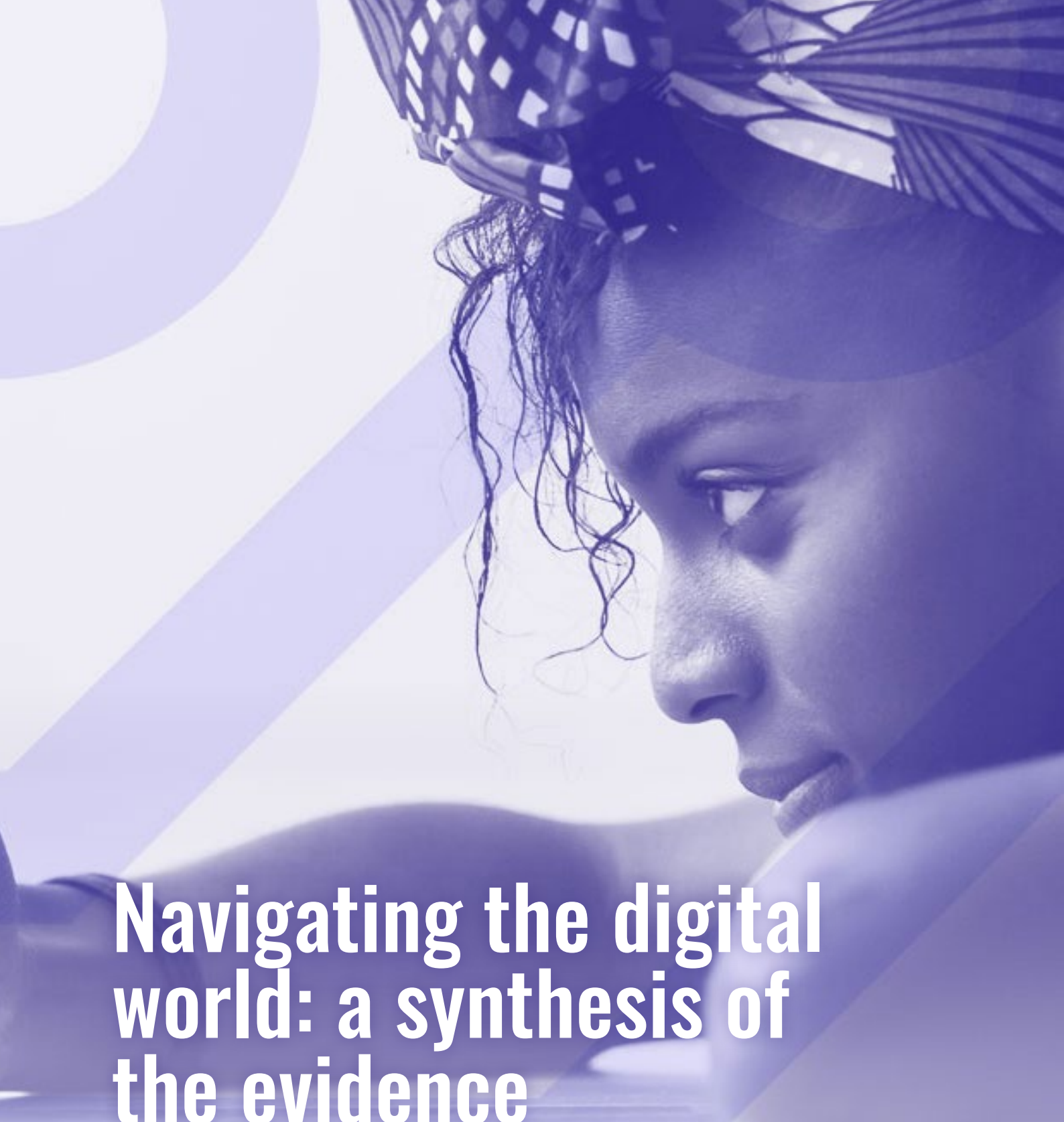

Navigating the digital world: a synthesis of the evidence

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#FOOTPRINTS

Contents

1.0 Introduction

This report presents the findings from a scoping review of the literature on children and young people's interactions with the digital world, which was carried out by Ecorys between May and August 2020. It forms the first output from the #FOOTPRINTS project – a collaboration between Ecorys and the Anna Freud National Centre for Children and Families (AFNCCF), which aims to re-assess the role of schools within young people's interactions with the digital world.

Aims and scope

The review aimed to provide a synthesis of the latest research evidence, building upon, and updating, the previous 2016 Ecorys publication: *Resilience for the Digital World*[1]. It has been structured around two main themes, and eight key research questions, which are outlined below.

A. Young people's digital lives – key drivers and trends

- **A1.** What are the ways in which young people interact with the digital world, and how do these relate to their offline lives and relationships - at home, in school, and within their neighbourhood?
- **A2.** To what extent are young people's interactions with the online world moderated by their age, gender, ethnicity, sexuality, socioeconomic background, and other personal characteristics?
- **A3.** To what extent have young people's patterns of internet use changed over the past decade, and what are the main factors driving these changes (e.g. socioeconomic, and technological)?

B. Risks and opportunities presented by the online world

- **B1.** What risks are presented by the digital world, and for whom / in which contexts? What is the nature and prevalence of different kinds of online harms?
- **B2.** What opportunities are presented by the digital world, and for whom / in which contexts?
- **B3.** What kinds of positive outcomes are associated with young people's online lives, and how are these measured?
- **B4.** How is digital resilience defined? What knowledge, skills and behaviours are needed for young people to stay safe and become resilient online?
- **B5.** What is the role and influence of peers, siblings, parents, schools, and other stakeholders in supporting young people to become resilient online?

Adopting the principles of systematic reviews, the scoping review informing this paper was based on a search strategy and protocol which generated over 57 controlled searches of keywords and phrases through Google Scholar. The search was limited to publications produced after 2016, with a focus on literature from the UK (priority) and Europe, and children and young people aged 0-25 years, prioritising the 11-18 age group, corresponding with early-to-mid adolescence. The inclusion criteria combined an assessment of methodological relevance, quality, and research question applicability. The Research Protocol is presented in Annex One.

Study context

In a 2003 article on Children's Use of the Internet, Professor Sonia Livingstone foresaw that "over the coming decade the internet will become taken for granted in our homes, meaningfully embedded in the routines of daily life across the industrialised nations"[2]. Nearly two decades later, it is clear that these assertions were correct. In 2003, only 43% of households had access to the internet and, that year, mainland UK got its first 3G mobile network "enabling callers to see each other and send video footage via their phones"[3]. Data from 2020 demonstrates that 96% of households now have an internet connection and mobile data consumption has become a major component of global warming. The increased functionality of the internet explains why 89% of adults in the UK today use the internet on a daily basis compared to only 35% in 2006.

The growth and prevalence of the internet has had a particular impact on those growing up under this new technological wave; the so-called 'digital generation'[4]. Across the world, under-16s are spending the most time online compared to any age group[5]. The internet provides young people with unprecedented opportunities to engage in new and immersive recreational and learning activities, as well as enabling young people to socialise, explore their identity and sexuality, and foster a sense of communality[6]. The internet has become so integral to young people that those who choose not to engage online face social exclusion, and many find it difficult to distinguish between the "online" and "offline" world[7].

