexting has been found to be more prevalent among non-heterosexual young people than their heterosexual peers (Ybarra and Mitchell, 2016), strengthening findings from qualitative research that lesbian, gay, bisexual, transgender, queer / questioning young people (LGBTQ+) young people are more likely to explore their sexuality online (Hillier et al, 2012, Pingel et al, 2013).

The terminology used in research on sexual behaviours linked to digital technology can be ambiguous and confusing. Reference to 'sexting' tends to imply unthreatening, mutual or consensual activity – and has mostly been adopted for studies of 'youth behaviours.' It can, however, extend to messages which convey unwelcome or upsetting requests of a sexual nature, encompassing activities which speak to coercion and which have been more specifically described as 'sexual solicitation' in some research. A recent meta-analytical study found that *unwanted* sexual solicitation had been experienced by around one in nine (11.5%) young people aged 12-16.5, and that boys were more likely to be solicited online than girls, a finding that runs counter to what might have been expected given the findings of earlier studies which had suggested the opposite[18] (Madigan et al, 2018b).

It is notable that findings on the issue of 'unwanted' solicitation have suggested that this activity is largely related to the uninvited attentions of peers. Concerns about older, predatory sex abusers making extensive use of the internet to groom and exploit young people have not been reflected in research on young people's experiences (Kerstens and Stol, 2014; Mitchell et al, 2013) – although much of this work is now rather old, many studies have failed to ask about the age of the solicitor, and some research has generated contradictory findings (e.g. Swedish National Council for Crime Prevention, 2007; which found that 30% of 14-15 year olds had been contacted during the previous year by unknown adults who had made suggestions of a sexual nature – cited in Jonsson et al, 2019).

Online pornography

Pornography as a social issue is both profoundly personal and highly political – debates tend not to be value-free (Stanley et al, 2018) – and research studies display a range of competing and strongly-held views.

The proportion of young people who see online pornography is disputed (Horvath et al, 2013). Many factors contribute to challenges for estimating prevalence including the difficulty of defining 'pornography' in a young person-appropriate way (e.g. What is considered to be sexually explicit? Are self-generated and shared images included?); whether and how to differentiate between accidental / unwanted viewing and intended viewing; whether and how to make distinctions between different forms of pornography; how to overcome 'social desirability bias' (whether young people will 'admit' to having viewed pornography). Published estimates include:

- A meta-analysis of data from international research between 2004 and 2015 which found that around one in five young people (20.3%) aged 12-16.5 had experienced *unwanted* online exposure to sexually explicit material online (Madigan et al, 2018b). Age,

gender and location were found to make no difference (studies were included from the US and across Europe). The same study found that the prevalence of unwanted exposure had declined over the period.
- Between 19% and 30% of young people aged 14 to 17 in five EU countries reporting that they 'regularly' viewed online pornography (Stanley et al, 2018 – 'regular' was self-defined by young people who took part).

Recent research from studies in the UK has suggested higher numbers of young people have seen pornography online – but also present contrasting findings:

- The majority (52%) of young people aged 11-16 had not seen online pornography – although this varied between age groups within this range (i.e. the proportions who had seen pornography online were 28% of 11-12 year olds / 46% of 13-14 year olds / 65% of 15-16 year olds) (Martellozzo et al, 2020).
- The majority of young people aged 11-17 had seen online pornography – 51% of 11-13 year olds / 68% of 14-15 year olds / 79% of 16-17 year olds (BBFC, 2020).[19]

Regardless of the true scale it seems fair to say that seeing pornography online has become a relatively common experience for many young people in mid to late adolescence – but what their experiences consist of (what they have seen; whether they intended to see it or not; how they react or how they interpret what they see; whether and how much they choose to view online pornography) remains largely unclear (Quandara et al, 2017).

Studies suggest that boys are more likely to view online pornography than girls, older young people are more likely to view pornography than younger children, and that parents are likely to overestimate exposure to pornography for younger children and underestimate it for older children (Horvath et al, 2013).

Research on the potential impact of seeing online pornography has explored a wide range of issues, including:

- Attitudes (e.g. attitudes towards sex, stereotypical views of gendered roles (Peter and Valkenburg, 2016; Bale, 2011; Mattebo et al, 2012; Baker, 2016).
- Sexual behaviours (e.g. age of sexual debut – Morgan, 2010).
- Aggression (e.g. sexually coerciveness – Stanley et al, 2018).

Studies have also considered associations with psychological well-being and mental health, including on depression or low well-being – linked to frequent use (Mattebo et al., 2013; Owens et al., 2012); distress (e.g. Livingstone et al, 2014); mixed emotions (McKee, 2010; Martellozzo et al, 2016); concerns about performance or body image (Quandara et al, 2017; Löfgren-Mårtenson & Månsson, 2010; Vandenbosch and Eggermont, 2013).

Although still limited in scope, one way in which research on the effects of exposure to online pornography differs from the broader field of the impacts of young people's digital lives is in the number of longitudinal studies that have been published (Koletic, 2017). Through collecting data sequentially these studies support a better understanding not only of change, but also of how different factors may combine to produce outcomes – i.e. demonstrating 'causality' rather than association.

‘Digital intimacy’

Much of the research on young people’s digital lives in relation to sex and sexuality has been founded on assumptions about innocence, naivety, passivity and vulnerability. This has not only led to a reliance on biased methodologies, but also to a narrow and deterministic interpretation of findings. When inquiries have been made in neutral ways young people report both positive and negative views and experiences. Exploring this in more detail and using young person-centred methods would help to improve understanding of the nuances of ‘digital intimacy’ (Smith, Attwood and Scott, 2019). Studies that have adopted such approaches have found that:

- Of the small minority who had received them, very few young people had (i) responded to online requests for intimate images (3.0%), fewer girls had complied and mostly only older young people had been involved (also, most did not feel negative in retrospect); (ii) more younger adolescents than their older peers found the receipt of sexual messages ‘bothersome’, but some young people said that this was ‘pleasant’ (9.9% of girls; 28% of boys) (Kerstens and Sol, 2014 – survey of 4,500 12-17 year olds).
- Young people share images of themselves for many reasons and in different circumstances (Setty, 2019), and may not regard these as being inherently shameful. They were more concerned about their family seeing a naked picture than their peers (Drouin and Tobin, 2014; McGeeney and Hanson, 2017; Jonsson et al, 2013).
- Young people understand how to negotiate interactions related to image sharing. Girls take for granted that boys may try to harass or coerce them, and know that they cannot or should not trust boys – and these behavioural codes are an extension of a wider set of gendered ways in which young people conduct their relationships (Lee and Crofts, 2015).
- Many young people are sceptical about the content of pornography, although some use it as a source of information about sex – in part because of the lack of other accessible sources (e.g. the inadequacy of RHSE in schools) (BBFC, 2020). Awareness of cultural double standards about how gender is portrayed in pornography is widespread (Mattebo et al., 2012; Löfgren-Mårtenson & Månsson, 2010; Mattebo et al., 2014; Scarcelli, 2015).
- Some young people become discerning users of online pornography, choosing to watch more ‘realistic’ depictions of sex, often in amateur pornography where they found ‘a more diverse range of people in terms of ethnicity, appearance and sexuality’ that helped them to build self-confidence (Attwood et al, 2018; Goldstein, 2020).
- Young people indicate that decreasing use of online pornography over time corresponds to the emergence of understanding and increased self-esteem as they mature (aspects of development that they also linked to a growing ability to assert sexual preferences and desires), and that they can better ‘handle’ the depictions in pornography if they have positive relationships with family and friends (Löfgren-Mårtenson & Månsson, 2010).

These findings suggest that the active stake that all adolescents have in their own online (and offline) behaviours related to sex and sexuality, and their growing maturity around intimacy, need to be recognised, and appropriately researched, in order to improve knowledge and understanding – so that young people can be well-supported as they navigate and negotiate the path to a happy, secure and confident sexual identity.

Longitudinal research on young people's exposure to online pornography has shown, for example, that most young people do not seek online pornography and that, for the minority who do:

- 'Perceived realism' predicts whether and how often they watch it – and the pattern of use for many young people decreases as they become sexually active (Doornwaard et al, 2015 – young people in sample aged 12/13 at the outset of four year study).
- Type of content is predicted by age and attitudes (e.g. younger young people more often watched 'affection themed' material; viewing 'violence themed' material was predicted by 'hyper masculine' or 'hyper feminine' views[20]) (Vandenbosch, 2015 – 13-17 year olds surveyed at six-monthly intervals over 18 months).

Online sexual abuse

The interface between online activities related to sex and sexual relationships involving young people and sexual exploitation or abuse is challenging for researchers to establish and measure. As a result, the scale and nature of online sexual abuse remains largely outside the scope of published research.

This was highlighted recently with the publication of a rapid evidence review by the Independent Inquiry into Child Sexual Abuse (IICSA). A definition of 'online-facilitated' sexual abuse was used for the review and this pointed to the complexity and range of relevant issues in stating that (Wager et al, 2018):

> '… *(this)* includes online grooming and receiving sexual requests, being exposed to pornography, some sexting activities, online-facilitated child sexual exploitation (CSE) (e.g. offering of gifts, money or affection in return for sexual activities taking place or orchestrated online, but enacted during an offline meeting with the perpetrator or others) and engaging with online images of child sexual abuse (including searching, viewing, downloading, exchanging, producing and commissioning of images).'

Attempts by the review team to locate reliable prevalence research found few credible studies, and inconsistencies in the methodologies that had been used were noted alongside variations across findings.

Increased reporting and detection of child sexual abuse imagery online in recent years (e.g. IICSA, 2020; IWF, 2020, Europol, 2020) has led some commentators to assert that this signifies an increase in abuse, but the challenges faced by researchers to generate authoritative findings on young people's victimisation make it difficult to validate these claims.

At the same time, there is evidence that some young people feel coerced into sexual interactions online. For example, among the 5.8% of 17-18 year olds who said they had had sex online with someone they had met online during the past year (in an online schools survey involving almost 6,000 students in Sweden), almost a tenth also said they had felt 'persuaded, pressed or coerced' on at least one occasion. Those who reported this experience of abuse had also more often been in online contact with an older person than the other young people who had also had online sexual interactions (Jonsson et al, 2019).

Empirical evidence on this topic is rare, but researchers have proposed that the nature of digital technology and online communication, when combined with developmental features of adolescence, can make some young people vulnerable to online sexual abuse – especially when they have experienced other disadvantages or had been subject to offline child maltreatment (Hanson, 2019; Jonsson et al, 2015; Whittle et al, 2013).

Peer on peer online sexual abuse

The issues around online sexual abuse and peer interaction – sometimes referred to as 'Harmful Sexual Behaviour' (Hackett, 2014) or 'Peer on Peer Sexual Abuse' (Firmin, 2017) – were highlighted recently when the 'Everyone's invited' website was launched in March 2021.

To meet the objective of exposing and eradicating 'rape culture' ('when attitudes, behaviours and beliefs in society have the effect of normalising and trivialising sexual violence'[21]) survivors were encouraged to anonymously share an account of their experiences on the website or via Instagram. 'Online sexual abuse' was defined as 'upskirting, non-consensual sharing of intimate photos, cyberflashing', but – by implication – the other issues linked to rape culture on the website, including misogyny, rape jokes, sexual harassment and coercion, might all be perpetuated online.

