Developing a framework for researching children's online risks and opportunities in Europe

Sonia Livingstone, Giovanna Mascheroni and Elisabeth Staksrud

Summary

In this report we discuss how the original EU Kids Online analytical model was constructed. We review key findings produced from qualitative and quantitative research by EU Kids Online before discussing the rationale for a revised model that reflects the findings better and raises new questions for research. We conclude that future research should examine the following 12 research priorities:

1. Factors relating to children's *identity and resources*, beyond demographic variables.
2. *New modes of access* to the internet, as this becomes more mobile, personalised, pervasive.
3. A multidimensional analysis of *digital skills and literacies and their significance for* well-being.
4. A rethinking of the '*ladder of opportunities'* to identify whether and when children undertake more ambitious creative or civic online activities.
5. *New kinds of online risks* including risks to their personal data, privacy issues and online reputation management.
6. The interplay between children's digital practices and *proprietary policies and mechanisms.*
7. Children's desire to experiment and transgress boundaries, to grasp children's agency online.
8. Extending the analysis of *how parents mediate* their children's internet use to the potential importance of *other socialising agents*.
9. Extending research on 9-to 16-year olds to much younger children's use of digital media.
10. Research on *sociotechnological innovations* in smart/wearable/ubiquitous everyday devices.
11. The implications of digital engagement as it may reconfigure (undermine or enhance, alter or diversify) children's wellbeing in the long term.
12. Relate the research agenda on children's online access, risks and opportunities to the broader agenda of children's rights – to provision, participation and protection – in the digital age.

Introduction

In order to develop the academic and policy agendas for researching children's online risks and opportunities, the EC's Safer Internet Programme (subsequently renamed Better Internet for Kids) funded the EU Kids Online network from 2006 to 2014. This collaboration among some 150 researchers in 33 countries across Europe brought together diverse disciplines, methodological expertise and research specialisms (for an overview, see Livingstone, 2014). Such an innovative project has needed a strong multidisciplinary research framework to guide the design and conduct of its empirical research and the construction of specific hypotheses for data analysis and policy implications.

In this report we discuss how our analytical model was constructed, showing how it draws on established theory, and how it was then used to guide the conduct of new empirical research. This, in turn, generated a range of insights into the factors that influence children's online engagement and its practical, social and psychological outcomes (the combined efforts of the network can be found in Livingstone and Haddon, 2009 and Livingstone, Haddon and Görzig, 2012). We developed the model by testing it with both qualitative and quantitative research methods, the most substantial being a 25,000 in-home, face-to-face survey of children in 25 countries aged 9–16, as well as a short interview with each of their parents (Livingstone et al., 2011).

The model has since provided the basis for a host of replications and extensions of the research in many countries. This process has, in turn, identified strengths, limitations and areas for further development. Hence, we conclude this report by presenting a revised and updated version of the

EU Kids Online

analytical model, drawing out the pressing questions for future research. Our aim is to inform further research in the field of children and online risks and opportunities in Europe and beyond.

In the beginning

When the EU Kids Online network began its research in 2006, the internet generally referred to fairly expensive fixed-line connectivity via a desktop computer. 'Online' was widely seen as somehow unreal ('virtual') and entirely distinct from 'offline' (which was 'real'). Social media had hardly been invented or were used just by a few niche users. Children were discussed as 'digital natives', quite distinct from their 'digital immigrant' parents and teachers (although the critiques quickly built up; see Helsper and Eynon, 2010). Moral panics were widely promulgated by the mass media, fuelling anxieties about 'stranger danger' and framing the internet as 'the Wild West' for its un-governability. In addition, there was a taken-for-granted but problematic bifurcation in research and policy focus between those concerned with online risks and those concerned with online opportunities, as if these did not affect the same children.

Our project started with the ambition of comparing and explaining children's experiences of risk and safety:

- across different locations and platforms of internet use;

- as perceived by children and by their parents;

- across different types of online risk;

- for risks experienced online versus offline (whether face-to-face or via traditional media);

- where children are positioned as either victim and/or perpetrator;

- across groups of children (e.g., more or less vulnerable, resilient, risk-taking or supported by others);

- according to various strategies of safety mediation and coping tactics;

- across European countries, to permit analysis of national and regional differences.

In short, we began by seeking to disaggregate the types and contexts of risk of harm in order to explore

their antecedents (the factors that explain when and how they arise) and consequences.

The overall purpose was to develop evidence-based recommendations for policy-makers, practitioners (education, child welfare, clinicians, law enforcement, etc.), industry and parents (O'Neill and Staksrud, 2014; see also Livingstone et al., 2012). This meant that, from the beginning, we sought to examine the array of risks on the public agenda together, thereby encompassing 'stranger danger', cyberbullying, pornography and so forth within the same project. Our rationale was that if each risk is studied separately, as is often the case in many research projects, it becomes difficult to see whether and how risks compound each other (so that those who encounter one are more likely to encounter others), although just this finding has long been established in the wider literature on childhood risk – hence the focus in child welfare circles on children who are generally 'at risk' or somehow particularly vulnerable. We also wanted to develop the academic agenda in the field in a way that clearly builds on and incorporates insights from the contributing academic disciplines.