Paradoxically, however, the new generation of "digitally native" youth have also been labelled as amongst the most vulnerable online and, in a world created "for adults", it is clear that these risks are certainly real[8]. These range from exposure to potential harm when young people interact with their peers online, to the harmful effects of sexual, violent, or extremist content or predatory adults. A common argument is that, while young people may possess digital skills which older generations lack, the unregulated nature of the internet exposes them to inappropriate content and unprecedented levels of freedom. This, coupled with their undeveloped cognitive ability to perceive danger, puts young people at greater risk of harm than adults. Primary research evidence shows that this view of the online world is popular amongst parents and teachers, leading to the use of strict "meditative controls" to stop young people from encountering risk online[9]. This includes restricting the amount of time spend online, blocking content and actively or passively monitoring online activity.

The debate around how vulnerable young people are online has, nonetheless, been extensively reviewed over the past few years. A growing proportion of commentators acknowledge the complex interplay between opportunity and risk on the internet[10]. In doing so, they draw upon the view that 'risk' is an ambiguous concept and that, while it can be used in an objective sense (e.g. the statistical risk of an unwanted event happening), there are often different interpretations between individuals as to what constitutes 'risky behaviour', what exactly is meant by an 'undesirable event', and the level of harm caused by such events. This subjectivity particularly applies when looking at how adults and young people distinguish between what is an 'opportunity' or a 'risk' online[11].

There are also clear challenges in implementing parental meditative controls and, while the majority of the literature on this topic endorses this type of approach, meditative actions encourage young people to find ways to bypass security features and discourages them from seeking support when they encounter online risk[12]. This is compounded by the fact that a not insignificant proportion of parents, particularly those from disadvantaged backgrounds, do not feel confident online[13]. Perhaps more importantly than this is the fact that taking risks and learning from mistakes is a key part of adolescent development, with evidence showing that the more time young people spend online the more likely they are to encounter harmful content but, equally, the more able they are to manage the risks associated with having had some exposure[14].

This review explores the debates and themes outlined above. Beginning with an overview of the changing nature of internet consumption amongst youth in the UK, it then offers a detailed overview of the opportunities and risks afforded by the online world. Finally, it explores how parents and other responsible adults navigate the nuanced and complex terrain of online safety and mediation strategies. Looking at workable means in which to protect young people online, this paper explores the concept of "digital resilience" and the importance of controlled exposure to online risk.

2.0

Understanding young people's online consumption

Youth (ages 15–24) is the most connected age group. Worldwide, 71 per cent are online compared with 48 per cent of the total population… Children and adolescents under 18 account for an estimated one in three internet users around the world.

(Keeley and Little, 2017, p.5)

The literature demonstrates that, over the past decade, the internet has become far more important to young people during crucial developmental years. There is, however, growing evidence of a "digital divide" between rich and poor, and different patterns of use amongst boys and girls, all of which combine to shape the nature of online activity as well as the type and severity of risks encountered (as discussed later in this paper). Moreover, there has been a growing understanding that there is often little to distinguish between the 'online' and 'offline' world in young people's lives. In exploring these trends, this section will provide the context for exploring some of the nuances and debates around risks and opportunities online, and appropriate ways to protect young people as they navigate their way through the digital world.

Changing trends in young people's online behaviour

Globally, young people represent the most "connected age group"; 71% of 15-24-year-olds are online in comparison to just 48% of the world's population[15]. Unsurprisingly, young people are spending a greater amount of their time online than previous generations. In the UK, the number of hours spent online per week increased from 9 to 15 hours between 2007 and 2016[16]. Data from the EU Kids Online survey indicate similar trends across Europe. Notably, only 4% of young people do not have access to the internet[17] and the amount of time spent on the internet has increased by half in the last decade[18]. Other studies that measure a more general "screen time"[19] or time spent on technology[20], found young people spend, on average, 6 hours per day on screens or 7.5 hours per day using technology.

These trends are, in part, enabled by new technologies that have made accessing the internet anywhere and at any time plausible. A prominent theme within the literature is that these technologies have changed how young people interact with - and via – technology and have integrated the online world into young people's everyday lives. In some instances the lack of boundaries between young people's online and offline worlds manifest quite literally: online content is translated into offline activities as children emulate the activities of influencers[21]; online conflict spills over into the school playground and vice versa; and offline relationships can form, be maintained and be broken online[22].

The ways in which young people access the internet has shifted from static and shared modes of accessing the internet (such as through desktop computers), to mobile and personal devices. In Europe, 80% of young people access the internet by smart phone, whereas only 43% access it by desktop or laptop computer[23]. Smart phone ownership has increased, and young people report this as their preferred means of going online[24]. In the UK, young people are more likely to own a tablet and less likely to own a smartphone than in other European countries[25]. This shift to transportable devices allows young people to access the internet away from supervised spaces and with increased autonomy[26].

In addition, there are now many more things to do online, and everyday social and entertainment activities increasingly involve online engagement. The types of activities young people engage with include: listening to music; watching movies, series, or videos; participating in social networks; messaging friends or family; playing games; completing homework; looking up information; and uploading photos[27]. The offline activity of watching shows and movies on a standard television can now be done online via a smart TV or through websites such as YouTube or Netflix. Similarly, listening to music via a CD, cassette tape or record, can now be achieved via online applications such as Spotify or YouTube. While these new trends have impacted upon both younger and older generations, research shows that young people's online consumption does differ to adults. Young people, for instance, favour YouTube over "more polished" platforms (such as Netflix), and are setting the trend for new social media platforms such as Twitch and TikTok[28].

Activities online are frequently more dynamic and connected than their offline equivalents. As well as going online to consume content (watching shows, passive social media), young people are also able to actively produce content. In general, young people spend a greater proportion of time consuming rather than producing online content[29], although the difference decreases with age[30]. Young people increasingly access multiple forms of media simultaneously[31] and online activities often serve multiple and integrated "purposes" (such as entertainment or communication)[32]. Many online games, for instance, which would have been understood as entertainment, also contain chat and communication functions.

These trends present a challenge for adults – parents, teachers, and researchers – who may still think of the online and offline as distinct[33]. Livingstone et al. note that research needs to focus not only on how young people engage with the internet, but how their relationships are mediated through the internet and how this impacts their social realities[34].

Demographic differences

The ways in which young people use the internet - how much time they spend online, how they access it and what activities they do - are mediated by a number of demographic factors such as age, gender, and socioeconomic background, as well as individual factors such as personality traits and preferences[35].

Socioeconomic inequality effects young people's access to and use of the internet – known as the "digital divide"[36]. Although there is general agreement that this impacts on young people, Livingstone et. al note that there is a lack of clear evidence on how it manifests. Young people from low income households are not less likely to own, have access to, or use a mobile phone. However, disparities arise in the range of devices young people have access to, how frequently they go online, and the content they access. One study found that "non-users and occasional users of the internet were more likely to come from working-class families, while frequent users were more likely to come from middle-class families"[37]. Disadvantaged young people are less likely to report using the internet at home, other places, and when out and about than those from middle or high socioeconomic backgrounds. Notably young people from middle and high socioeconomic backgrounds are twice as likely to report using the internet at school than those from low socioeconomic backgrounds, suggesting the digital divide extends from the home and into young people's schooling[38]. Children from higher income families are also twice as likely to report accessing educational materials online than those from lower income families[39].