The response from young people was huge, including allegations of abuse at many schools across the UK.[22] Part of the reaction to this was that Ofsted was commissioned to undertake an immediate 'rapid thematic review'[23] of sexual abuse in schools and colleges.

Inspectors visited 32 schools and colleges across England, conducting 125 focus groups with around 900 children and young people and collecting survey data from participants. A report on the review was published in June 2021 (Ofsted, 2021). The authors were careful to qualify their findings – stating clearly that these should not be regarded as being representative of the population – but remarked on the high prevalence of online sexual abuse (e.g. 90% of girls said that being sent explicit pictures or videos happens to them or their peers 'sometimes' or 'a lot)[24], noting that this and other behaviours (e.g. sexist name -calling) were so commonplace that they had come to be regarded as being 'normal.'

Other findings from young people included:

- Reticence to speak about sexual abuse, even when encouraged to do so at school – because of the risk of being ostracised, of getting peers into trouble (for behaviour that has become 'normalised'), of not being believed or being blamed. They also feared that disclosure to an adult would mean they lost control of what might happen.
- Dissatisfaction with the quality and nature of Relationships, Health and Sex Education (RHSE) – described as being 'too little, too late', prompting a reliance on social media, the internet or their peers for information. This caused some resentment, particularly a feeling amongst girls that, 'It shouldn't be our responsibility to educate boys.'[25]

The ubiquitous use of smartphones and social media by young people presents challenges to schools and colleges in managing young people's behaviours linked to sex and sexuality. Findings of the Ofsted review suggest some abusive behaviours may have become normalised, increasing the risk for young people (especially young women) of harmful experiences in educational settings**.**

SUMMARY: The potential impact of online activities linked to sex and sexuality

Our understanding of the scale and impacts on young people of their online activity related to sex and sexuality is limited. There has also been a widespread failure to canvass young people's perspectives or to recognize the importance of their agency – their growing desire for autonomy and choice and increasing capability to make their own decisions related to 'digital intimacy.'

There are indications that:

- Sexting is not uncommon among young people, especially as they mature through adolescence. Boys seem to be more predisposed than girls to use this form of communication and LGBTQ+ young people are also more likely to exchange sexual messages. For many of the young people who engage in sexting this activity is relatively inconsequential and is complementary to other aspects of normal sexual development. For a few it can be upsetting, or have links to potentially abusive experiences, although this can be difficult to determine and happens only rarely.
- Experiences that might be regarded as being abusive may be increasing between peers, and normalised in some school and college settings. Young people who responded to a review by Ofsted in 2021 expressed reticence to report harmful experiences and doubts about the efficacy of RHSE in schools.
- Many young people see online pornography – some by accident, some by design (although studies have often found it difficult to make the distinction). Concerns that exposure to sexually explicit material online when young people are 'too young', and that seeing it will lead to some sort of harm (e.g. psychological scars; premature interest and engagement in risky sexual behaviours), have not been supported when the overall findings from research are taken into account – for example, few younger children see pornography (increasingly fewer in recent years – Madigan et al, 2018b) and – when open-ended, neutrally-phrased questions are used to ask young people themselves about their reactions – most report being untroubled (Livingstone et al, 2014).

Some young people have sexually abusive experiences online and there is evidence that they are likely to share common characteristics – e.g. a propensity to reveal personal information and / or a willingness to talk online about sex. Prior experiences of abuse (sexual or physical) offline have also been found to be prevalent among those who went on to experience online-facilitated abuse (Wolak et al, 2008; Noll et al, 2013; Whittle et al, 2014; Jonsson et al, 2019).

Research has found that, for most young people, exploring sex and sexuality online has become a normal part of growing up, but that some adolescents are vulnerable to harmful experiences. Their vulnerability resides in a complex mixture of factors, most of which relate to offline experiences and personal characteristics. This suggests that it may misleading to talk in general terms about serious harm as a risk to young people because of online conduct or contact, and more appropriate to see online victimisation as part of wider 'polyvictimisation' (Finkelhor et al, 2005; Jonsson et al, 2019) for a minority of young people.

There are undoubtedly many nuances in this and finding out more about who is most vulnerable, why and how best to safeguard them should be a focus for future research.

Cyberbullying / cybervictimisation

Research interest on cyberbullying perpetration and victimisation has grown rapidly in recent years (Smith & Berkkun, 2017), but the lack of a standardised definition has led to methodological inconsistency across studies of prevalence and a variety of estimates have been generated (Betts, 2016). One meta-analysis of 20 international studies suggested that 12.6% of young people aged under 25 report cybervictimisation (John et al, 2018).

However, this figure includes all or any instances of cybervictimisation (from one-off experiences to ongoing and severe abuse) and episodes at any age, including into young adulthood – and does not account for the strong links that have been found to exist with 'traditional bullying.' Both types of victimisation share the same salient features – (1) intention to harm; (2) repetitive nature; and (3) clear power imbalance (Gladden et al, 2014) – with the addition of use of digital technology for cyberbullying.

Where time-bound and frequency measures have been used with adolescent samples, and where findings have made the distinction between cyberbullying in isolation as opposed to co-occurrence with traditional bullying, recent estimates from research in England have been:

- 29% of students aged 11-16 reported having been bullied in the past six months – but only 1% reported cyberbullying victimisation and no 'traditional bullying.' (Sample of 2743 young people in five secondary schools in the Midlands – Wolke, Lee and Guy, 2017).
- Less than 1% of young people reported having been cyberbullied exclusively (2 or 3 times a month, or more, in the past two months) – a small proportion of the 30% who reported *any* form of bullying victimisation over the same period (27% only reported 'traditional bullying; 3% reported co-occurring incidents of both types). (Sample of over 110,000 15 year olds from the National Pupils Database in England – Przybylski and Bowes, 2017).

A study in the US (surveying over 28,000 young people aged 14-18) had similar findings – that 23% reported bullying victimisation of any sort, but only around a quarter of this group (4.6% of the overall sample) reported cyberbullying victimisation alone (Wasdoorp and Bradshaw, 2015).

This is important, as it points to the necessity of understanding the different effects for adolescents that might ensue from cyberbullying as distinct from traditional bullying. This complexity is added to by some of the discrete features of cyberbullying – including the potential for anonymity of the bully and that victimisation online can be recurring over time for the victim (e.g. as embarrassing images or personal slurs are shared and distributed after the original incident) – features that are difficult to account for in cross-sectional studies.

Research has shown that victimisation and perpetration of cyberbullying vary across a number of demographic, contextual and individual characteristics (e.g. gender, age, race/ethnicity, sexuality, disability, personality) – and peer, family, and school risk and protective factors can also play a part (Kowalski, Limber, and McCord, 2019). For example, a large-scale study in of 14-18 year olds found that (Wasdoorp and Bradshaw, 2015):

- Girls reported more cyber victimisation than boys.
- Compared to white young people, black young people reported less bullying across all forms, online and offline.
- Traditional bullying victimisation was lower in responses from older adolescents (aged 16-18), but cyberbullying victimisation was consistently reported across the age range.

Research has linked cyberbullying victimisation to a range of negative impacts. A general study on the impacts of online risks – via a survey of over 25,000 9-16 year olds in 25 European countries – found that, '… being bullied online – the least common risk – carries the greatest likelihood of harm to the child who experiences it.' (Livingstone et al, 2011, p135). Links with behavioural and health-related problems for adolescents have been found, including reduced self-esteem, empathy and greater loneliness (Brewer and Kerslake, 2015); depression, anxiety, and suicidal ideation (Betts, 2016); school problems, internalising problems and emotional difficulties (Brown, Demaray, and Secord, 2014); and poor body image (Calvete, Orue, and Gámez-Guadix, 2016).

Impact studies have found, for example, that young people who had experienced cyberbullying were 2.35 times more likely to report self-harm than non-victims, and 2.10 times more likely to report suicidal behaviours those who had not (John et al, 2018) – and also that cyberbullies (perpetrators of cyberbullying) were 1.21 times more likely to report suicidal behaviours (e.g. thoughts of suicide or suicidal ideation, suicide plans and suicide attempts) than non-victims (John et al, 2018).

Currently, however, there is very little evidence of the outcomes of cyberbullying from longitudinal studies (Baldry, Farrington, and Sorrentino, 2016) – and, despite the acknowledged relationship with traditional bullying – many cross-sectional studies have failed to measure alternative forms of bullying victimisation and, as a consequence, have been unable to distinguish unique effects (i.e. to determine whether impact is cumulative or independent). Where they have, findings are mixed and inconclusive, although there have been some indications of independent effects (e.g. Wasdoorp and Bradshaw, 2015; John et al, 2018). A recent, large scale English study on the experiences of 15 year olds found that both traditional bullying and cyberbullying 'were associated with poorer mental well-being … *(but)* cybervictimisation accounted for less than 0.1% of the observed variability in mental well-being compared with 5.0% of variability accounted for by traditional victimisation' (Przybylski and Bowes, 2017: p19).

SUMMARY: The potential impact of cyberbullying

Defining and measuring cyberbullying victimisation has proved to be a huge challenge for researchers. It remains unclear how common an experience this might be among young people – not least because distinguishing effects which are discrete from those of traditional bullying (which is usually experienced alongside cybervictimisation, and seems to be much more common) can be difficult. The additional complexity that cybervictimisation presents (for example, the possible anonymity of perpetrators and the potential for long lasting impact beyond the original incident) has also confounded effective inquiry. It might be argued that the prevalence of cyberbullying (and wider cybervictimisation) is likely to be increasing alongside the recent growth in ownership of smartphones by young people – but this is an additional factor that research has not yet been able to account for. Regardless of the gaps in current knowledge, it seems that cyberbullying can have a harmful impact, most often in combination with the potentially serious effects of traditional bullying.

Self-harm and suicidal behaviour

Concerns about 'self-harm' – deliberate acts causing physical injury to one's own body – among the young have increased in recent years, in part due to evidence of scale (The Children's Society, 2018) and also to indications that incidence is increasing, particularly among younger adolescent girls (Morgan et al, 2017). As with other issues related to observable declines in young people's mental health, the rise in self-harm has often been attributed to use of the internet, in particular to the effects of exposure and engagement with social media. Links with suicide have also been asserted, with the Government's Suicide Prevention Minister stating in 2019 that self-harm content online 'has the effect of grooming people to take their own lives', leading to calls for a ban on 'graphic content' – images showing acts of self-cutting or burning, or wounds – a request that was acceded to in 2020 (BBC News website, 2019; 2020).[26]

This is premised on the idea of 'contagion' – that the viewing of images online can normalise, glamourise or reinforce behaviours – and, in the case of self-harm, that they can trigger copycat incidents (Luparellio et al, 2019; Arendt, Scherr and Romer, 2019). Evidence that supports the theory of contagion in relation to online exposure to self-harm content is somewhat limited. It is unclear, for example, whether online exposure is the cause of self-harm incidents, or whether the intention to commit such acts precedes exposure and itself drives a young person to view imagery online. How motivation and action are inter-related is also not understood, including whether or when internet use has a preventative effect rather than a causative one.

A recent systematic review of research exploring the relationship between internet use and self-harm found 51 published articles (representing 46 independent studies), with similar numbers reporting positive, negative or mixed influences of the internet on self-harming behaviour (Marchant et al, 2017).