Disaggregating and yet integrating different types of risk generated a scheme that is probably our most widely cited insight in the domain of children's online safety (see Figure 1) (Livingstone and Haddon, 2009a).

With this scheme, we sought to recognise that:

- The internet affords several types of risk to children, each of which has attracted a long history of research and policy from pre-internet times, and this can be drawn on to understand today's online risks (see, for example, Schoon, 2006; Coleman and Hagell, 2007; Finkelhor, 2008).

- The way that the internet affords these different types of risk also reflects the diversity of the internet itself, since this is a source of mass-produced content, of interactions between adults and children, and of interactions initiated by children themselves (Staksrud, 2013).

- This means that to understand risk online we need to inquire both into the nature of the providers (the producers, participants and designed structures that constitute the online environment) as well as the agency and diversity of children's roles in engaging with these.

Figure 1. The EU Kids Online classification of online risks

	Content Child as receiver (of mass productions)	**Contact** Child as participant (adult-initiated activity)	**Conduct** Child as actor (perpetrator / victim)
Aggressive	Violent / gory content	Harassment, stalking	Bullying, hostile peer activity
Sexual	Pornographic content	'Grooming', sexual abuse on meeting strangers	Sexual harassment, 'sexting'
Values	Racist / hateful content	Ideological persuasion	Potentially harmful user-generated content
Commercial	Embedded marketing	Personal data misuse	Gambling, copyright infringement

Also important, we sought not only to explain the risk of harm, but also to examine positive outcomes, which we framed partly through a focus on online activities and opportunities (see the 'ladder of opportunities' discussed later[2]). In time, this became a larger feature of our work, but, in the original model, our primary concern was to avoid the presumption that risk always results in harm, aiming to be even-handed in anticipating outcomes. Hence we asked whether and how children cope (or not) with online risk, recognising that coping could be conceived in positive terms (Vandoninck and d'Haenens, 2014; see also Vandoninck and d'Haenens, forthcoming).

Recognising the vital indeterminacy of online experiences in relation to positive or negative outcomes led us to conceptualise risk separately from harm (and, in principle, to conceptualise opportunity separately from benefit; Livingstone, 2013; see also Vandoninck, d'Haenens and Roe, 2013). Just as crossing a road poses a risk that may or may not result in a traffic accident, so, too, does using the internet expose a child to a range of risks that may or may not result in harm. More contentiously perhaps, exposure to a hostile message or pornographic image might also not result in harm on all occasions or for all children.

This shifted the research task towards a focus on contingency: under which circumstances, for which children, does internet use lead to risk resulting in harm

or coping, and why? Online as offline, resilience is a dynamic process and can only be developed through exposure to risk or stress. Indeed, vulnerability and resilience can be conceptualised as two extremes on a continuum. In learning from their mistakes, young people gradually learn to deal with problematic issues, and improve in adapting positively, maintaining a good sense of wellbeing despite unpleasant or even traumatic experiences (Coleman and Hagell, 2007; see also Campbell-Sills, Cohan and Stein, 2006). Resilience is also a multidimensional construct, including both psychological variables (i.e., emotional development) and coping skills (i.e., capacities for adequate coping). It is this combination of elements that explains why some children who have been exposed to adversities are better capable of dealing with stressful or traumatic life events (Masten, 2001; Campbell-Sills et al., 2006).

As may be imagined, questions of risk and harm proved contentious both within our network and with stakeholders, so finding a way forward took a lot of discussion. The resolution expressed in our model draws on risk theory to examine the factors that increase risk (itself defined as the probability of harm; Reyna and Farley, 2006; Coleman and Hagell, 2007; Renn, 2008). We defined these factors (e.g., online features, people, activities, events) as aspects of the online environment that increase the risk of harm to a child. But we retained as an empirical question rather

than a built-in assumption the possibility of whether this risk actually resulted in harm in particular instances, or whether a degree of adversity instead stimulates children's coping responses that ultimately build resilience (d'Haenens, Vandoninck and Donoso, 2013).

There is, of course, no direct relationship between antecedents and consequences. As the research and policy debates matured over the past decade or so, attention turned to identifying and evaluating the mediators of risks and opportunities. In the beginning, our focus was on social mediators – in particular, the ways in which adults play a role in mediating the child's online experience, through parental mediation strategies, school policies, or even the wider media climate of anxieties and opinion. Later we also became increasingly interested in the mediating role of children's own digital skills and literacies, as explained below.[3]

In 2006, there was far less research available than today, especially in smaller countries and those with fewer years of mass internet use in Europe (Staksrud et al., 2009). Thus our research sought to be pan-European, concerned to identify the sources of difference in children's experiences of the internet across Europe, while also remaining open to the possibility of a common experience.