Age has a strong influence on a young person's access to and use of the internet. The vast majority (98%) of 12-15-year olds are using the internet at home, compared to 67% of 5-7-year olds[40]. 15-16-year-olds are more likely to use smartphones daily and spend on average 4 hours per day online. This is around double that of 9-11-year olds[41]. The types of activities young people engage in also change as they get older. Younger children spend most of their time online playing games and least on social networks. Older children spend most of their time listening to music and social networking. They are also more likely to use the internet for content creation (music, blog, video) or civic participation[42]. Watching videos online and homework takes up a consistent proportion of young people's time online, across age groups.

In comparison to age, gender has a smaller effect on the amount of time young people spend online[43]. Boys report spending slightly more time online; with findings from the UK showing that boys spend around 30 minutes per day longer online than girls. There are minimal gender differences in how much time young people spend on different activities online or in how they access the internet, with the exception of gaming[44]. Whilst gaming is gaining popularity amongst girls, it is still more prevalent amongst boys[45]. In most European countries around twice as many boys play games online daily than girls[46]. Similar numbers of girls and boys report using the internet at home and when out and about, however more girls than boys report using the internet "at school" and "in other places"[47].

3.0

The risks of the online world

What were once 'analogue risks', such as bullying, and harassment, are not just mimicked online but exaggerated and altered — forcing us to reassess how we respond… Just as young people need to learn fast to thrive in a society that is increasingly digital-by-default, so must we.

(Ashworth, C. (foreword), in Green et al., 2019, p. 3.)

So far, we have considered how young people's ability to access digital technology has grown exponentially over the past decade. The "online world" has now become a core part of young people's routine, so much so that a large proportion of daily life is now devoted to using the internet for activities like gaming and social media. Yet, with limited content for adolescents, young people who engage online find themselves very quickly in a world "built for adults"[48]. Due to "biological changes" associated with puberty making teenagers "more impulsive, more prone to attention seeking behaviour and demonstrating a higher sexual drive", it is no surprise that young people become increasingly exposed to risk online as they get older[49]. This includes:

- perpetuating gender norms
- consumption of pornography
- cyberbullying and peer conflict
- excessive use of the internet
- exposure to online exploitation
- exposure to harmful content
- privacy concerns and young people's "digital footprint"

This section will explore the risks outlined above, demonstrating how these manifest online and the potential harms caused. We also discuss the groups at most risk for each of these categories. In general, however, it is important to note that most adolescents do not exhibit signs of high risk behaviour online and that, across the general youth population, there are only a small minority of young people who fall into this category[50]. Instead, those at increased risk are more likely to demonstrate anti-social tendencies offline, have offline vulnerabilities and/or disabilities[51]. Vulnerable groups also include those from disadvantaged backgrounds, LGBTQ+ youth, those with special needs or mental health issues, individuals with issues in the home, young carers, and those not in education, employment, or training (NEET)[52].

Perpetuating gender norms

The literature shows that young people's internet use often serves to perpetuate gender norms[53]. As a space in which young people experiment with self-presentation, the internet plays a key role in the development of identity and self-concept of young people. In a study of teen chat sites, Ybarra and Mitchell found that boys and girls "present themselves with traditional expressions of femininity and masculinity, respectively". Ringrose similarly found that social media platforms such as Facebook, Instagram and Snapchat are places of "normative forms of gendered and sexualised self-representation"[54]. Gender norms influence how young people's online actions are judged by their peers and adults alike and can lead to girls being judged more negatively than boys for the same actions. For instance, girls who engage in sexting are seen to be 'a bit slutty' or 'vulnerable' whilst boys are seen as 'confident'[55]. Girls recognise these "double standards": "It's a common practice. You're slut shamed if you send them, but guys are praised for getting them".

The relationship between Intimate Partner Violence or Abuse (IPVA) and the online world

There is a high prevalence of abusive behaviours in young people's interpersonal relationships. The nature and prevalence of Intimate Partner Violence or Abuse (IPVA) varies highly between countries[56], as it is related to the cultural norms of that country. A survey in the UK found that 75% of girls and 50% of boys aged 14-16 years-old who had been in relationships had experienced online or offline emotional abuse[57]. Digital media enables new channels through which IPVA behaviours can occur 58, and the use of social media in perpetrating abuse can increase the severity of its impact[58]. On SnapChat, for instance, a user's score increases whenever the app is used, allowing a partner to monitor how much time you are spending on the app[59]. Some young people in this study stated that they felt uncomfortable with the level of insight these features allow, but that it was difficult not to use them when they were available.

The literature suggests that online emotional abuse is most widely experienced by young people. A qualitative study of online IPVA in 5 European countries found that all participants (67 females and 24 males) had experienced controlling and monitoring behaviours by their partners[60]. This consists of behaviours such as demanding access to a partner's social media accounts, monitoring who they talk to and/ or telling them who they can and cannot talk to[61]. Other online abusive behaviours include spreading rumours or sharing embarrassing photos of their partners[62], pressurising a partner to 'sext' or engage in sexual activities, and sending unsolicited sexual photos. In some instances, boys coerce girls into sexting via instigating a 'nude-for-nude' exchange[63]. The boundaries between online and offline IPVA are blurred and the two are often closely interrelated. For instance, sexual coercion occurs more frequently offline, yet the impact of this abuse can be intensified by sharing images online[64]. It is likely that young people who experience one will also experience the other[65].

Girls are more at risk of IPVA and experience more emotional, physical, and sexual abuse than boys overall. Girls also experience more negative impacts of both online and offline IPVA than boys. They are more likely to feel scared or upset when they experience IPVA whilst boys report feeling annoyed or amused by their partners behaviour. As noted by Aghtaie et.al, gender stereotypes can act to normalise both controlling and sexually coercive behaviours in boys, as they are understood as needing to "be in control" or "focussed on sex"[66]. In some instances, where young people raise concerns about behaviours with adults, their responses can reinforce these stereotypes and normalise abusive behaviours.

Consumption of pornography amongst young people

The literature emphasises that exposure to online pornography can also carry risks for young people. 65% of 15 years olds have seen pornography online, either intentionally or accidentally[67]. Boys are more likely to watch pornography deliberately and more frequently than girls. The proportions of young people wanting to emulate things they have seen in pornography increases with age (42% of 15-16-year olds, compared to 21% of 11-12-year olds) and is gendered (44% of males compared to 29% of females).

There is a risk that both boys and girls learn "hegemonic sexist attitudes", through the negative stereotypes of women portrayed in the majority of free online pornography[68]. Higher consumption of online pornography is linked with increased stress responses and damage to self-esteem in both boys and girls. However, girl's self-esteem is more negatively impacted and is affected both by their own pornography consumption and that of their partners. Consumption of more sexually violent pornography contributes to male attitudes that are more likely to support and enact violence against women and can thus contribute to the issues of IPVA 68. As noted by Ainsworth-Masiello and Thomas, pornography is part of a wider media culture that "predominantly represents women in passive and (sexualised) stereotyped roles".