The dilemmas this poses for policymakers and parents were highlighted by a recent ethnographic study exploring how young people themselves engaged with self-harm content through social media platforms (Lavis and Winter, 2020). The researchers analysed data from Twitter, Instagram and Reddit, reviewing over 10,000 original posts and all the accompanying comments (over 36,000) from two timepoints (May 2018 and January 2019), in bid to cover data that represented different communities, conversations and forms of expression (including pictures and images, memes, gifs, textual descriptions, emojis, emoticons and textual actions – e.g sending hugs). This was supplemented with semi-structured interviews with 10 young women (aged 18+) who engaged with self-harm content online, or who had done so in the past.

Findings from the study included that, (i) self-harm had commenced prior to seeking online content, with accounts suggesting unhelpful responses from parents or health professionals and indicating a need for peer support online, and highlighting the benefit that this could be instantaneous at a point of crisis; (ii) there was a prevalence of supportive exchanges, for example, providing advice on how to resist the urge to self-harm or use techniques to replace the act – and of gratitude for this support, and evidence of supportive communities showing emotional reciprocity; (iii) young people also shared advice on how to 'self-harm safely', to reduce harm and avoid shaming those young people who felt this was their only means to cope in the face of unendurable stress; (iv) there were warm and congratulatory messages to those who had not gone on to harm themselves; (v) providing support to others could be emotionally burdensome for the young people within online communities,

potentially exacerbating their own difficulties.

By adopting a neutral, exploratory perspective towards inquiry (i.e. not assuming that 'contagion' would be the primary aspect of young people's engagement with social media related to self-harm) this study demonstrates the many nuances and complexities around self-harm content. In particular, the research found that many young people were self-harming before they engaged with these fora and that they found positive and preventative support within them when, offline, they felt isolated and alone.

3.3 Benefits and opportunities: The counter-balance to risk and harm online

Noting the predominance of a 'risk discourse' in studies of children and young people's use of the internet, how this is reflected in public debate and how it can unduly problematise young people's experiences, some academics, commentators and policy makers in the field have advocated for a calmer and more measured appraisal of the benefits alongside the risks which come from screen based activities (e.g. Livingstone, 2019; House of Commons, 2019; Odgers and Robb, 2020).

One aspect of this has been the development of a more holistic theoretical framework (shown in Table 1 on the next page) for describing children and young people's online experiences which incorporates 'opportunity' alongside 'risk' and also supports a systematic appraisal of both, highlighting different aspects and their multi-dimensionality (e.g. clarifying the status or role of a child as a 'recipient', 'participant' or 'actor' in relation to each type). The framework is helpful not only in promoting the importance of opportunity as a key aspect of young people's digital lives, but also in supporting clearer conceptualisation – a basis for improvements in research and policy development.

Table one: Framework for classification of young people's online opportunities and risks

	TYPE	CONTENT Young person as recipient	CONTACT Young person as participant	CONDUCT Young person as actor
OPPORTUNITIES	Education, learning and digital literacy	Educational resources	Contact with others who share one's interests	Self-initiated or collaborative learning
	Participation and civic engagement	Global information	Exchange among interest groups	Concrete forms of civic engagement
	Creativity and self-expression	Diversity of resources	Being invited / inspired to create or participate	User-generated content creation
	Identity and social connection	Advice (personal / health / sexual, etc.)	Social networking, shared experiences with others	Expression of identity
RISKS	Commercial	Advertising, spam, sponsorship	Tracking / harvesting personal information	Gambling, illegal downloads, hacking
	Aggressive	Violent / gruesome / hateful content	Being bullied, harassed or stalked	Bullying or harassing one another
	Sexual	Pornographic / harmful sexual content	Interacting with peers, meeting strangers, being groomed	Creating / uploading porn material
	Values	Racist, biased info / advice (e.g. drugs)	Self-harm, unwelcome persuasion	Providing advice, for example suicide / pro-anorexia

Adapted from Livingstone et al, 2018

It seems clear that many young people have spent longer online during the COVID-19 pandemic (see p14), but whether this has had a detrimental or positive effect is unclear – although the study, of over 6,000 10-18 year olds in 11 European countries found that many young people who had not been concerned about how long they spent online had begun to worry about this during the pandemic (Lobe et al, 2020).

Researchers in the fields of adolescent development and those who have studied the impact of digital media have argued that the benefits of online social connection may help to mitigate the negative impacts on young people of social distancing and of isolation during lockdowns (Orben, Tomova and Blakemore, 2020). In part, their evidence for this came from research from the US with 13-17 year olds conducted before the pandemic which highlighted how young people felt that social media not only facilitated better connectedness with friends, but also that it contributed to the diversity of contacts and boosted the feeling that there was support available 'through tough times' (Pew Research Center, 2018).

It has been suggested that young people will have been more exposed to risk online as a corollary of the extra time they are spending on the internet. Findings from the survey of adolescents across Europe referred to above, which was conducted between June and August 2020, were that almost of half of respondents aged 10-18 reported never having been bothered or upset by something online, but that a quarter of the sample had experienced an increase in this during the Spring 2020 lockdown. The researchers noted, however, that there had been wide variation according to (Lobe et al, 2020):

- Type of risk and linked to whether young peoples' experiences of it had also pre-existed the pandemic (e.g. an increase in cyberbullying for half of the young people who said they had been bullied online before; three in ten young people reporting increases in 'cyberhate' messages – but four in ten having never experienced these; greater exposure to self-harm imagery for a fifth of those who had already seen such images).
- Country of residence (e.g. greater increases in cyberbullying in Germany, Italy and Spain – 51%, 50% and 50% respectively – than in Slovenia – 24%; increased exposure to violent or gory images for 67% of Romanian young people, but only 42% of French young people).

As yet, the evidence on positive or negative impacts of young people spending more time online during the pandemic is relatively sparse, and it will only be possible to understand this more comprehensively through the analysis of longitudinal data, including pre-pandemic measures against which to benchmark changes.

However, there are clues as to which young people may have suffered the most detrimental effects. For example, early findings from the Co-SPACE study, an ongoing survey-based project on how parents and young people in over 8,000 families are coping during the pandemic[27], suggest that between March 2020 and March 2021 symptoms of mental ill health had increased for younger children, but those reported for adolescents' (aged 11-16) had been more stable, *and* that other factors (economic hardship, special educational needs and neurodevelopmental disorders, parental stress) accounted for much of the variation (Cresswell et al, 2021; Raw et al, 2021). As well as highlighting variation in resilience by age, this suggests that social factors related to disadvantage (e.g. in family socio-economic context and individual needs) are playing an important role in determining differences in impact on young people's mental health during the pandemic.

(Continued on next page)

This echoes findings from pre-pandemic studies of the variable impact of young people's online experiences according to protective or risk factors which are part of the fabric of their lives. It suggests that aspects of disadvantage combine to produce negative outcomes and that, although the COVID-19 pandemic has led to significant upheaval in many families' lives, too narrow a focus on this as the cause of young people's difficulties will undermine clear understanding of effects and limit the effectiveness of responses.

SUMMARY: The overall impacts of young people's digital lives

Although a variety of studies have been conducted on the impacts of young people's digital lives, and there are indications that some young people have negative experiences in some circumstances, there are reasons to remain sceptical about many research findings, because of:

- A tendency to look at these issues through a narrow lens – focused on harm (or the 'risk' of harm).
- A failure to make distinctions for what is developmentally normal at different points during adolescence.
- A lack of detail in measurement of the nature or scope of what young people do when they are online as the premise for understanding impact (What does the 3 hours that most adolescents spend online comprise? For young people who look at online pornography, what do they view and why?).
- Insufficient attention to offline factors, or those related to individual characteristics.

One reason for these deficiencies has been that much of the published research on impact has been grounded in a psychological or epidemiological standpoint – i.e. it is not informed by a 'social' perspective – and, this has determined the character of inquiries. For example, a reliance on quantitative methods (Marchant et al, 2017) and the predominance of hypotheses that are biased towards negative impacts and fail to incorporate the perspectives of young people themselves, have led to ambiguous findings

Neglecting to recognise the social and developmental context of digital engagement, and failing to account for rapid developments in the 'digital ecology' (the environment of connectivity, devices, apps and games) of young people's lives, alongside weaknesses and inconsistency in methodologies, significantly reduce the insight from studies of impact.

Adopting a more holistic approach to the study of young people's digital lives would be beneficial, incorporating an understanding and appreciation of the benefits and opportunities available online, and exploring in greater detail who is missing out on these and who is most vulnerable to severe or significant harm.

4. Parenting and the challenge of supporting young people's digital lives

Rearing children during their adolescence presents particular challenges regardless of the complications that digital connectedness can bring. Normal developmental behaviours which signify the drive towards independence – for example, the prioritisation of peer over family relationships, heightened sensation-seeking and exploration of self and identity (including sexual behaviour and sexuality) – can pose difficulties for parents in deciding how best to approach their role (Smetana, 2017). Digital technology has added fresh quandaries for parents who may be keen to encourage their adolescents' independence and decision-making, whilst trying to preserve their safety, health and well-being.

Research from the US shows that many parents (66%) think that their role has become harder in the last 20 years, and a lot of them cite 'technology' or 'social media' as the main reason for this (Pew Research Center, 2020). Whether or not this is true, in a context where they are often seen as being the first line of protection, parents' fears may be heightened by a discourse which predominates in popular media stressing the risk of online harm (Livingstone and Byrne, 2018).

This chapter of the report discusses research on the parenting of adolescents' digital lives and also questions whether a traditional understanding of 'parenting' – as consisting of what parents do to support or manage their children's lives (in this case their digital lives) – is an accurate description of what happens in families during adolescence.

4.1 Parents' fears

The messages that have been conveyed to parents about the impacts of their children's use of the internet have, to say the least, been mixed. Much of the early research in the 1990s and early 2000s was undertaken in an atmosphere of 'moral panic', dominated by concerns about the insidious 'lure' of the internet and its potential to corrupt (e.g. through exposure to pornographic or violent content) or to jeopardise children's safety (e.g.by facilitating the efforts of adult sex abusers) (Boyd and Hargittai, 2014).

Children and young people were regarded primarily as 'innocent victims' and growing efforts to restrict internet use ensued – encouraged by 'professional advocacy organisations' who tended to 'needlessly frighten parents with the spectre of outcomes related to violent crime, mental health problems, serious school failure, drug and alcohol abuse or eating disorder diagnoses' (Ferguson, 2017; p802). Parents felt worried and disempowered – ignorant about the internet and lacking in understanding of their children's

experiences (Livingstone and Byrne, 2018).

This has changed with more parents becoming digitally-engaged themselves and developing a clearer understanding of the benefits as well as the pitfalls of being online. However, the legacy of earlier worries has continued to affect mainstream debate about young people's digital lives, and this has been supplemented by newer preoccupations with cyberbullying, sexting and other unnerving possibilities, especially those linked to social media. This may have exacerbated parents' fears and has certainly extended the range of their concerns.

Currently, parents are in an invidious position. Expected to take responsibility for their children's online safety but with little 'evidence' to judge how best to do this since the popular media rarely report on research (and, even then, only in oversimplified and confusing ways[28]) but do provide regular reminders of extreme cases of internet-facilitated victimisation.