The first model

Our first model sought to capture the foregoing analysis by combining two conceptions of the very notion of a 'model' (Livingstone et al., 2011a; see also Livingstone and Haddon, 2012).

- First, we constructed a version of the general linear model, hypothesising a cause-effect process for the main steps toward the occurrence of harm as a result of variables relating to (a) the child (their demographic and psychological descriptors); (b) the child's internet usage (how much and where they use the internet); (c) the child's online activities; and (d) the risk factors encountered by the child in consequence.

- In this way, we prioritised the ways in which children are different among themselves, in their social development and sociopsychological strengths and difficulties (Campbell and Muncer, 1988; Greenfield and Yan, 2006; Lemish, 2015). We also prioritised the outcome measures that,

as explained above, were initially two-fold: harm to the child (as reported by the child themselves) or coping (by the child). This model focuses attention on the internet-related variables (use, activities, risk factors) hypothesised to mediate between individual factors and significant outcomes.

- Second, we embedded this linear model within a wider frame that drew from Urie Bronfenbrenner's ecological approach, in which he proposed encircling layers of social influence – from close to distant (Bronfenbrenner, 1979). Drawing on the available literature as well as our cross-national European focus, we conceived of these at individual, social and national levels, and within the social, we placed the three key social agents that shape a child's life – their parents, school and peer group.

It should be noted that the effect of this combined approach was to create two distinct units of analysis:

- The unit for the linear model, and for the social mediators that influence its operation, is that of the child. Both children and parents could be asked about measures relevant to the child as a unit of analysis.

- The structural factors that influence children's experience (the technological infrastructure that supports their communities and school, for instance, or the religious and cultural values that inform their societies) are necessarily conceived and measured at the level of the country. For factors related to the country as a unit of analysis we turned to established cross-national studies (such as the European Social Survey and European Values Survey) conducted by the EC, International Telecommunications Union (ITU), and other bodies.

With this combined model, we were able to frame hypotheses at the individual level (e.g., about wealthier versus poorer children or high versus low internet users) and at the country level (e.g., about French or Greek children's experiences, or Northern versus Southern Europe, or the importance of GDP or different education systems). While care is needed to distinguish these units of analysis conceptually, we later made use of statistical techniques to permit simultaneous testing and disaggregation of the effects of variables measured at each level.

Figure 2. The EU Kids Online original model
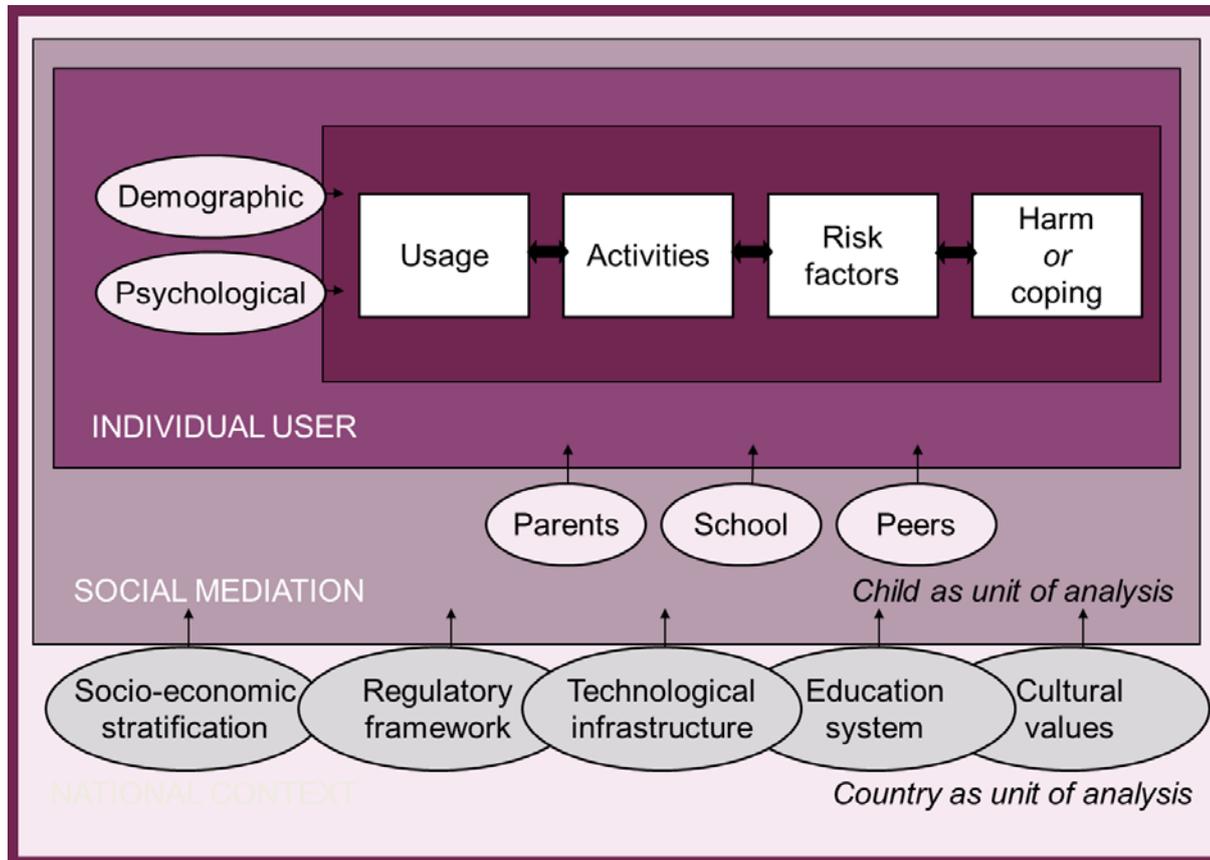
As a model, this has proved successful. It has been widely reproduced, adapted and cited, its merits being that the main variables are organised in a meaningful way, supported by evidence and interpretable by stakeholders as well as researchers (Livingstone, 2014).