Cyberbullying and peer conflict

Cyberbullying is "intentional" and "repetitious" behaviour designed to cause harm to another individual where the "balance of power" is in favour of the perpetrator rather than the victim[69]. While these criteria apply to bullying generally, cyberbullying is unique in that it enables the perpetrator to act anonymously and in a larger public forum – further shifting the balance of power and enabling the perpetrator more opportunity to cause greater emotional stress. Furthermore, cyberbullying is more likely to occur at home than physical bullying and those who would not usually be susceptible to bullying due to their physical prominence may become online victims due to their inability to fight back in a traditional way[70]. The remote nature of cyberbullying also means that the perpetrator is "removed" from the situation which "reduces the role that empathy plays in the interaction, as well as the feeling of accountability for their actions"[71]. Evidence shows that victims of cyberbullying are also more likely to be perpetrators, and vice versa, showing a complex psychological cycle[72]. According to Helsper et al., this victim/ perpetrator "duality" is extremely damaging to mental health, putting both victims and perpetrators of cyberbullying at greater risk of depression and suicidal thoughts.

Amongst young people, cyberbullying is most common in the over-14 age group, due to increased use of social media and mobile phone devices during the early teenage years. Cyberbullying is also associated with online gaming[73]. Around 20% of those between 8 and 15 have reported experiencing some form of bullying (either offline or online)[74]. The risk of becoming a victim of cyberbullying increases with the amount of time spent online, with those spending ten hours or more on social media reporting being exposed to some form of cyberbullying episode(s)[75]. The literature shows that LGBTQ+ individuals are more likely to be cyberbullying victims, while those exhibiting traits of masculinity (both boys and girls) are most likely to be perpetrators[76].

While cyberbullying has a very specific definition, those who engage in online forums also face emotional distress due to peer conflict. The extent to which this affects young people is regulated by several conditions, including cultural background and gender. Green et al., found that 59% of girls feel that social media is a "major cause of stress", while Novin et al. identified that ethnic minority groups who had experienced racism or discrimination in the past were more likely to have an adverse reaction to peer conflict than those from non-minority groups[77]. These conflicts can also transcend offline, with a propensity for online disagreements to spill over into the real world. Malvini et al., for instance, noted that it was not uncommon for conflicts on social media to lead to physical violence at school[78]. The reverse is also true, with conflicts occurring offline being "played out" online, creating further risk of "escalation in a more public setting".

Cyberbullying and peer conflict are also linked to the phenomenon of digital "self-harm". This is where young people may emulate cyberbullying or peer conflict by "self-harassing" themselves using an anonymous or false profile in a public forum[79]. This may be done as a "cry for help", to "look cool", or to seek attention from peers. Engagement in digital self-harm is more prevalent amongst those aged between 13 and 14, those that identify as LGBTQ+, or those with a disability.

Excessive screen time

While the "causal relationship" between spending time online and poor mental health is backed up by weak empirical evidence, guidance from the UK chief medical officer advices on striking a balance between spending time online and healthy living –emphasising the importance of sleep, education, safety, spending time with family, and exercise[80]. Recent literature has examined the relationship between online behaviours and addiction, with online gaming a concern for young men[81]. Research has shown that addiction to online games and technology can also continue into early adulthood[82]. There have been concerns raised that overuse of the internet can detract from other worthwhile offline activities such as exercise, socialising, and other more traditional recreational activities (such as reading)[83]. The literature also emphasises that "addictive" behaviour online can cause young people to "neglect their well-being, resulting in depression, sleep deprivation, loneliness and a deterioration in grades"[84].

Exposure to online exploitation

Another commonly cited risk in the literature is that of grooming and sexual/ criminal exploitation. This is further exacerbated by the anonymity afforded to online users, which can hide their identity and intentions. The research shows that over 20% of young people have shared personal information online, including their names information about their schools and/or photographs with individuals they had never met offline[85]. Young people may be motivated to do so, for instance, by the promise of "something in return", such as a video game[86]. The literature emphasises that girls are at greater risk of exposure to grooming and sexual/ criminal exploitation, which may be explained by their patterns of use; with "passive Facebook activity" making them more likely to come across profiles of people that they do not know[87].

At the most extreme end of the spectrum, interacting with strangers online can increase the risk of young people being exposed to grooming and sexual or criminal exploitation. While the level of harm is significant when it does occur, cases of child grooming by adults are rare, with "less than 1% of youth" in Ybarra et al.'s study "having shared a sexual photo or had a sexual conversation with someone online five years of age or older"[88]. Similarly, Livingstone found that the majority of young people (70% of girls and 79% of boys) had never been sexually solicited online[89]. In terms of criminal exploitation, the use of "remote mothering and online collateral" is also used by criminals to recruit young people into gangs and for drug trafficking[90].

Exposure to harmful content

Young people are likely to come across 'harmful content' online. This includes exposure to pornographic material, hate speech, unregulated advertisements and websites associated with self-harm and suicide. While some young people take action to limit their exposure to unwanted content (such as blocking content or reporting it to an adult) the majority are likely to simply "ignore it"[91]. Research demonstrates that younger children and girls are more likely to report content when they come across it compared to boys[92].

Examples of harmful content beyond pornography include exposure to extremist or hateful material, with half of those aged between 12 and 15 coming across content which was "hateful" towards a minority group[93]. Whilst rare, this includes using the internet to facilitate the recruitment of young people into terrorism through radicalisation[94]. Exposure to subliminal advertising can also pose risks to young people who may not always be able to identify when influencers are being paid to promote a product or when it is used in a game[95]. Unregulated advertisements online can expose young people to potentially harmful products, such as junk food, which can promote unhealthy lifestyle choices[96]. Those under 8 years old are more likely to be influenced by online advertisements than older young people. Furthermore, Marchant et al. identified that, due to social media sites "normalising and reinforcing self-harm … 15% of girls and 26% of boys reporting that either the internet or social media had influenced their self-harm"[97].

Privacy concerns and young people's "digital footprint"

There is also the risk of long term reputational or legal harm associated with what young people share online. Issues around privacy mean that young people's "digital footprint" can be difficult to erase completely, particularly if content is shared publicly as information can be stored by websites and offline[98]. The literature emphasises that young people "frequently portray risky health behaviours on social media, such as illegal alcohol use or overuse, illicit substance use, high-risk sexual behaviours, and harmful behaviours, such as self-injury and disordered eating"[99]. Not only does this encourage other young people to engage in this behaviour, but can also have long-term legal, reputational, or emotional repercussions[100]. Malvini et al. found, for instance, that teens are likely to regret posting or sharing content which is hurtful to others or sexual in nature[101].

4.0

The importance of the internet for young people's development

"Since digital contexts are ubiquitous, it is clear that youth use them in the service of developmental tasks such as formation of identity, pursuit of intimacy, and development of sexuality".

(Hatchel, Tyler et al., 2017, p. 61)

In the previous section, we discussed how the internet poses a wide range of risks to young people. However, the online world is also a source of opportunity[102]. These opportunities range from the recreational, to the creative cultural and educational. Online spaces provide places for children and young people to find, explore and develop their own creative, political, and personal skills[103]. Yet, while all of these are significant benefits, the online world has become far more fundamental than merely a 'useful' or 'entertaining' tool. Arguably, it is central to the social and emotional development of young people. This section will focus on the internet as a source of development for youth, focusing on how it has become integral to identity formation and socialisation and, for most, has gained central importance in their lives.