Restrictions introduced to address the COVID-19 pandemic have put a strong spotlight on the domestic digital sphere – underlining a dependence on digital connectedness (which may not be comprehensive in all households) to support the education of children and young people, to provide entertainment and to preserve friendships and wider family relationships. Juggling mixed messages about the dangers of 'excessive' time spent online for young people and of the risks of greater exposure to potentially harmful experiences (e.g. through increased engagement with social media platforms), alongside other pragmatic considerations of day-to-day lockdown life, may have served to heighten the stresses felt by parents and exacerbated dilemmas regarding how best to mediate their children's digital lives.

Findings from Ofcom's media tracker suggest that in half of families with children aged 5-15 where there had been restrictions on their use of the internet before the pandemic, these had been relaxed once it was underway – suggesting that many parents recognise the potential benefits of additional online freedoms when other aspects of a young person's life are severely curtailed (Ofcom, 2021c).

Evidence from the Understanding Society survey – a longitudinal study of 40,000 households across the UK – is that many parents of who had additional caring or home schooling responsibilities for their adolescents (aged 12-16) during the early part of the pandemic reported improved relationships with their children (41% of those who reported 11-20 extra hours of care / home schooling and 45% of those who logged 21-30 extra hours). Notably, only a small proportion said that their relationships had deteriorated (e.g. 3% of those who reported 11-20 extra hours) (Benzeval et al, 2020). More work will need to be done to understand why relationships were better in many families – and worse in a few – but this may suggest that spending time together (including to support online learning) can have benefits for the quality of parent-adolescent relationships.

International evidence shows that parents' worries about what their children may be exposed to online are increasing (Livingston and Byrne, 2018). In 2020 Ofcom reported that:

- Between 2015 and 2019 there had been a decline in the number of parents who felt that 'the benefits of the internet for my child outweigh the risks', from 65% to 55% for parents of 5-15 year olds (although more parents of older children agreed with the statement).

- Parents of 12-15 year olds had become more concerned about content that might encourage them to harm or hurt themselves, or that might lead to 'radicalisation'* (*n.b. not defined in the report).

Perhaps inevitably there is also contradictory evidence. For example, a survey of parents of 13-17 year olds and their adolescent children in four high-income countries including the UK found that 86% of parents said that their teen's use of mobile devices had not harmed, or had even helped their relationship with them (97% of teens said the same of their parents' mobile use) (Livingstone, 2018).

This paints a confusing picture, but one which does suggest that many parents are unclear about online risks and uncertain about how to protect their adolescent children.

4.2 What parents do to manage their children's time online: research on 'parental mediation'

Parents use a range of ways to manage their children's interaction with and use of the internet. Findings from the UK, published in 2020 by Ofcom, were that:

- Almost nine in ten parents (of children aged 5-15) apply rules about what their child does online or supervise their child when they are online.
- Almost seven in ten use technical mediation tools (e.g. filtering software).
- Using technical tools, rules and supervision are more likely among parents of 5-11s; talking to their child is more likely among parents of 8-15s.
- In 2019, 85% of parents of 5-15s whose child goes online say they have ever talked to their child about this (up from 81% in 2018) – driven by an increase among parents of 8-11s (from 86% to 91%).
- More parents than in 2018 say they supervise their child when online (from 49% to 54%) - by being nearby and regularly checking what they are doing - or by asking them what they are doing online (from 50% to 54%).
- Fewer parents now check the browser/device history after the child has been online (from 37% to 33% in 2019). This may be partly due to them believing that children know how to delete the history of sites they have visited (45% of 12-15s), and so may feel this action is futile.

Recent research in the US found that the majority of parents of 13-17 year olds (Pew Research Center, 2018[29]):

The links between parental mediation and 'parenting styles'

It is interesting to note how descriptions of aspects of parental mediation echo the terminology used in 'parenting styles' theory (Baumrind, 1972; Maccoby and Martin, 1983) – an approach often adopted in generic parenting research. This theory conceptualises what parents do within four styles that comprise combinations of low or high levels of 'warmth' and of 'control.' The idea of 'active' mediation suggests a high level of engagement, and, when paired with restrictions and monitoring, this would reflect an 'authoritative' parenting style. Most of the research on parenting styles and 'what works' with adolescents has found that an authoritative approach is most effective – although there are suggestions that this may be relative to culture and ethnicity (i.e. most studies have been done with White, relatively affluent families). However, recent research has begun to suggest that social changes may be affecting parenting, and that less focus on rules and control may be more conducive to adolescent-rearing in the 21st century. This has been shown, for example, in a study which looked specifically at the links between parenting style and Spanish adolescents' (aged 12-17) experiences of bullying and cyberbullying. This research found that 'indulgent' parenting – whereby parents were warm, accepting and involved, but were non-directive (i.e. an absence of rules and restrictions) – was a protective factor for both forms of bullying (Martinez et al, 2019).[30] Regardless of specific examples, it seems clear that applying some of the ideas that have been developed and used to study parenting in general could be productive for improving understanding of parental mediation.

Also noteworthy is that research on these issues has focused exclusively on the approach parents take to managing young people's internet use – i.e. what they do. This obscures the fact that a proportion of parents fail to do anything to mediate their children's digital lives – that some young people are, quite literally, left to their own devices. Within parenting styles theory the absence of warmth or control in how parents operate is referred to as 'uninvolved' or 'neglectful' parenting. It may be important to extend the study of parental mediation to better account for how 'digital neglect' on the part of parents affects young people's experiences of risk and opportunity online.

- Monitor or limit their internet use – e.g. check device history ('often' or 'sometimes – 59%); look through cellphone call records / messages ('often' or 'sometimes' – 57%); limit time online / cellphone use ('often' or 'sometimes' – 57%); use parental controls to restrict website access ('often' or 'sometimes' – 52%).
- Use 'digital grounding' as a punishment (confiscating a smartphone, or restricting internet 'privileges') – 'often' or 'sometimes' – 52%.

But how effective are these approaches? Early research studies – which tended to focus on internet safety or 'addictive' internet use – found some indications that parental surveillance reduced risk (e.g. of online victimisation – Helweg-Larsen et al, 2011). However, this was usually measured in a basic way, covering issues such as how much young people's access was monitored (e.g. where in the home

they used a computer) or restricted (time allowed online), and other research produced contrary findings, for example, that more monitoring or attempted control linked to higher reports of excessive use (van den Eijnden et al, 2010).

As this area of research has developed, a more sophisticated terminology around 'parental mediation' – how parents adopt different tactics or strategies to regulate or support young people's digital lives – has emerged, building on prior work that focused on the effects of television (Clark, 2011). Researchers have categorised parental mediation in three principal ways (see, for example, Dinh and O'Neill, 2019; Dedkova and Smahel, 2019):

- **'Restrictive mediation'** – the use of rules and / or software to control internet access or type of content (e.g. time spent online, parental controls).
- **'Active mediation'** – including discussing online activities, giving instructions for internet use and explaining strategies to deal with upsetting content. Mediation related to 'co-use' (where parents spend time online with their children) is also sometimes included within this category.
- **'Monitoring'** – taking steps to find out about online activity (websites visited, contacts made, checking social media profile, etc) and / or location (e.g. through mobile phone tracking) to increase parental knowledge, sometimes without the child being aware that this has happened. This may also be done retrospectively

There is evidence to suggest that active mediation approaches are increasingly favoured by parents in high-income societies where there is increasing understanding of the opportunities that digital technology affords to young people (e.g. Livingstone, Haddon, Gorzig and Olafsson, 2011) – although variations have been identified, for example, that parents in countries with more 'traditional' cultures may adopt less facilitative forms of parental mediation (O'Neill and Dinh, 2019).

The age and gender of adolescents (and of parents) also seem to make a difference to how parents manage their children's lives online – with adolescents, particularly as they become older, experiencing less restrictions or mediation than younger children and girls more monitoring and restrictions than boys. Mothers have been found to adopt more facilitative approaches, although fathers seem to have been largely absent in much research (Livingstone et al, 2017).

The relevance of parents' digital skills

Parents' views on the internet are affected by their own level of understanding, skills and confidence, and this, in turn, has been shown to have an impact on how they manage andsupport their children's digital lives (see p40 for the findings from a study which focused on this issue).

The distinction made between 'digital immigrants' (adults) and 'digital natives' (children) (Prensky, 2001) in early discourse about the internet may be becoming redundant, but in some families there is a 'digital skills gap' between generations – and, where children (or more likely, adolescents) have the greater level of skills, this can have a significant impact. Some researchers have asserted

Parental mediation and digital skills – a study of links to online risk and opportunity for young people

A recent large-scale study explored parents' approaches to managing children's internet use through computer-assisted web interviews with over 6,000 parents with children aged 6-14 in eight European countries including England (Livingstone et al, 2017).

The research looked at how parents' views of risk, alongside assessment of their own and their children's digital skills, affected their approach. Parental mediation was described in terms of: (i) an **'enabling' approach** which comprised 'active mediation' (e.g. encouragement to explore online), 'child-initiated support' (e.g. a child asking for advice); 'active mediation of internet safety' (e.g. telling a child what to do if something online bothers them) – complemented by 'technical controls' (e.g. filtering software) and, 'monitoring' (e.g. checking messages); (ii) a **'restrictive' approach** founded on binary rules (whether or not a child was allowed to do things online, or only with permission and / or when a parent was present).

A varying blend of both enabling and restrictive practices made up the approach taken by parents within different households – more like a strategy or framework than a rigid method – and this changed over time (e.g. as children become older, more skilled and more involved in negotiating their own digital lives). For example, it was found that:

- Parents did more enabling for younger children whom they believed to be more digitally skilled – and were more restrictive and less responsive to requests for support from girls and from younger, less digitally skilled children.
- Enabling mediation was used by parents who perceived higher online risk for their children – although the most concerned deployed both enabling and restrictive approaches, as did more digitally skilled parents.
- Nationality made a difference – e.g. Spanish and Italian parents were the most active in managing their children's online activities, Swedish and Dutch parents had the most 'hands off' approach. UK and German parents were somewhere in the middle. (The researchers suggest these differences may be a reflection of national policies – e.g. that the Netherlands has more developed regulation and more supportive initiatives for children and families).

The study found that an enabling approach linked to greater potential benefits for a young person from being online but also to greater exposure to risk – and it was not possible to identify a combination of enabling and restrictive practices that increased opportunity but also reduced risk.

These findings suggest that digital skills are a key factor in determining how parents mediate their children's online activity, and, thereby, how much they benefit from the opportunities that the internet can offer. Equally – and highlighting a dilemma for parents – greater enablement links to a higher likelihood of exposure to online risk. However, the researchers surmised that in families where parents were confident in their own digital skills they would encourage confidence in their children and support them to develop online resilience, helping them to avoid risky situations or suffer less harm should they be exposed to them.

that the digital skills gap can subvert the dynamic within families – requiring young people to educate and support their parents in relation to digital technology. Referred to either as 'trickle-up influence' (McDevitt and Chafee, 2002) or 'reverse socialisation' (Valcke et al, 2010), this can imply a positive impact on family life involving collaborative learning and mutually beneficial experiences, and leading to greater democratisation of family relationships. Alternatively, it can be viewed as a challenge or an additional task for young people in trying to facilitate their parents' development, perhaps at a cost to their own.