The EU Kids Online network originally generated this model through a collaborative process of discussion among a multidisciplinary and multinational network of experts, combined with a detailed review of the available literature (centred on Europe, but taking into account international research findings where useful; see Hasebrink, Livingstone and Haddon, 2008). But it had yet to be tested. Our next step – in our second phase of research funding – was to test the model thoroughly in relation to the pan-European dataset generated from our survey of 25,142 children aged 9–16 and their parents in 2010.

What we found

Based on these analyses and deliberations, we next review the extent to which the model has been supported by the evidence, and then we consider the case for revising the model so as to guide future research.

Analysis of the resulting substantial 25-country dataset, which is publicly available for other researchers (see Livingstone, Cagiltay and Ólafsson, 2015),[4] has resulted in many articles published by those within in and outside the network, many presentations to stakeholders nationally and internationally,[5] and a lively discussion opening up with researchers in countries beyond Europe as they consider its applicability within new settings. There have also been several efforts directly to replicate the model and the survey findings – on the one hand, in new countries – Brazil (Barbosa, 2013), Russia (Soldatova et al., 2014), Australia (Green et al., 2011), Switzerland (Hermida, 2013) and Latvia (Brikse and Spurava, 2014) – and on the other hand, within Europe in an adapted form to recognise the growing importance of mobile devices for children some years later (see Net Children Go Mobile[6]).

The most succinct account of how our findings supported the model or pointed to the need for revision

can be found in the conclusions of our 2012 book (Livingstone, Hasebrink and Görzig, 2012). Since then the network has continued to analyse the data, both quantitative and qualitative, and a long list of publications in many languages can be found on our website (see also Livingstone and Haddon, 2014).

One of the main values of the research lay in its generation of point estimates of the incidence of this or that risk for children in particular countries. Certainly the survey produced a host of statistics of the kind that gain media headlines and focus policy-makers' minds (for the main overview of findings, see Livingstone et al., 2011; for findings by country, see Haddon, Livingstone and EU Kids Online network, 2012; for the relevance and use of these findings for policy, see O'Neill, Staksrud and McLaughlin, 2013). Some observers have worried that these statistics are highly time-sensitive, dating as fast as the latest social media trend takes hold. However, the recent replication of key parts of the survey by the Net Children Go Mobile project shows the degree to which children's engagement with the internet and mobile technologies is, in fact, changing (which is slower than often thought).[7]

While point estimates (such as how many children do X or experience Y) may vary, this report focuses on empirical support for the relationships among variables posited by the EU Kids Online model, and it may be surmised that these relationships change more slowly. We summarise findings for these relationships below, referring the reader to the above-cited sources for full details.

The linear process from usage to harm/coping

- The linear process modelled in the centre of Figure 2 is supported by a series of positive correlations among measured variables (so, 'the more, the more'). So, the more children use the internet, the more online activities they undertake, the more digital skills they gain (and thus the higher it is likely that they climb the 'ladder of online opportunities' to gain the benefits).

- By implication also, 'the less, the less', which means that less engaged, skilled or supported children gain fewer opportunities or risks, thereby perpetuating the digital divide. In other words, usage, activities and digital skills operate in tandem to fuel a virtuous or a vicious circle, depending on the circumstances of the child.

- There is also a positive correlation between risks and opportunities (measured in the model as online activities), implying that efforts to enhance opportunities may bring with them increased risk, and that efforts to minimise risk may inadvertently depress children's opportunities to benefit from internet use.