The internet as a source of discovery, community, and self-esteem

The internet can be used as a resource to enable young people to "try out different presentations of the self" 104. While this is an under researched area, the literature is clear that young people's understanding of who they are goes through crucial development during adolescence. Research has found that most young people find it easier "to be themselves online at least sometime", and the literature points to the internet as a key source of developing social, personal, and sexual identity[104]. Explorations of "self" can be done, for instance, through the creation of multiple social media accounts where young people engage in discussions and post content aimed at diverse audiences[105].

Young girls particularly are more likely to use the internet to explore presentations of the self in comparison to boys[106]. This relates to management of their physical appearance as much as it does to social and emotional development. Ofcom, for instance, found that the use of "filtering apps" were common amongst adolescent girls who use "hyper-real and aesthetic filters" to alter their facial appearance[107]. In addition, research shows that, for LGBTQ+ teens especially, the internet is a powerful tool to seek out support and develop an understanding of self[108]. Blogging or communicating online about sexuality enables young LGBTQ+ individuals to feel "empowered", while the risk of harm is lower due to the remote nature of online communication. Exposure to pornography, while identified as a risk above, can also provide information about sex. Particularly for LGBTQ+ youth, it can offer them the ability to explore their sexuality "in the absence of diverse and inclusive formal relationship and sex education"[109].

Linked to the idea of developing an ideal "self", use of the internet can help raise confidence, esteem, and civic awareness[110]. This use of social media for girls' self-esteem is particularly important and the growing number of so-called online "influencers", for instance, allow young people to identify with people who are most like them and issues they care about, with a more recent influx of "micro" or "nano" influences creating more opportunities for locally based networks[111]. Other areas which enable youth to engage with like-minded people, or to co-create communities, include online "fandoms" where people can discuss common interests usually related to popular culture[112]. Related to this, the internet further provides opportunity for youth to explore community interests, including political interests and good causes. Disabled young people also find that the internet is a place where they can engage with others anonymously and avoid the type of stigma they may get from face-to-face interaction[113]. Research suggests that young people with mental health concerns often use the internet as "a gateway to psychological support" and as means to engage with others[114].

For each of the points above, there are evidently drawbacks. In addition to some of the risks associated with the online world, particularly when it comes to sexual expression and the risk of cyberbullying or hurtful feedback online, navigating through these ideas of self-expression can create "tension" for young people in terms of "'multiplicity' and 'consistency' of identity"[115]. Managing these identities can sometimes be overwhelming for young people as they try to steer through different platforms to illicit a positive response from diverse audiences. It is also important to note that, for LGTBQ+ people, the online world is not a "substitute" for face-to-face interaction[116]. However, despite the challenges, young people actively seek out online opportunities to understand and express themselves in ways not possible offline – demonstrating that, from their perspective, the internet is a valuable developmental tool.

The online world and social development

It is also important to emphasise the importance of the internet for forming and maintaining friendships and communicating between peers. As outlined by Malvini et al., "especially for youth, relationships are not cleanly distinguished between online and physical communities as 'young people integrate on- and offline communication in order to sustain their social networks, moving freely between different communication forms'"[117].

While the move to online peer relationships is not always positive (see the section on peer conflict above) there are also clear benefits, with the use of smartphone technology and mobile internet enabling young people to be included in peer groups without the need to be physically present and expanding access to social networks between marginalised groups[118]. Day also emphasise the role of social media in giving young people "autonomy" and more determination over the friends they have and the relationships they make[119]. In addition, gaming allows young people to exercise their agency and creative choice, developing their participation that occurs in the offline world into "playful" and "virtual" spaces that are outside formal education. Through gaming, young people interact with people outside of their 'usual' offline networks, as well as gaining new knowledge and forming their worldview – especially of importance for children and young people with 'minority' identities[120].

Regardless, however, of whether the online world has a positive or negative influence on youth social development, the blurring of online and offline means that access to the online world has become integral for young people to fit in with their peers and to avoid social exclusion. As identified by Marchant et al., there is correlational evidence to show that young people do indeed "miss out" on social and support opportunities without online access[121], unsurprising given that nearly all of those aged 15 or over have a social media profile[122]. Furthermore, social media "likes" or number of followers has become integral to a young person's ability to feel socially accepted[123]. As Smith et al. outline, "media technologies are embedded parts of family life, friendship, identities and romantic relationships"[124]. Youth that are systematically excluded from online networking may thus lose out on key development opportunities[125].

5.0

Risk, opportunity, or both?

"Inevitably … changing modes of online interaction present both opportunities and risks. The integration of online gaming with social networking provides more fluid social interactions between peers, irrespective of location or geographical distance, but it also removes the layers of 'protection' afforded by more traditional gaming formats."

(Day, 2016, p. 22)

Throughout this review we have identified that, while exposing young people to a myriad of risks, ranging from online grooming and cyberbullying to reputational harm and conflict with peers, the internet has become a core component of their lives; so much so that the distinction between the online and offline is difficult to make. For contemporary youth, digital technology, and the internet present opportunities for identify formation – offering unprecedented opportunities for young people to meet likeminded people and explore 'who they are' without the need to move away from their communities. The growth of the internet has also revolutionised the way in which young people socialise. This has created opportunities for young people to communicate remotely, which has proved particularly important during the Covid-19 crisis.

There is a body of evidence which acknowledges the importance of avoiding the pitfall of "framing teen experiences [online] as wholly harmful" as this undermines the importance of the internet to young people and demonstrates a lack of understanding around what "growing up in a digital age entails"[126]. Taking this one step further, focusing on online risks or opportunities as separate does not consider that the digital world is extremely important for young people "in terms of their embodied, located and social as well as online selves"[127]. It is particularly important to note that risks and opportunities on the internet are interconnected and "reflect the complexity of the internet as a source of mass-produced content and a space for interaction"[128]. As such, Livingstone et al. outlined that "risks and opportunities should not be addressed separately by either researchers or policy-makers, as they interact among themselves, and also, with offline risks and opportunities"[129].

Different perceptions of online risk between adults and young people

To unpick the complex interconnection between online risks and opportunities, it is important to recognise that children's perception of these broadly differs to that of adults. Longitudinal analysis of Ofcom's Children and Parents' Media Literacy Tracker identified a declining trend in the number of parents who feel that the benefits of the internet for their child outweighs the risks[130]. Other survey data shows that less than half of parents trust their children to be responsible online[131]. In comparison, Day found a low level of concern amongst the general population of young people regarding their online vulnerability. Unlike responsible adults, most young people think that the internet is a positive place and do not necessarily see it as a source of inherent risk.

This difference in outlook is largely because behaviours which may appear to parents and carers to be highly consequential, do not have the same connotations for young people. Ofcom found that children commonly underestimate "the amount of sexualised content they see and share on social media", suggesting that they do not necessarily see exposure to this material as a risk[132]. Furthermore, research has shown that young people often act indifferently when exposed to sexual content or when they are sexually solicited[133]. Young people are also less likely to be concerned than adults about "emotional" or "legal" repercussions of sharing sexual images, with their main concern being around social reputation[134]. This is in comparison to parents, where 73% of those that responded to an NSPCC survey thought that it was "always harmful" for young people to share sexual messages online[135]. Similarly, few young people raised concerns that their "digital footprint" could cause issues in the future. Malvini et al. also found that young people "downplay cyberbullying, framing it as 'drama' to avoid being positioned as a victim"[136]. In one study where girls were asked for examples of "upsetting" online content, the answers included "bitching", "teasing", "fighting", "slagging" and "rumours"[137]. Bullying, by comparison, was only mentioned by one respondent in the study, leading the author to conclude that, while some conversations may appear to be cyberbullying, young people were not seeing online peer-on-peer conflict in this way.