Research on digital skills has led to the conclusion that they act as a pivot for how parental mediation operates within a family. Active mediation (premised on communication with a young person and on interactive ways to facilitate internet use) is most used in households where parents have higher levels of education and digital skills themselves (Nikken and Scholls, 2015; Pasquier, Simoes and Kredens, 2012) and, conversely, restrictive approaches (based on rules and compliance) are more often used where parents are less well-educated or digitally less proficient (Garmedia et al, 2012). In addition, those parents who resort to restrictions also tend to show more inconsistency in rules and prefer technical 'solutions' (filtering software, etc.) (Nikken and Scholls, 2015).

SUMMARY: Parenting and the challenge of supporting young people's digital lives

There is evidence that many parents make extensive efforts to support their adolescents' digital lives. Research has found that 'parental mediation' – the ways in which parents manage time spent online and what young people do when they use the internet – comprises a blend of behaviours that are either enabling or restrictive (or, more often, a combination of both).

However, the aspiration to remove online risk would seem to be an unattainable one. Instead it has been suggested that parents should be encouraged to accept exposure to risk as an unavoidable element of a young person's digital life, an inevitable part of them also taking full advantage of the benefits and opportunities of being online.

In the light of this, the task for parents becomes one of mitigating the impacts of risk. To be effective in doing this, parental mediation needs to be adapted over time, taking into account how a young person's needs change as they grow and mature, and to be responsive to individual characteristics, for example a young person's level of digital skill.

Research on parental mediation remains relatively limited especially in terms of its ability to capture the influence of factors that affect parent-adolescent interactions regarding time online – for example, social pressures on young people and their parents, family and individual characteristics, or imbalances in digital skills between the generations.

It may also be that too narrow a focus on what parents do fails to acknowledge other important mechanisms which underlie parental mediation – i.e. that how well families get on together, how strong communication lines are and whether a young person feels confident to discuss issues related to their digital life all play a part in the effectiveness of parental mediation.

Further studies would be helpful to look in detail at how the dynamics of relationships between parents and adolescents affect parental support for young people's digital engagement and how this can help to build online resilience.

5. Conclusions

A great deal of research has been done to scrutinise young people's digital lives – although there remain many gaps in knowledge and understanding. Among these is an absence of young person-centred research, of studies that not only ask young people about their digital lives but do so in ways that are conducive to tapping into their views in authentic ways. This issue is discussed in more detail later in this conclusion – in particular in relation to young people's responses to questions about their views on their online lives and their well-being – but before this, a summary of key points from the review is outlined.

Access and exclusion

Research on young people's access to and use of the internet highlights:

- The relative ubiquity of access to the internet for most young people – but compromised in different ways for a minority of young people with consequent impacts on the quality of their digital lives.

- The importance of adopting a comprehensive notion of 'digital exclusion' – extending this beyond solely socio-economic considerations to incorporate the absence or low levels of digital skills or of broader 'digital literacy' (understanding of online etiquette when using social media; poor skills for the critical appraisal of online content, etc.).

This points to the existence of sub-groups of disadvantaged young people who are less able than their peers to enjoy the opportunities or benefits of digital engagement. It also suggests that understanding of these issues might be improved by adopting a terminology of 'digital inequality', a term that more accurately describes the multiplicity of factors that can contribute to greater or lesser use of and benefit from digital technology.

Impact

Much of the research on young people's digital lives has been focused on its potential detrimental effects. This wide body of inquiry shows:

- Mixed and inconclusive evidence of negative impacts of young people's digital lives (e.g. to induce mental ill health), with important caveats due to the limitations of research methods employed (e.g. a reliance on cross-sectional studies).

- An ongoing preoccupation with the relevance of 'time spent' online, despite a lack of substantive findings to demonstrate the 'harmfulness' of this (and, in some studies that have shown links between screen time and negative impacts, a failure to report their magnitude, thereby obscuring accurate interpretation).

- A discourse that assumes the likelihood of negative impacts and is dominated by opaque notions of 'risk'

leading to blinkered hypotheses and narrow interpretation of findings, which then serve to reinforce concerns.

- Terminology confusion – across research on impact (e.g. inconsistent definitions for 'sexting', 'pornography', 'cyberbullying' – or for associated issues such as 'permissiveness', *'early* sexual debut', *'unwanted* solicitation') – impairing comparability across studies and obscuring the clarity of findings.
- Most importantly in terms of the weaknesses of research on these issues, little attention paid to:
  - What young people are doing when they are online [e.g. what content they view and how much they understand it, what they produce and share online, whether they engage actively or passively, how much they are doing online (digital multi-tasking) and offline at the same time].
  - Developmental difference across adolescence – i.e. to acknowledge that what might be regarded as being dangerous or harmful for a 10 year old might be seen to be relatively safe for an older teenager – with the effect of homogenising risk.
  - The relevance of context, of difference and diversity in young people's offline lives and the influence this has on their digital lives.

The relative absence of research which explores the benefits and opportunities for young people online makes for a biased and overly-problematising picture of their digital lives.

The insight from research studies on the impact and outcomes of young people's digital lives is only partial and has been generated largely on the basis of narrow assumptions of inevitable harm. It has important weaknesses – for example, for some online risks it does not provide a clear understanding of which young people are most vulnerable to experiencing serious harm. There is a need to develop greater precision around differential effects, in particular their links to offline contexts and individual characteristics, and also to improve understanding of the many beneficial aspects of young people's positive digital engagement.

Parental mediation

Parents have legitimate concerns about how their adolescent children might be affected by upsetting or potentially harmful experiences in their digital lives, or by the potential impact of large amounts of time spent online, but these have been heightened by mainstream media hyperbole and the influence of interest groups which have tended to overinflate the level of risk from young people's use of the internet.

Recent research on parents' efforts to protect and manage their children's digital lives has found that:

- Different aspects of parental mediation, referred to as 'enabling' methods (e.g. suggesting strategies to deal with upsetting content; openly discussing experiences online; spending time online together) or 'restrictive' methods (limiting time online or sites able to be visited), can be blended to provide support that is appropriately-tailored to the different needs of individual children as they mature.
- Approaches to parental mediation are affected by many factors, including

parents' own digital literacy, cultural norms and household resources – in these ways, how parents manage their children's digital lives can serve to reinforce digital inequalities.

Appropriately managing online risk for adolescents, while facilitating their use of the internet to derive most benefit, requires ongoing attention, communication and input – and an acceptance that they will inevitably be exposed to risk, but are more likely to develop the resilience to deal with it effectively if responsive support is readily available to them

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5.1 How should young people's digital lives be supported … and how can insight be improved in the future?

Research on the digital lives of adolescents has provided a broad picture. It permits some understanding of the extent and variety of internet use, and suggests that a small, but significant minority of young people are excluded from full participation. It has put a spotlight on the possibility of negative impacts, but there are important caveats about the quality of the available evidence and – echoing findings on general use and access – a sense that most young people have a positive online experience and only a minority are at risk of harm. It has also begun to document the ways that parental mediation has evolved to reflect the demands of 21st century digital engagement, but with the rider that the shape of young people's digital lives is affected by a wide ecosystem. This includes the individual propensities, needs and characteristics of a young person, their family context and interaction, and also extra-familial influences including peers and school, as well as societal values, norms and pressures. The digital ecosystem itself, with its constant and sometimes rapid change in technology and apps, also plays a fundamental part in how young people experience their online lives. Much of this is not sufficiently acknowledged in the presentation of findings or in how they are represented in popular discourse.

There are many potential implications for parenting, for policy development and for professional practice – and some of these are laid out in articles that try to apply the learning from research. One fundamental message that comes across is that to enable adolescents to have the most fulfilling digital lives it is important to help them to build 'digital resilience' – the capability to manage online risk which can only be instilled as they mature (Manning, 2021). This is different from the rules and protections that younger children require, and largely consists of 'approaches to help support and scaffold adolescents as they learn to navigate complex digital ecologies more independently' (Odgers and Jensen, 2020). Without this, a young person will be unlikely to derive the most benefit from their digital life.

At the same time, despite the scope and breadth of research, there remain many gaps in knowledge. The findings of the large-scale studies which dominate the field often lack the lucidity or depth necessary to draw authoritative or clear-cut conclusions, and in most cases these have not been complemented by the qualitative work that would add more

incisive detail. Taking an example from the research on negative impact, this can mean that although there are many estimates of the number of adolescents who see online pornography, there is little clarity about what they see, whether they took an active or passive role in finding it, what they make of it and how it affects them in the short or longer term (negatively, positively … or not much at all), or how this changes as they mature.

This means that important aspects of the complexity of young people's digital lives are yet to be fully explored. Our understanding of the multiplicity of factors that have an effect – and how they exert an influence – is far from complete.

Three things would help to improve future research on young people's digital lives.

- **Firstly, there is a need to ask research questions that focus on adolescence and which adopt a neutral approach to inquiry.**

Looking in greater detail at the cognitive and social elements in how young people conduct themselves online, appropriately recognising their agency, diversity and individuality and finding out more about how adolescents make sense of their online existence as well as what they do, should be a priority.

Studies which have adopted this type approach have provided fresh insight. For example, the recent ethnographic study on young people's engagement with self-harm content on social media outlined earlier in the report (Lavis and Winter, 2020; see pp30-31). This sought to provide an observational account of how young people behaved in online communities, how they accounted for their motivations, how they interpreted and reacted to online content. The careful – and non-judgemental – method of inquiry deployed was able to explore whether self-harm imagery in social media was 'contagious' *per se*, whether it would inevitably provoke copycat behaviour in vulnerable young people. It found that self-harm content was often sought by young people who had prior experiences of self-harm and who were looking for peer support when no other help had been available. Shared interactions online with a supportive group seemed to have diversionary and preventative effects on self-harming behaviour – contrary to what would have been anticipated in line with 'contagion theory.'

In addition, the research gave a salutary message on the merit of 'quick fixes.' Data from the second time point – collected after the ban in Instagram had been introduced – still included explicit self-harm images, but these were now more hidden (with less obvious hashtags), more likely to be seen by young people without warning and less often accompanied by supportive discussions. The ban may, then, have exacerbated the potential for triggering, rather than reducing the likelihood of it occurring, and have simultaneously reduced the prospect of empathetic and preventative peer support for the most vulnerable young people who had harmed themselves before.

- This study provides an example of an unintended consequence of a well-meaning initiative and, thereby, reinforces the importance of introducing an exploratory rather than confirmatory approach to generating evidence for debates on 'risk.' It also demonstrates how underexplored the potential benefits of online engagement for 'vulnerable' young people have been. In this case, young people who experienced difficulties with their mental health and were prone to self-harm, and who had actively sought support outside mainstream provision (or who had been given no support by parents), were able to access an online community, offering empathetic peer support with therapeutic outcomes. The possibility of this type of positive

impact has only recently been acknowledged and remains poorly researched (Hollis, Livingstone and Sonuga-Barke, 2020). Finding out more on this and similar topics will be important to counterbalance a prior onus on the negative impacts and risk for young people of being online.

- **The second change that would improve understanding of young people's digital lives would be to embrace the integration between online and offline domains.**

It has become increasingly apparent that making an artificial distinction between the two is unhelpful, since the digital and 'real' worlds have become too intertwined to be able to understand one without due reference to the other. Accepting, and more closely considering the pathways linking online and offline experiences, seems to be the best way to develop a holistic understanding of young people's lives – and the urgent need to better address the severe harms that some vulnerable young people can suffer highlights the primary importance of studying how offline disadvantage links to online risk.