- Although the more children use the internet, the more risk factors they encounter, this is not necessarily associated with a higher likelihood of self-reported harm. Online risks themselves are positively inter-correlated (e.g., more cyberbullying is associated with more exposure to pornography). The relation with harm is more complex, however: for example, online bullying is one of the least commonly reported risks but is the most upsetting when it does occur; exposure to pornography is more common but proportionately less upsetting. While more use is associated with more exposure to online risks, more use can also develop the ability to cope with those risks, potentially resulting in less harm.

Demographic and psychological factors that differentiate among individual users

- Of all the differentiating factors tested (the start of the linear model in Figure 2), a child's age influences almost all aspects of their online experiences. Also important proved to be the psychological variables of self-efficacy, sensation-seeking and, most of all, psychological difficulties (as measured by the cross-nationally standardised Strengths and Difficulties Questionnaire; see Goodman, Meltzer and Bailey, 1998).

- Inequalities in digital skills persist – in terms of socioeconomic status (SES), age and, to a lesser degree, gender. For instance, in using social networking sites (SNSs), children are more likely to have a public profile if they cannot understand or manage SNS privacy settings or if they have psychological difficulties.

- Not all internet use results in online opportunities: the chance of a child gaining online opportunities depends on their age (older) and SES (higher), on how their parents support them (fewer restrictions), and on the positive content available to them in their country.

- Children who are older, who engage in more online activities (i.e., are higher up the ladder of opportunities), are higher in self-efficacy and sensation-seeking, and have more psychological problems, encounter more risks of all kinds online. In contrast, girls, younger children, children who undertake fewer online activities, have fewer skills, are lower in self-efficacy and sensation-seeking, or have more psychological problems find online risks more harmful.

- Boys express more concern about violence than girls, while girls are more concerned about contact risks. Moreover, children's concern about online risks rises markedly from 9 to 12 years old. Younger children are more concerned about content risks, and as they get older, they become more concerned about conduct and contact risks.

- Overall, among the demographic, psychological and social (i.e., the offline) context of children's lives, there are both risk factors and protective factors. Offline examples from the research include risk factors such as offline risky activities, and protective factors such as self-efficacy. Similarly, in the online context, both risk factors and protective factors occur – examples from the research include risk factors such as the receipt of unwanted sexual messages, and protective factors such as the use of filters or availability of safety tools. This means, notably, that offline risk is linked to online risk, and that offline vulnerability is linked to online vulnerability.

- We also identified the importance of measures of 'risky offline activities'. This was proposed on the basis of consistent arguments in the research literature that a particular medium – such as 'the internet' – is unlikely to introduce entirely new problems into children's lives; rather, it is likely to change the communicative conditions of children's engagement with others, and thus enable a degree of migration of risk from offline to online. The evidence from the project strongly supports this initial supposition, inviting further analysis of the continuities in children's lives across diverse contexts.

The role of social mediation

The role played by parents, school and peers all matter; here, most of our findings concentrated on parental mediation:

- 'Active mediation' by parents is associated with lower online risk of harm, as well as children enjoying more online opportunities and gaining more digital skills.

- 'Active safety mediation' is more often used after a child has experienced something upsetting online, to prevent further problems. 'Active safety mediation' and 'monitoring' of internet safety is also associated with a higher tendency to engage in communicative coping.

- 'Restrictive mediation' is also associated with lower online risk of harm, but also lower online opportunities and digital skills, because children are less free to explore, learn and become resilient. They are also more likely to adopt passive responses to online risks.

- Parents are more likely to use filtering if they are confident users of the internet themselves, or if they are worried about their child online, or if their child is young and inexperienced in using the internet.

- Use of 'parental filters' was not found to reduce online risk. There is a correlation such that more parental filtering is linked with less online risk, but when we control statistically for the child's age, this correlation disappears. It seems that parents more often apply filters for younger children and, separately, younger children encounter less risk since they use the internet less. Thus, there is no statistical link between parental filtering and level of risk after controlling for age.

- We found that the greater the parents' familiarity with the internet, the greater their ability to mediate their child's internet use, and the more active and skilled their children are in using the internet – and vice versa.

- Overall, the levels of risk estimated by children and their parents were similar, but when examining awareness of risk among individual parents matched with the children who had encountered it, parental awareness was low.

- Most importantly, the responses to the matched questions reveal that the children of more restrictive parents encounter fewer risks, but also make more limited use of the internet, which could undermine their resilience to harm. This

highlights the dilemma for policy-makers and awareness-raisers – should they advise the imposition by parents of rules on their children's internet use, or not? Possibly the decision should depend on the child's degree of vulnerability, as this has been shown to make a difference – less in relation to online risk, but especially to the experience of online harm.

- In terms of coping with online risk, children often tell a friend, followed by a parent, when something online upsets them, and they try a range of pro-active strategies online, such as changing privacy settings and blocking contacts. Some children, instead, are more passive in their responses to online harm and try to ignore the problem, although passive measure don't always work so children experiment with more active responses.