One commonly cited explanation for this is that young people "lack critical thinking to assess those risks in the way an adult would"[138]. Several examples in the literature point to an apparent naivety or misjudgement of the risks online. According to Livingstone, for instance, most young people believe that things posted or sent through the online space can be easily erased later, demonstrating how young people have a limited concept of the impact of their "digital footprint"[139]. Some young people express that because people are "far away" online this makes them feel safer when communicating with strangers[140]. Finally, young people are less inclined to make a distinction between friends and strangers online compared to adults. The literature shows that a stranger can become a friend (or even best friend) for a young person based on extended online rather than face-to-face interaction[141]. This is linked to a common concern that the internet provides a platform for their children to be sexually exploited by older adults[142].

The risks and harms are no doubt real, and some young people may lack the critical thinking skills to foresee these. However, young people often have a different perspective of online risk than adults[143]. While some of the literature emphasise the vulnerabilities of young people online, and the risks associated with becoming a 'victim', young people are more concerned about the social and reputational importance of the online world; seeing the internet as "one of a number of channels through which day-to-day personal dramas are initiated or continued" rather than an inherently "risky" place[144]. What a responsible adult might therefore view as a naive or irrational decision, may be viewed very differently by a young person based on their understanding of what is and what is not important online. In this sense, young people do not encounter risk randomly, but can often put themselves in situations where they take risks in order to maximise reward[145]. Linked to this, White et al. found a complex interplay between risk and social pressure, with friends playing an important "role in leveraging media in order to test the boundaries of acceptable behaviour"[146].

It is also important to acknowledge that most still feel safe despite coming across content inappropriate for their age[147]. Although some of this faith in their safety may be misplaced, there is evidence which suggests that young people know "who to go to if anything made them uncomfortable" and they adopt self-regulating activities to protect themselves on the internet and manage time spent online[148]. Numerous examples of these activities can be found throughout the literature. For instance, young people may indeed recognise that they have limited control over who sees what online, as demonstrated through young peoples' propensity to restrict the "meaning" in their messages to those who are able to understand specific "in-jokes" or "cultural references"[149]. Some young people also described holding back private information until they had established trust with an online friendship over time. Of course, the ability to protect oneself online differs between young people. Research has shown that risk-taking behaviours amongst young people changes with age and in response to the level of risk[150]. In general, while risk taking decreased as the level of risk increased, young adults (18-22) showed increased risk-taking when the reward was high. There are also clear gender differences. While girls had slightly fewer digital skills than boys, "female respondents and those with stronger social support from parents and friends are more likely to find support after receiving sexual requests or messages online"[151].

It is also the case that adults' concerns about young people's online behaviours are not always backed-up by empirical evidence. While only a small minority of young people reported encountering risk online, the impact on those that experienced harm was profound and, in some cases, even life threatening[152]. Yet several authors have expressed concern that some of the literature does not fully understand the risks young people face. This includes not making the distinction between risks for children and adolescents; the latter of whom encounter more harm online through engaging with people their own age rather than adults[153]. The argument that the online world also inhibits young people from engaging in more "worthwhile activities" does not account for the fact that "digital technologies offer many opportunities for children to pursue developmentally valuable activities"[154]. It is therefore important for adults not to make assumptions about what constitutes "healthy" digital behaviour, as "recent research suggests that youth are quite resilient to spending long amounts of time online" and not all young people who report spending large amounts of time online "develop maladaptive patterns of use"[155].

Overall the literature demonstrates that, while online risks are of course real, adults should not consider all young people as 'victims' but instead see them as competent at representing their own interests online[156]. Yet, despite the clear nuance regarding the internet in young people's lives, there is a large body of literature which presents the internet as an inherently dangerous place. Often, this literature does not mention the opportunities and empowering nature of the internet and does not acknowledge its importance to youth development. While it cannot be denied that there are indeed risks online, and these have been outlined in length above, it is important to note that not all risky behaviour leads to harm. It is also important to recognise adolescents as "agentic, competent social actors who can resist or comply with what is defined as culturally appropriate masculine and feminine behaviours", particularly when it comes to making decisions about sexualisation and relationships online[157].

The fact that young people can both produce and receive risky content does not mean that they should be reprimanded for their online decisions, even if these are seen to be risky, harmful, or transgressional[158]. It is necessary to acknowledge that the literature demonstrates that what is necessarily viewed as 'harm' by parents, carers or other responsible adults may not be viewed the same way by young people themselves.

6.0

Parents, carers, and other responsible adults

"Parents use a range of mediation strategies including technical controls, rules regulating online access and use, with the majority preferring to talk to their children about the consequences of their online activities… enabling mediation is empowering providing children and parents have the skills and resilience to cope with risk when it occurs".

(Livingstone et al., 2017, p.87)

Having examined young people's online agency, it is essential to consider the role of parents and carers in supporting safe internet use. In this section, we appraise the different literature regarding parental roles and consider the implications of parental mediation in young people's online lives. We then discuss the literature on schools and teachers supporting young people online and the tensions around where responsibility lies for this activity. The discussion draws out some of the benefits and drawbacks of mediating young people's online activity and the challenges that parents and carers face in navigating the online world in the best interests of the child. This leads into a final discussion on alternative ways to support young people online, emphasising strategies which involve exposure to controlled risk to build a repertoire of tools for 'digital resilience'.

Parents, carers, and the online world

Parents can adopt an eclectic range of both active and passive measures for keeping young people safe online. These fall into three different categories: (1) the use of 'control' activities such as restricting access to devices, putting in place 'surveillance software', or implementing rules; (2) the use of monitoring or soliciting tactics, such as talking to young people about their online lives or monitoring browser history, and; (3) taking a passive stance and allowing young people to approach adults with issues[159].

The literature shows that parents and carers are using a variety of these measures to protect young people online. Data from Ofcom's Children and Parents' Media Literacy Tracker shows that "almost nine in ten parents apply rules about what their child does online or supervise their child when they are online. And almost seven in ten use … technical mediation tools … or talk to their child about staying safe online"[160]. Data from the same tracker also shows that 52% "constantly check" their child's online actions, a third monitoring browsing history, and 90% value the use of network filters[161]. Day further identified that more than 50% monitor online behaviours, and 68% restrict access to websites through the use of passwords. Just simply communicating regularly with people has also become a "key mediation strategy, and one that is being used by more parents"[162].

The literature also shows that parents or carers adapt the strategies they use depending on a several factors. For instance, parents of children with special educational needs can be particularly concerned about online safety and deploy more active mediation strategies accordingly[163]. Furthermore, whilst parents take a "responsive" rather than "passive" role in monitoring young people's online behaviour, this does change as children age, with parents less likely to monitor older children online other than through "one-off" episodes compared to younger children[164].

What works in keeping young people safe online?