- **The third element that would strengthen understanding is to ground research in an appreciation of young people's own perspectives.**

Although alternative, young person-centred viewpoints, and a small number of studies, have been highlighted in this report, there has been a tendency for most research to default to adult-led hypotheses about young people's digital lives, which in turn prompt narrowly-focused, sometimes prejudicial research questions. Ensuring that more inquiries begin by consulting with young people in an open-ended way about their perspectives and their own lived experiences in order to construct the agenda for a study would undoubtedly improve the quality of insight.

The Children's Society is interested in how young people view their digital lives and, in particular, how this relates to their subjective well-being. The following section describes some initial work to explore these issues.

5.2 Young people's digital lives and their well-being – new findings

The voices of young people are often missing from debates – and from research – about their lives, and this is equally true for research on young people's digital lives.

To try to acquire an understanding of some of the ways that young people themselves regard their lives online, The Children's Society introduced questions on this in our 2020 survey. We asked about how young people spent their time online and whether they were happy with different aspects of this. This allowed us to look at links between this and their responses to more general questions on their subjective well-being.[31]

A sample of around 2,000 10-17 year olds took part in the online survey in 2020, and findings were weighted to match the demographic and socio-economic make-up of the UK (e.g. for age, gender, social class and region).

Young people's use of devices and time spent online

Our survey of 10-17 year olds across the UK in 2020 found that:

- Most of the young people used a smart phone to go online (87%) with almost two-thirds using a laptop / notebook (63%) and around half a tablet (52%). Fewer of the young people used a desktop PC (27%) but almost half used a games console (46%).[32] Less than 0.5% of the young people said they had no access to a device for going online.
- The average number of devices that young people said they had access to was three – and this was true regardless of a young person's age or their gender or ethnicity.[33]
- Most young people said that on a school day – but when not in the classroom – they spent around 2 hours (30%) or around 3 hours (25%) online.[34] At weekends more young people reported spending more time online – more than half (58%) spending four hours or more online per weekend day.[35]
- Only a small proportion of the sample spent little time online. 5% spent less than an hour online on a school day – and 2% said the same about weekend days. (This excludes those who said they spent 'no time' online – 2% of the overall sample on week days and just 1% on weekend days).
- 14% (around one in seven) said that they spent seven hours or more online on a weekend day.
- The mean weekly number of hours spent online was 22, with the older group in the sample spending longer online (24 hours for 14-17 year olds) than the younger (19 hours for 10-13 year olds). There were no differences in overall time spent online per week related to gender, ethnicity or household income.

These findings are similar to those from other studies of young people's use of devices, in particular on the proportion of young people who now use smartphones (e.g. Ofcom, 2020a). In terms of time spent online, our survey asked for an estimate of time online across devices, whereas some studies now ask for details of different types of 'screen time' (e.g. RCPCH, 2019) or use different samples (e.g. including younger children). It is, therefore, difficult to compare the findings from this sample with other research, although some studies do not make a distinction between school days and weekend days, and the responses of this sample suggest that young people spend more time online when they are not at school. An international study found that across 79 countries the average weekly time online for 15 year olds was around 27.6 – with an estimate for mean weekly hours for UK teenagers of 30 hours (second only to Sweden at 32 hours per week) (OECD,2019).

Some research looking at the links between time spent online and reported happiness among adolescents has suggested that those who spend 'excessive' time online (especially using social media) are less happy than their peers, or than previous generations (Helliwell, Layard and Sachs, 2019), but the evidence for this is mixed and it seems increasingly clear that the relationship between time spent online and young people's well-being is not a straightforward one. For example, research which looked at whether higher amounts of time spent online by 15 year olds in 21 European countries were associated with lower average scores for life satisfaction found no consistent links. Additional analysis of the same dataset to consider whether the growth in time spent online in different countries had been reflected in falls in reported life satisfaction also uncovered no clear pattern (The Children's Society, 2020).

As yet, then, it remains unclear why some studies report an association between high amounts of time spent online and low levels of well-being – whether this is primarily a symptom or can become a contributory factor in reducing well-being over time.

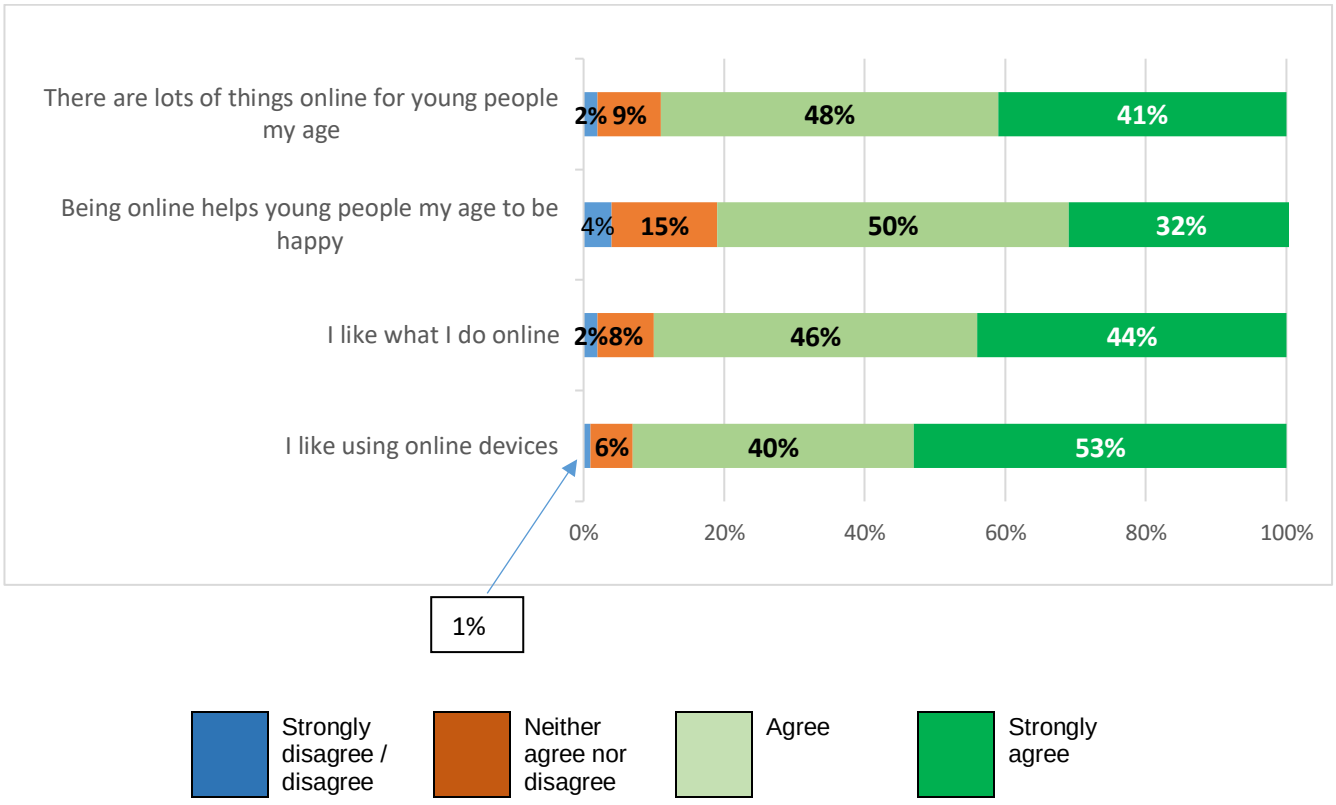
A recent theory has proposed that it could be possible to empirically prove how much screen time is best – the 'Goldilocks hypothesis' which suggests that there is a 'just about right' level of screen time for adolescents in terms of links to mental well-being[36] (Przybylski and Weinstein, 2017). Initial testing of this has found that 15 year olds from 150 local authorities across England (a sample of over 120,000) who spent substantially longer in front of a screen (playing games, using a smartphone, using a computer or watching films or other media) than the majority of their peers, were likely to report slightly lower well-being.[37] However, the amount of screen time for each activity, as well as whether this was on a weekday or a weekend day, was different – e.g. there were indications that longer time spent watching movies or playing games was less detrimental at weekends. The researchers' overall conclusion was that 'moderate levels' of screen time had no measurable negative effect, with this beginning to happen only at more 'extreme' levels relative to type of activity – with the caveat that the effect size was small (on average accounting for 1.0% or less of the observed variability in young people's well-being[38]). A 'medium level' – a broad range between these two extremes, had little impact on well-being. This may be true, though further research is needed to substantiate the hypothesis, but it also adds to the sense that there are more fundamental issues which are likely to explain why time spent online may be a cipher for low well-being.

How young people feel about their use of devices and time spent online

Young people were asked to say how much they agreed or disagreed with four statements about their digital life. Their answers were overwhelmingly positive, as shown in the examples in Figure 1 on the next page. 93% of young people agreed or strongly agreed with the statement 'I like using online devices', 90% gave the same responses to 'I like what I do online', and 89% indicated accord with the statement 'There are lots of things online for young people my age.'

Although 82% agreed or strongly agreed that 'Being online helps young people my age to be happy' the greater proportion of young people expressing some ambivalence about this (15% said they neither agree nor disagree), and who disagreed (4% disagreeing or strongly disagreeing) than for the other statements may suggest that less happy experiences online predominate for a small number of 10-17 year olds – although it may also be possible that some young people do not consciously equate internet use with their happiness. Qualitative research, with the opportunity to explore these issues in more detail with young people of different ages and in different circumstances, would help to better understand what these headline figures show.

Figure 1: Young people's (aged 10-17) views on what they do online and their use of digital devices*



Source: The Children's Society's Household Survey, Wave 19, April-June 2020 (weighted data).