The significance of country as a unit of analysis

- National socioeconomic stratification, provision for regulation, technological infrastructure, education system and cultural values make a difference to some degree, although this was relatively limited within the European context where, by and large, within-country differences were greater than between-countries differences.

- There was also some evidence that socioeconomic stratification, regulatory framework, technological infrastructure and the education system all shape children's online risks. Children in wealthier countries (measured by GDP) encounter more online risk, but arguably, these countries are also well placed to provide more accessible and user-friendly safety resources for children and parents.

- In countries where the press has more freedom, such as the Nordic and Baltic countries, children are more likely to encounter online risk. If researchers and policy-makers wish to manage risk without introducing more stringent internet regulation, alternative strategies must be found to ensure safety without introducing censorship.

- At country level, we found no systematic relation between level of parental filtering and children's risk experiences. But at the individual level, there is a weak relationship: children whose parents use technical filtering are less likely to encounter

sexual content, suggesting some role for technical solutions yet to be fully understood.

- Rather less unexpected is that the degree of broadband penetration, and length of time that most people have had internet access, are associated with higher levels of online risks, but not a wider range of activities among children. This suggests that, while children are motivated to use the internet everywhere in Europe, higher quality access brings more risks than are being dealt with adequately by policy-makers.

- Last, in countries with a comparatively higher level of formal education, where full-time education continues for most of the adolescents' lives (i.e., for an average of 15 or more years), children are more likely to have better digital skills, as are children from countries where more schools use computers in the classroom; thus education clearly plays a positive role in supporting digital skills, digital literacies and citizenship, and should be supported across all countries.

Based on measures of children's experiences of online opportunities, risks and parental mediation, countries could be grouped as follows (Helsper et al., 2013):

- Countries characterised by 'unprotected networkers' (Austria, Hungary, Lithuania and Slovenia): children's experiences are fairly narrow but potentially problematic. The social aspects of Web 2.0 seem to have been taken up with gusto, and the children subsequently encounter risks but not as much harm from being in contact with these opportunities.

- Countries 'protected by restrictions' (Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Turkey and the UK): children's online experiences in this cluster of countries are characterised by relatively low levels of risk probably because internet use is also more limited and largely restricted to practical activities. While parents might be glad that their restrictive mediation practices prevent risk, it does seem that they may miss out on many of the online opportunities.

- Countries with 'semi-supported risky gamers' (Bulgaria, Cyprus, the Czech Republic, Estonia, Poland and Romania): in these countries,

children encounter only moderate online opportunities, mainly focused on entertainment, and games in particular. Yet they still experience relatively high levels of risk and harm: some encounter a specific risk, others a range of risks. Parents undertake rather diverse types of mediation in these countries, including active and restrictive forms of mediation, although it seems these are relatively ineffective.

- Countries with 'supported risky explorers' (Denmark, Finland, the Netherlands, Norway and Sweden): this cluster has more children who are experienced social networkers. They encounter more sexual risks online and their parents are more actively involved in guiding their children's internet use. Parental mediation might co-evolve with risk and opportunity taking by children – as children gain more experience and encounter more risks, parents engage more actively in safeguarding their internet use.[8]

The need for development

Analysing the EU Kids Online dataset(s), the patterning among variables (rather than children) pointed to some cautionary observations. Many of the results we obtained from the statistical analyses were statistically significant but fairly small in terms of effect size. Thus, it was not possible to propose a 'strong' or highly explanatory model, because much of the variance observed remains unexplained. Some of this had to do with the challenge of measuring temporal relations (e.g., which comes first – an upset child or a restrictive parent?); some had to do with not having identified all the relevant variables to enter into the model in the first place. Thus in our research, causal claims were stated only cautiously, and dynamic relations over time could not be examined.

Cross-national analysis proved particularly difficult, first, because the research literature provides few developed hypotheses (e.g., what, at a cultural level, accounts for country differences in parenting?); second, because it was difficult to find reliable external indicators for the factors we hypothesised as important (e.g., there are few robust indicators of country differences in regulatory frameworks); and third, because the few external indicators we were able to identify (e.g., broadband penetration) ultimately explained rather little variation in the outcomes of children's internet use.

Then, the model lacked some key elements that we came to see as crucial for further research. Most notably, these include a:

- robust conception of outcomes (whether harm or benefit or, taking the two together, wellbeing);

- multidimensional conception of digital skill (in fact, we did measure skills, but narrowly, and they did not appear explicitly in the model);

- broad and deep conception of opportunities and benefits (to balance the focus on risk, safety and coping);

- wide array of measures to capture the structures and cultures of childhood, parenting and education within and across countries.