The literature emphasises that parental involvement in young people's online lives is both welcomed by the young people themselves and can have positive results. Many sources stress the importance of having parental controls in place to "limit both the use and negative impact" of the online world[165]. In a qualitative study of young people's online safety, Livingstone et al. found that many young people welcomed features like an in-app "SOS button" to alert parents to any online risk[166]. Similarly, Malvini et al. found that most young people, especially younger teens, accept that they need parental oversight[167]. Quantitative research has also found that parental involvement in regulating young people's behaviour is "associated with reduced rates of online harassment for adolescents"[168]. Parental monitoring of online behaviour is also associated with a lower prevalence of cyberbullying (in terms of victims or perpetrators)[169].

It is also the case, however, that getting mediation right is challenging. Digital skills vary dramatically amongst the adult population and 2016 data from Ofcom found that "only 41% of the parents of 5- to 15-year-olds and 19% of the parents of 12-15 disagree with the statement 'My child knows more about the internet than I do'"[170]. It is therefore no surprise that many parents do not feel confident enough to teach their children about online safety[171]. As Wang and Xing highlight, because many parents are not as digitally adept as their children, they may have "misconceptions" about the online world[172]. This is particularly the case for disadvantaged families who are statistically less likely to use the internet compared to their wealthier counterparts. As Day points out, parents with a propensity to use the internet less are also less confident and less likely to support their children with their online safety[173].

This can cause complications in parents' and carers abilities to employ mediation approaches. For example, the language used online, and the number of networks young people have access to, means that young people "can become immersed in discourses that parents may not understand or see as inappropriate"[174]. Young people also have an ulterior motive to hide online activity from their parents or carers for fear of having devices confiscated or losing access to the internet. Older children are also more likely to consider parental mediation as an "invasion of privacy"[175]. According to Anjum, this is linked to the fact that young people are presented with a "privacy paradox". On the one hand, they should remain safe when posting online while, on the other, they should accept tools which take away their privacy[176]. Evidence also shows that some young people prefer to use teen-friendly sites like Snapchat over sites such as Facebook which are open to greater parental controls[177]. They also try to avoid telling their parents when things have gone wrong online for fear of having their access restricted.

The literature above highlights the complexities of incorporating digital mediation into family life. Livingstone and Blum-Ross's Parenting in the Digital Age encapsulates the struggles that families face in trying to balance between the nuanced debates about opportunities and risks relating to the online world explored through this review[178]. Livingstone and Blum-Ross argue that the principles of democracy and "choice" are part of twenty-first century family life. This makes everyday interactions around online habits and behaviours a negotiation between parents, peers, young people, and society, rather than merely an activity which involves "top-down" policing from parents or carers. It is therefore important not to portray parents as "passive" in their choice of mediation strategies, nor young people as "powerless" in helping to shape these. Instead, the authors argue that "the democratic family must give considerable time and effort to negotiating the interests of all its members it is not to become embattled".

Mediation: schools' or parents' responsibility?

The factors outlined above all contribute to parents trying to moderate an environment in which they are susceptible to misinterpreting the risks and missing the opportunities afforded by the online world. Research shows that young people who have parents that are less confident online are more vulnerable to online risks, particularly if they are experiencing vulnerabilities in other areas of their life[179]. However, when parents do try to seek support, they are often confronted with contradictory advice around online safety. For instance, the literature emphasises that digital technology can often contribute to depression and anxiety, but at the same time it states that it can be a source of support for those struggling with social issues[180].

When seeking support, parents identify schools as a key source of knowledge on online safety and risk – ranked ahead of families and friends as the most "preferred and accessible source of information"[181]. Nevertheless, Carrick-Davies notes that many schools see online risk as something "outside" of their remit. While schools play a big part in educating young people, it is parents that are the "first and most influential teachers of civic values and attitudes"[182]. School staff may be reluctant to help young people with their online safety for a number of reasons, including: the idea that it is not the teachers place to do this; that it is likely to occur outside of school; that the school procedures and protocols do not help young people; and that young people may not want to engage with the school out of fear of getting into trouble[183]. Despite this, other commentators see schools playing a key role where parents feel unconfident in handling online risks, and as well as in supporting victims of online abuse such as grooming[184]. This is especially relevant for young people with lower levels of literacy, who are often less able to seek out help, and are less likely to receive safety messages.

Regardless of whether schools see online safety as their responsibility or not, the blurring of the online and offline world means that risks and harms encountered on the internet can impact upon behaviour and safeguarding in schools. However, evidence suggests that, in many schools, both students and teachers do not have the right equipment to provide support to young people and their parents on digital issues. South West Grid for Learning's 360 safe assessment found that over 40% of schools did not have training for teachers on online safety, and schools are far more likely to use "one-off" events such as assemblies even though these "only raise awareness in the short-term"[185]. This is supported by findings from Ofsted which demonstrate wide disparities in the quality and reach of online safety teacher training 186. Further evidence also demonstrates a particular lack of digital training among agencies who work with vulnerable children and "at risk" groups (e.g. CAMHS and youth offending teams)[186]. It is therefore no surprise that Longden et al. found young people to be better adept online than their teachers and for young people not to believe that teachers understand online safety[187]. To combat teachers' skill gaps, the literature recommends that schools should provide broad e-safety advice and offer support to "avoid creating a moral panic by overstressing the online world as a dangerous and misleading place"[188].

Controlled exposure to online risk

According to Livingstone at al. "it is not ideal to have overtly restrictive mediation strategies in children's lives seeking to nullify all risk involved, but instead, a system of enabling mediation that attempts to develop the critical capability in children for risk recognition and adequate self-regulation as well as skills for mitigating the online risks encountered"[189].

Being exposed to risk is crucial, therefore, in being able to bounce back from challenges, and as Pacheco and Melhuish argue, "children need opportunities to practice evaluating and coping with risky scenarios in supportive and safe contexts"[190]. The importance of building capacity to respond to online risks appropriately cannot be underestimated. Yet, so far, the majority of literature around this has focused on how adults can support young people, with very little on peer-to-peer support for avoiding online risk[191]. Seeing as young people are generally not comfortable with sharing details of their online experiences with adults, it is vital that they feel enabled to support their peers, and seek peer support, when encountering online risks.

Controlled environments could be artificially created in many different ways, such as targeted campaigns aimed at children to empower them to notice and respond to marketing or commercial content[192]. As Wang and Xing point out, young people are only able to recognise inappropriate online behaviour once they have had a chance to use technology and learn "digital etiquette"[193]. Giving young people exposure to artificial risks as early in their online lives as possible will help to increase their digital resilience.

Certainly, the online world is constantly evolving, with young people using an increasingly wide range of social media platforms[194]. Equipping them with the skillset to navigate new risks and opportunities is the only viable way to keep abreast of such a rapidly changing environment. As Anjum summarises, the nature of online risks are also constantly changing and developments in new smartphone technologies and social media websites far outstrip existing developments in keeping young people safe[195]. This again reiterates the need for a conduct-based approach over a content-based one.

Inevitably, avoiding risk altogether is not practical nor achievable, and research has shown that it is better to learn to manage risk rather than remove it completely; with the ability to navigate the online world built up over time through consistent engagement[196]. For instance, there was a view amongst young people that entirely avoiding cyber-bullying is impossible since perpetrators can evade security features and will continue regardless of the consequences[197]. This means that young people may need to deploy an alternative coping mechanism to mitigate that particular risk. Furthermore, extreme restrictions from parents can hold children back from developing the critical skills necessary to evaluate information[198].