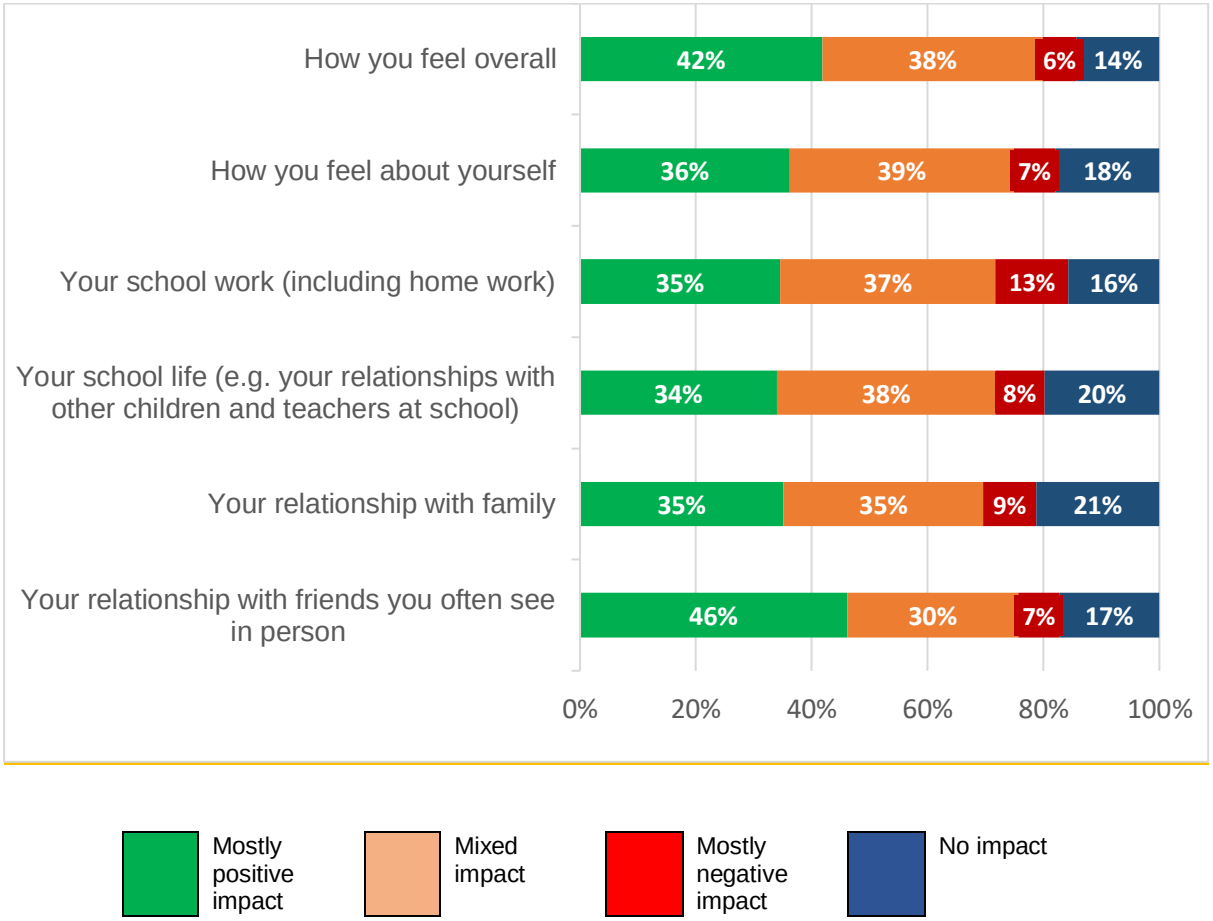
*Excludes 'Don't know' responses.

How young people feel about the impact of their internet use on different aspects of their lives

Young people who took part in the survey were asked to say what kind of impact their time online had on various aspects of their lives. Excluding the small number who said that they didn't know, less than one in ten felt that the impact had been 'mostly negative' for the six areas covered, with the exception of 'school work' where 13% (around one in eight) identified a 'mostly negative' impact (see Figure 2).

For all the issues that were included a majority of young people assessed impact as being 'mostly positive' or 'mixed,' and the proportions for each response were similar. For example, a mixed impact on 'school life' was reported by 38%, while 34% said that impact was mostly positive.

Figure 2: Young people's (aged 10 to 17) responses to question 'What impact if any do you think your life online has on the following...'*



Source: The Children's Society's Household Survey, Wave 19, April-June 2020 (weighted data).

*Excludes 'Don't know' responses

This suggests that many young people acknowledge that there can be negative elements of online life.

The highest proportion (46%) reporting a mostly positive impact was for 'your relationship with the friends you often see in person' – with less than a third of the sample (30%) noting a mixed impact. This reinforces findings from other studies that digital connectedness is largely positive in supporting young people's friendships (Kardefelt-Winther, 2017; Pew Research Center, 2018).

In the light of concerns about how much a young person's life online affects their relationships with their family it was interesting to note that equal numbers of young people said that the impact was

'mixed' or 'mostly positive' (35% for each response). However, a slightly higher proportion (21%) of young people said there was no impact on family relationships from life online than for any of the other issues they were asked about.

Overall, these findings suggest that many young people feel that their time online has a mostly positive impact or a mixed impact for the issues we asked them about, acknowledging that there could also be some negative aspects. It is interesting to note that the most positive impact was reported for relationship with close friends, since this may run counter to how this is sometimes portrayed in debates about young people's lives. Similarly, more young people said there was no impact on their family relationships than for any of the other issues – although this was counter-balanced with a relatively high proportion who reported a mostly negative impact. Further exploration of these issues, perhaps through more discursive, qualitative studies, would be helpful to understand more about what young people regard as the positive and negative impacts of their online lives related to these and other issues.

How happy are young people with their online lives?

We also asked in this survey 'how happy' young people were with various features of being online, asking them to rate their happiness or unhappiness on a scale from 0 (for 'very unhappy') to 10 ('very happy'). From this we could see whether there were differences in how happy young people said they felt about different aspects of their digital lives (Figure 3, on the next page).

For the most part, young people said they were relatively happy with all of the things we asked about, with the mean scores for each item ranging from 8.0 for 'the things you do online' (with 92% of young people reporting scores above the mid-point of the 0-10 scale), to 7.4 for 'the way you come across / are seen by others online' and 'the amount of time you spend online' (83% of young people reporting scores above the mid-point).

The two questions for which there were lower scores might be linked to other underlying issues. A lack of happiness about 'the amount of time you can spend online' may suggest that young people are picking up on mainstream debates about how this may be harmful (i.e. they are concerned about spending 'too much' time online), or – alternatively – that they are unhappy because of restrictions on how much time they are allowed to be online; concerns around 'the way you come across' may be to do with digital literacy (in the broadest sense of 'netiquette' – knowing what to say / how to be accepted or belong according to unwritten rules online) or they may relate to physical appearance (reflecting more general uneasiness about this, as shown in research on general well- being – e.g. see The Children's Society, 2018 and 2021). However, further work would need to be done to find out how young people accounted for their responses to our questions.

Girls were less happy than boys (reflected in their lower mean scores) with all of the aspects of being online that we asked about, except for the amount of time spent online. We also looked at whether there were differences by age-group – comparing those aged 10-13 and those aged 14-17 – and found that there were none, except with regard to the overall measure 'your life online' for which the mean score was lower for older children (7.6 for 14-17 year olds) than for younger ones (7.8 for 10-13 year olds).

Figure 3: Young people's (aged 10 to 17) mean scores (on a scale of 0 to 10) when asked 'How happy are you...'

Source: The Children's Society's Household Survey, Wave 19, April-June 2020 (weighted data).

How does young people's online happiness compare with other measures of their subjective well-being?

When The Children's Society first developed its Good Childhood Index (GCI) (Rees, Goswami and Bradshaw, 2010) there was comparatively less internet use among young people than there is now, so we wanted to look at the relationship between online happiness and other aspects of children's well-being. Exploratory analysis revealed some strong correlations between the overall and individual measures of online happiness – e.g. happiness with 'life online' and 'the way you come across online' (r=0.74); and happiness with 'life online' and 'relationships with other people online' (r=0.70).[39] Regression analysis suggested that, of the six individual measures of online happiness, happiness with 'the way you come across online', 'things you do online' and 'relationships with other people online' explained the largest amounts of variation in children's overall happiness with life online.[40]

Although there were moderate correlations between the online measures and many GCI items (e.g. r>0.48 for the overall online happiness measure and all GCI items),[41] in a regression with the 10 GCI items, overall online happiness did not increase the amount of explained variation or significantly contribute to a model of children's life satisfaction (based on Huebner, 1991).[42]

Young people's digital lives, family relationships, parental mediation and well-being – exploratory findings

Potential links between young people's assessments of their digital lives, experiences of parental support and their well-being have been shown in exploratory analyses of data from two surveys by The Children's Society.

Analysis of the 2020 household survey dataset comparing young people's ratings of the impact of their digital lives on family relationships with overall life satisfaction and 'happiness with your relationships with your family'[43] found:

- higher 'life satisfaction'[44] (a mean score of 7.0) among young people who reported a 'mostly positive' impact, compared to those who said the impact was 'mixed' or 'mostly negative' (5.9), or that there was no impact (6.6).
- higher scores for 'happiness with your relationships with your family' (8.8) for the same group, compared to those who said the impact was mixed or mostly negative (7.6) or that there was no impact (8.3).

In 2018-19, The Children's Society conducted an online survey, administered to Year 10 students (young people aged 14-15) from 16 schools in England. 560 young people responded to questions on the ways their parents supported them with their digital lives.

The majority (61%) said that parents had talked to them about what they did online and had done things like suggesting ways to use the internet safely (67%) or what to do if something on the internet bothered them (63%) – but a substantial proportion said that their parents had not done these things (e.g. around a quarter said their parents had not suggested ways to use the internet safely).[45] 28% of the sample said that their parents knew 'just a little' about what they did on the internet, and 10% that they knew 'nothing' about this – and 32% said their parents had not helped them in the past when something online had bothered them (although there were a high proportion of respondents who were 'not sure' about this – 16%).

Bivariate analysis of the relationship between the different forms of parental support and young people's life satisfaction, or how happy they said they were with their relationships with their family, suggested that there may be a positive link between reported support in relation to internet use and young people's well-being. Young people who said that their parents had 'helped you in the past when something on the internet has bothered you' had higher average scores for happiness with their relationship with their family (8.3) and for life satisfaction (7.0) than those who did not report this (7.1 and 6.4 respectively). A similar pattern in responses was found for positive responses to whether parents had 'talked to you about what you would do if something on the internet bothered you' (8.3 for happiness with family / 7.0 for life satisfaction for young people who said 'Yes', 6.8 and 6.2 respectively for those who said 'No').

While the sample is small for statistical purposes, the findings offer some indication of how parental mediation links to young people's well-being.

Links between online and overall well-being

Young people seem to be relatively happy with their digital lives – although it is important to be aware of when these data were collected – during the first national lockdown as part of COVID-19 restrictions in 2020 – a context which is likely to have affected how young people felt about many different things. Further research is needed, firstly to explore why young people gave these responses (including why some groups are less happy than others), and, secondly, to look at whether this remains stable during more 'normal' periods, and in the light of likely changes over time to the digital ecology of young people's lives.

Our exploratory analyses also suggest that where parents are supportive and enabling of a young person's digital life this may have wider benefits for their well-being – although further research with larger, representative samples is needed to explore this in more detail.

Initial testing of the links between online happiness and overall well-being (measured in terms of life satisfaction) found that these two issues – sometimes represented as being distinct from one another – are moderately aligned. This might suggest that distinguishing online activity from other aspects of young people's lives (e.g. for the purposes of considering impact) may be unhelpful, and that to obtain the most informative insights it will be important to understand the interdependencies between online and offline factors, including by asking young people themselves about why they say they are happy or unhappy about their digital lives.