Future survey development should expand on each of these areas. However, not only did our model have its limitations, but it was proposed within a particular time and context, and these, too, are undergoing major changes. Today, children are going online ever more frequently, in more countries and contexts worldwide, and using a greater diversity of services and devices. This generates new tensions between connectedness (i.e., more communication among peers) and connectivity (i.e., greater dependence of users on technology; van Dijck, 2013); these are evident in the recent public and policy interest in topics we did not much explore in our survey[9] – online reputation and digital footprints, self-initiated risky behaviour, digital citizenship, commercial uses of personal data, new forms of online privacy, intimacy and vulnerability, and so forth.

In short, although there was much to learn from the analysis of our 2010 survey, the dimensions of children's online access, risks and opportunities continue to change. As the internet has become a routine part of children's lives, embedded into their lifeworld in a host of increasingly taken-for-granted ways, research is called to examine children's engagement with the world not only *on,* but more importantly *through* the internet. Arguably, the question is no longer just that of children's relationship with the internet as a medium, but also with their relationship with the world as mediated by the internet in particular and changing ways (Livingstone, 2014a). As technological innovations continue to develop, social practices among youth creatively adjust around them,

and academic theories as well as policy initiatives, from local to international levels, also evolve.

Sustaining a critical research overview is vital to underpin evidence-based policy. This must encompass the activities of the rapidly growing research community now investigating issues concerning children and young people's new media use. There are new phenomena calling for attention, new cohorts of young children (and new 'digital generations' of parents; see Buckingham and Willett, 2006; Colombo and Fortunati, 2011) to be studied, innovative research methods emerging, and an evolving digital ecology (e.g., new opportunities for coding or gaming, or new safety tools available; Hasebrink, 2014).

The revised model

Does this mean that the model needs to change, and if so, in which ways? Reflecting the insights gained from our research, the EU Kids Online network has revised its model. As shown in Figure 3 below, the model retains the key features of the original model, but it is now more firmly focused on the question of whether and how the internet is now playing a role, for better or for worse, in children's wellbeing.

There are several key changes to note in the revised model compared with the original model. These changes concern the main elements or concepts included in the model (shown in white), the naming of some of those concepts (signalling a change in their scope and in how they can be measured), and in the design of the model (i.e., the relations among the concepts).

Figure 3. The EU Kids Online revised model
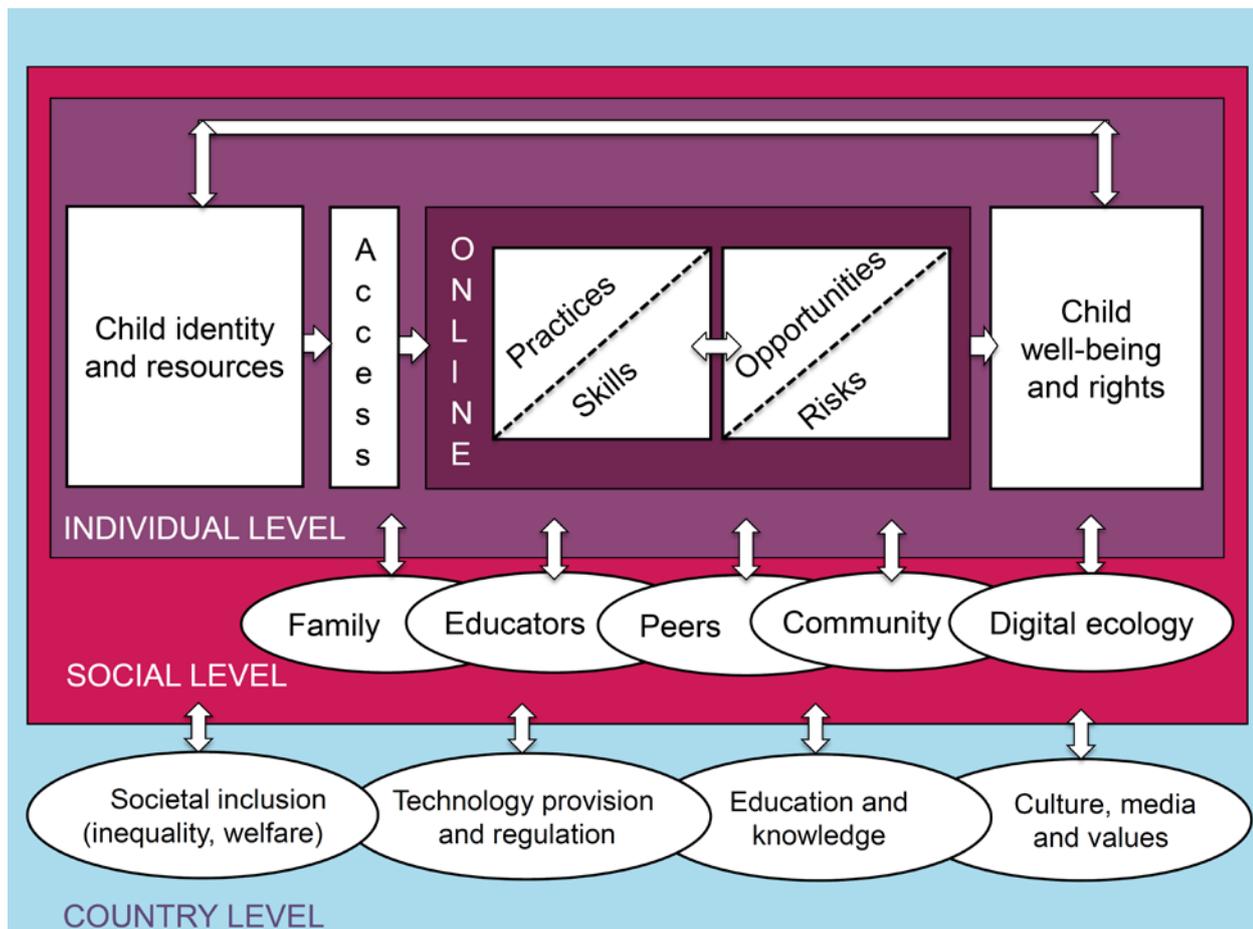
At the individual level