From 'risk' to 'resilience'

We have so far considered the trade-off between risks and opportunities online. We examined the ways that young people exercise their agency in this regard, and the roles that are played by parents, carers and professionals. However, it is also important to frame these debates in terms of the literature on resilience, and the role that this plays in young people's development.

Definitions of resilience vary within the literature according to whether they adopt a trait-based perspective (where resilience is something that young people possess, gain or learn[199]), or a multi-systemic perspective (where resilience is formed through the interplay between different fields of influence – e.g. peers, home, school and community). This is consistent with a socio-ecological model of child wellbeing[200]. Ungar and others describe this in terms of: "multiple biological, psychological, social, and ecological systems interacting in ways that help individuals to regain, sustain, or improve their mental wellbeing when challenged by one or more risk factors"[201].

The phrase "digital resilience" is also used explicitly within the literature. For example, Garista and Cinganotto see this as "a way to face adversity online"[202], whilst Jacinto and Castillo de Mesa argue that resilience is a pathway to the acquisition of other competencies, by "…allowing successful adaptation, thus increasing the development of social, academic and vocational skills"[203].

From a trait-based perspective, young people who are 'resilient' online can identify strange behaviour, be able and confident to deflect inappropriate contact, inform an adult if necessary and to understand safety messages[204]. To do so, young people might develop coping strategies, which, in the context of cyberbullying, Paris et al. define as "avoidance, acceptance, justification and social support"[205]. Avoidance is about taking action to avoid online activities which may lead to "negative" outcomes and involves deleting, blocking, and ignoring. Acceptance strategies related to "deflecting" cyberbullying activity, and "justification" relates to trivialising or reframing cyberbullying to reduce its impact. Finally, seeking out advice or using peer networks can also help young people cope[206].

From a 'systems' standpoint, resilience online must also be understood with regard to the sociocultural and ecological systems within which young people's interactions with the online world take place[207]. Individual behavioural adjustment also relies on adjustments to "the environments in which individuals develop and socialise"[208]. It requires home, school, and virtual environments that are "… safe, inclusive, stimulating and nurturing"[209]. From this perspective, the individual acquisition of competencies by young people must be accompanied by the adjustment of the systems that interact to moderate the outcomes that they experience.

7.0 Conclusions

This paper has traced the growing influence of the internet over the lives of young people. It has demonstrated that young people spend more time online than any other age group; with the advent of mobile technology and data changing the profile of 'internet access' for a new "digital generation"[210].

Studies from across the UK and Europe now show that the increased functionality, affordability, and importance of the online world means that young people are now spending double the amount of time online compared to ten years ago[211]. While there are some differences across demographics, with socioeconomic status, age and gender all having an impact on how young people use and access the internet, the literature demonstrates that, for many, there is now little difference between the online and offline world. This is because the internet has now become a critical element of young people's social and emotional development, as well as an enabler for the exploration of self-identity[212].

Understandably, while there is a sizable amount of literature on the 'opportunities' afforded through the online world, ranging from personal development through to learning and recreational activities, there is an even larger proportion of literature emphasising the risks that young people face online. These are discussed extensively above and include: exposure to pornography; cyberbullying and peer conflict; excessive use of the internet; the potential for criminal and sexual exploitation; exposure to harmful content; and privacy concerns. The extent to which young people are exposed to these risks, and the likelihood of harm occurring, differ depending on several demographical factors as well as different patterns of use which vary by age and gender. Of particular concern, however, the literature emphasises that those who are already vulnerable offline are more likely to experience adverse harm online.

It is important not to downplay the significance of harm caused to victims online. When harm does occur, it can have significant repercussions for individuals and families. Nevertheless, this paper has demonstrated that some of the literature is too quick to label the internet as 'inherently dangerous' without engaging with the notion that it is now of central importance in young people's lives. As such, it is necessary to shift away from a narrow focus on risk avoidance towards a situation where young people are empowered to take ownership of their own online safety and wellbeing and to utilise the positive potential of the internet.

We have considered how young people's resilience can be understood at one level as corresponding with the ability to cope with adversity, and to navigate the online world competently to further their learning and wellbeing. At the same time, however, young people's online and offline lives are already embedded to an extent that renders traditional concepts of mediation somewhat redundant. If we adopt a 'multi-systemic' view, digital resilience might be better understood in terms of the multiple contextual influences through which young people are able to exercise their agency. Rather than focussing on adjustments to individual behaviour alone, the conditions for young people to thrive online require the alignment of home, school and peer support systems. This 'whole systems' approach is the departure point for the #FOOTPRINTS project, which this review set out to inform.

Appendices

Appendix A: Research Protocol

A. Study topics

Topic	Key research questions
A. Young people's digital lives – key drivers and trends	• **A1**. What are the ways in which young people interact with the digital world, and how do these relate to their offline lives and relationships - at home, in school, and within their neighborhood? • **A2**. To what extent are young people's interactions with the online world moderated by their age, gender, ethnicity, sexuality, socio-economic background and other personal characteristics? • **A3**. To what extent have young people's patterns of internet use changed over the past decade, and what are the main factors driving these changes (e.g. socio-economic, and technological)?
B. Risks and opportunities presented by the online world	• **B1**. What risks are presented by the digital world, and for whom / in which contexts? What is the nature and prevalence of different kinds of online harms? • **B2**. What opportunities are presented by the digital world, and for whom / in which contexts? • **B3**. What kinds of positive outcomes are associated with young people's online lives, and how are these measured? • **B4**. How is digital resilience defined? What knowledge, skills and behaviours are needed for young people to stay safe and become resilient online? • **B5**. What is the role and influence of peers, siblings, parents, schools, and other stakeholders in supporting young people to become resilient online?

B. Study Scope

Focus	Only reports that are directly relevant to the study topics, based on the title, abstract, and / or other supporting information.
Publication date	2016 onwards.
Geographical scope and target groups:	UK (priority), Europe and international; focus on middle to high income countries. Children and young people aged 0-25 years, prioritising the 11-18 age group (i.e. UK secondary school age, early to mid-adolescence).
Language:	English language (EN), with the exception of those non-English language studies providing a very close match with the other inclusion criteria.
Study type:	Peer reviewed journal article, research or evaluation report, survey report, thematic review, conference paper, regulatory guidelines, public inquiry report, or policy document.

C. Data Sources

The following data sources are to be used:

- Google scholar to search for key words and phrases derived from the research questions.

This will be supplemented by searches of:

- UK public body websites: Department for Education research portal; Department for Digital, Culture, Media and Sport; Welsh Government; Scottish Government, Ofcom (incl. Children's Media Lives series), and UK Council for Internet Safety (UCIS) .
- Websites of UK-based independent and third sector organisations: Children's Commissioners for England, Scotland, Wales and Northern Ireland, NSPCC, Barnardos, The Children's Society, and the National Children's Bureau.
- Websites of EU and international public bodies and NGOs: European Commission; EU Kids Online (EUKO) programme website, Net Kids Go Mobile website; OECD, Save the Children; UNICEF, Global Kids Online (GGO) programme website. OxIS (Oxford Internet Surveys). University of Oxford.

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