Abbreviations

BBFC	British Board of Film Classification
CEOP	Child Exploitation and Online Protection Command
GCI	Good Childhood Index
IICSA	Independent Inquiry into Child Sexual Abuse
IWF	Internet Watch Foundation
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer / Questioning and Other
MCS	Millennium Cohort Study
OECD	Organisation for Economic Co-operation and Development
Ofcom	Office of Communications
ONS	Office for National Statistics
RCPCH	Royal College of Paediatric and Child Health
SDQ	Strengths and Difficulties Questionnaire
YRBS	Youth Risk Behaviour Survey

A full listing of references for this report is available. Please use the link on The Children's Society's website on our publications page – Resources & Publications | The Children's Society (childrenssociety.org.uk)

APPENDIX 1: Developmental changes during adolescence

Stage of adolescence	Physical	Cognitive	Social-emotional
Early adolescence (10-13 years old)	• Puberty – increased body hair, perspiration. • Girls – onset of menstruation; breast and hip development. • Boys – growth in testicles and penis, wet dreams, deepening of voice. • Rapid physical growth – weight and height gain. • Increased sexual interest.	• Growing capacity for abstract thought. • Primary interest in the present. • Intellectual interests expand. • Deeper moral thinking.	• Struggle with sense of identity. • Feel sensitive about one's self and one's body – worry about being 'normal.' • Increased conflict with parents. • Increased influence of peer group. • Desire for independence. • Tendency to return to 'childish' behaviour, particularly when stressed. • Rule / limit testing. • Increasing desire for privacy.
Middle adolescence (14-18 years old)	• Puberty completed. • Girls – physical growth slows. • Boys – physical growth continues.	• Continued growth of capacity for abstract thought. • Greater capacity for setting goals. • Interest in moral reasoning. • Thinking about the 'meaning of life.' •	• Intense self-involvement – changing between high expectations and poor self-concept (especially for girls in relation to body image). • Continued adjustment to changing body. • Tendency to distance self from parents, continued drive for independence. • Driven to make friends and greater reliance on them – 'popularity' can become an important issue. • Feelings of love and passion.
Late adolescence (19-24)	• Young women typically fully developed. • Young men continue to develop height, weight, muscle mass and body hair.	• Ability to think ideas through. • Ability to delay gratification. • Examination of inner experiences. • Increased concern for the future. • Continued interest in moral reasoning.	• Firmer sense of identity. • Increased emotional stability. • Increased concern for others. • Increased independence and self-reliance. • Peer relationships remain important. • Development of more serious intimate relationships. • Social and cultural traditions regain their importance.
Adapted from American Academy of Child and Adolescent's 'Facts for families' (2008)			

APPENDIX 2: Findings on effects on the physical health of children and adolescents of screen time from systematic review

DESCRIPTION OF STUDY

A systematic review uses a transparent approach (searching a number of named online databases for peer-reviewed research with distinct search criteria – terms and parameters) to establish the scope and quality of evidence on a particular topic. In their study, Stiglic and Viner conducted a review of systematic reviews, assessing the method used in the originally-published review*, to determine how much is authoritatively known about the effects on physical health and well-being of adolescents of screen-based activity. As such this was the most comprehensive source of evidence identified by our review, comprising summary evidence from a vast number of studies worldwide.

Condition or related behaviour studied	Strength of research evidence
Adiposity (Obesity)	Moderately strong evidence that high TV screen time is associated with adiposity – but insufficient evidence for other forms of screen time. Some evidence (moderate) that the amount of screen time and was relevant, but not enough to prescribe a particular threshold.
Cardiovascular risk	Weak evidence of an association between screentime and TV screentime and the metabolic syndrome (MetS – a combination of high blood pressure, diabetes and obesity). No clear evidence of links to individual risk factors.
Cognition, development and attainments	Weak evidence that screentime, particularly TV screentime is associated with poorer educational attainments and a negative effect on cognitive development in younger children.
Diet and energy intake	Moderate evidence of association of screentime (especially TV) with higher energy intake and less healthy diet.
Fitness	Weak and inconsistent evidence of an associating between screentime or TV screentime and cardiorespiratory fitness.
Mental health / well-being	*See full section.*
Sleep	Weak evidence that screentime is associated with poor sleep outcomes including delayed onset, reduced time asleep and daytime tiredness.

Categorisation used for strength of evidence	
'Strong'	Consistent evidence of an association reported by multiple high quality reviews.
'Moderately strong'	Consistent evidence across multiple medium quality reviews.
'Moderate'	Largely consistent evidence across medium quality reviews.
'Weak'	Some evidence from medium quality reviews or more consistent evidence from poor quality reviews.

*Quality of reviews assessed using Assessing the Methodological Quality of Systematic Reviews – AMSTAR – method (Shackleton et al, 2016).

Adapted from Stiglic and Viner, 2018.

[1] Even the youngest adolescents – those who are 10 years old in 2021 – are likely to have parents who were born in the early 1980s, which means their parents were teenagers themselves in the 1990s – an era when internet access and use was much more constrained (see ONS, 2019 for average age of parents when births are registered; the 'World Wide Web' was first invented in 1989).

[ii] 'Subjective well-being' is how people assess the quality of their own life. More information on children's subjective well-being, how this is measured and associated issues can be found in The Children's Society's 'Good Childhood Report' – https://www.childrenssociety.org.uk/good-childhood

[3] Data for 2020 from: https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/datasets/internetaccesshouseholdsandindividualsreferencetables

[4] https://www.statista.com/statistics/185663/internet-usage-at-home-european-countries/

[5] One of three categories used by Ofcom to record 'most' to 'least financially vulnerable' households – calculated combining household income and household size (including the number of children) – see https://www.ofcom.org.uk/__data/assets/pdf_file/0023/217823/children-and-parents-media-use-and-attitudes-annex-2020-21.pdf

[6] https://www.bbc.co.uk/news/av/technology-55582376

[7] PISA – Programme for International Student Assessment (See https://www.oecd.org/pisa/ for further details) The OECD Programme for International Student Assessment (PISA) started in 2000 and collects a range of academic data on 15 year olds, together with their subjective well-being. The seventh wave of PISA was conducted in 2018 and achieved a sample of around 600,000 15-year olds from 79 countries and economies. Over 13,500 children were assessed in the UK.

[8] Findings based on the American Time Use Survey (2014-2017) https://www.pewresearch.org/fact-tank/2019/02/20/the-way-u-s-teens-spend-their-time-is-changing-but-differences-between-boys-and-girls-persist/

[9] In 2019 Ofcom found that although almost half of parents are aware that WhatsApp has an age requirement, only 5% knew that 16 is now the required age.

[10] Casual or low paid workers, the unemployed and pensioners (D), unskilled or semiskilled workers (E) (NRS classification).

[11] Measured by having had access to free school meals.

[12] The sample for this study makes it hard to know how representative of all NEETs this group was – but it was majority female (64%) and the findings may underplay the level of digital exclusion of the most disadvantaged NEETs (who are not signed-up to programmes such as those coordinated by The Prince's Trust). http://www.lse.ac.uk/media-and-communications/assets/documents/research/projects/disto/Methodology-report-DiSTO-NEETs.pdf

[13] Austria, France, Germany, Ireland, Italy, Norway, Portugal, Romania, Slovenia, Spain and Switzerland.

[14] https://www.pewresearch.org/fact-tank/2018/11/28/teens-who-are-constantly-online-are-just-as-likely-to-socialize-with-their-friends-offline/

[15] https://www.nhs.uk/live-well/sleep-and-tiredness/sleep-tips-for-teenagers/ ; https://www.bupa.co.uk/newsroom/ourviews/sleep-patterns-in-teenagers

[16] 'Effect size' shows the strength or magnitude of the relationship between variables in an analysis (a low score means a weak effect).

[17] Drouin, Coupe and Temple, 2017; Silva and Teixeira, 2016.

[18] However, there were wide disparities across studies – e.g. a Dutch study found that prevalence was 6% for males and 19% for females (Baumgartner et al, 2010)

[19] The findings from surveys in these studies may have been compromised because the young people who took part may have been monitored / overseen by parents (some of the sample – Martellozzo et al, 2020 – or all of the sample – BBFC, 2020).

[20] Hyper gender orientation generally refers to an individual's tendency to accept highly stereotypical gender roles in terms of (sexual) relations to the opposite sex (Vandenbosch, 2015: p441).

[21] https://www.everyonesinvited.uk/

[22] e.g. https://www.bbc.co.uk/news/uk-england-london-56549070 : https://www.bbc.co.uk/news/education-56588166 : https://www.itv.com/news/2021-06-09/everyones-invited-names-almost-3000-schools-following-claims-of-sexual-assault-rape-and-harassment

[23] For full methodology, see https://www.gov.uk/government/publications/review-of-sexual-abuse-in-schools-and-colleges/review-of-sexual-abuse-in-schools-and-colleges#conclusion

[24] This figure is far higher than other research – using more rigorous methods – has found. For example, a recent study by the ONS asked a nationally representative sample of 13-15 year olds about their experiences of receiving 'sexual messages' ('photos, images, videos or text that can be sent through messages in online games, chatrooms, social media or in any other online way' – ONS, 2021: p19). 10.8% of young people said they had received such messages; 1.1% said they had sent them (ONS, 2021).

[25] This echoes findings from interviews with 16-18 year olds as part of research commissioned by the British Board of Film Classification on young people's exposure to and use of online pornography (BBFC, 2020).

[26] BBC News (2019) Self-harm content grooms people to take their own lives. https://www.bbc.co.uk/news/uk-47127208. Calls for Instagram to address the issue of 'graphic content' – imagery of self-cutting or burning, and of wounds – led to a ban in 2019, and to the introduction of online tools to automatically identify and remove imagery in 2020 [BBC News (2020) Instagram: New tools to ban self-harm and suicide posts. https://www.bbc.co.uk/news/technology-54903428].

[27] Co-SPACE uses a convenience sampling method – i.e. families have volunteered to join the sample since the start of the pandemic – and, as a consequence, the study is not representative of the UK population.

[28] For example, two stories on the BBC News website published within four months of each other in 2021– the first with the headline 'Social media damages teenagers' mental health, report says' (https://www.bbc.co.uk/news/technology-55826238), the second entitled 'Teens, tech and mental health: Oxford study finds no link' (https://www.bbc.co.uk/news/technology-56970368).

[29] Pew Research Centre https://www.pewresearch.org/fact-tank/2019/03/22/how-parents-feel-about-and-manage-their-teens-online-behavior-and-screen-time/

[30] Interestingly the same study found that an 'indulgent' parenting style was associated with the highest levels of 'self esteem' in young people, reported in relation to academic, social, emotional and family domains.

[31] Subjective well-being' is a person's assessment of their quality of life. For a full explanation see The Good Childhood Report, 2020.

[32] Responses for device use were not mutually exclusive – i.e. young people may have had access to more than one device to go online.

[33] Responses were compared by age group (10 to 13 and 14 to 17) and whether from a White/minority ethnic group. More detailed analysis (between specific ethnic groups) was not possible due to sample sizes.

[34] Young people were asked to think about the situation when they were attending school as normal, rather than the period of COVID restrictions that were in force when the data was collected.

[35] Reported percentages exclude a small number of young people who said that they preferred not to say how much time they spent online.

[36] This study used the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) – a 14-item scale measuring happiness, life satisfaction, psychological functioning, and social functioning (Tennant et al, 2007).

[37] The same was true for those who reported no time spent on screens – the mental well-being of young people who reported no time spent playing games online, watching TV or movies or using computers was lower than peers who did these things for moderate amounts of time.

[38] The only exception was for excessive smartphone use at the weekend – which the researchers suggest may link to dysregulation (reduced ability to manage emotions) or displace the benefits of social activities.

[39] Pearson correlation coefficients significant at 0.01 level.

[40] All items except *amount of time you can spend online* made a significant contribution at 0.01 level to the model which explained 66% of variation (adjusted R^2).

[41] Pearson correlation coefficients significant at 0.01 level.

[42] Models containing i) GCI items, and ii) GCI items and happiness with life online explained 46% (adjusted R^2) of the variation. Happiness with life online did not make a significant contribution to model ii) at 0.01 level.

[43] One of 16 items in the Good Childhood Index (The Children's Society, 2010).

[44] Based on scores from a scale consisting of 5 items with a total possible score of 0-20 (Huebner, 1991).

[45] n.b. This includes 'not sure' responses.

Every young person should have the support they need in order to enjoy a safe, happy childhood.

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