- **Child's identity and resources.** This includes children's demographic (age, gender, etc.) and psychological characteristics, and now also allows for further measures of their capacities, interests, motivations, life experiences or vulnerabilities.

- **Access.** Although the model is (and was originally) designed to understand the experiences of children already online, this has been added to acknowledge the growing complexities of access according to diverse locations, devices and levels of connectivity. It also acknowledges that for some children, access may be limited or problematic, and thus flags the importance of restricted access as this may affect any or all children to some degree.

- **Practices.** Previously designated as usage, this concept acknowledges the complexity of today's internet usage, including and going beyond the frequency and location of usage to encompass the array of ways of using or engaging with the internet, including practices of search, safety, privacy, communication, coping strategies and much more.

- **Skills.** The label of skills is used for simplicity, but we hereby refer to the array of digital skills, literacies and competences that are increasingly being researched and taught. As will be clear from the above, EU Kids Online has always examined skills, but now they are explicitly represented in the model. Moreover, where before we measured skills rather narrowly, in future a more multidimensional approach to digital skills and literacies is called for.

- **Opportunities**. These may be measured in terms of 'activities' (e.g., using the internet for schoolwork, chatting with peers, downloading music or playing games) but have been relabelled 'opportunities' in order to recognise the value of children's online activities, and to balance the previous emphasis on risk by inviting attention to the ways in which children do (and could) engage with the internet in potentially beneficial ways.

- **Risks.** Our work on risks began by focusing on cyberbullying, meeting 'strangers', 'sexting' and pornography, although we included in brief some risks associated with user-generated content, and some measures of excessive use (or 'addiction'; see Smahel et al., 2012). In the event, we found that most risks were interlinked in some way, with distinctions between them sometimes difficult to draw. These were previously labelled 'risk factors' to make clear that potentially harmful encounters online were as much or more a feature of the digital environment as they were a consequence of the child's activity, and further, that whether or not the risk (factors) resulted in actual harm was a question to be investigated rather than assumed.

- **Child's wellbeing and rights.** The original model focused on whether a child reported harm from an online risk or whether the child found a way to cope (and, perhaps, learn from the experience). The revised model is deliberately much broader, acknowledging the full range of ways in which internet use may influence a child's wellbeing, whether because the opportunities encountered online result in tangible benefits or because the risks encountered online result in tangible harms. Arguably it is the balance between benefits and harms that matters more than the occurrence of any particular benefit or harm. Further, a child's wellbeing is a matter both of empirical description and also, more normatively, a matter of their rights. The United Nations Convention on the Rights of the Child specifies many child rights, commonly grouped into rights to provision, participation and protection. Our positioning of wellbeing as an outcomes of children's internet use is thus ambitious, reflecting our view that any or all dimensions of wellbeing may be influenced by the availability (or absence) of internet access and use in the digital age. While established measures exist to assess wellbeing, how wellbeing is linked to children's rights to protection, provision and participation is more complex, and merits further research (Livingstone and Bulger, 2014). Our point here is that much of the evidence collected on children's internet use, opportunities and risks is relevant to the assessment of whether children's rights are supported or infringed in the digital age.

At the social level

- The revised model focuses on 'family' instead of parents, as research has shown that older

siblings, grandparents and other relatives and carers matter in children's socialisation in relation to the internet.

- It focuses on 'educators' instead of school, recognising that out-of-school, informal and other forms of learning are also important to understanding children's relation to the internet.

- Peers were already present in the original model, but now we would call for increased attention to their role, given research on how centrally they mediate children's online experiences, including child socialisation to (sub)cultures, perceptions of risks and opportunities, ways of coping with online risks and developing resilience.

- We have added 'community' to recognise the extended social networks with which the child interacts beyond family and school (whether in their locale, or through religious or ethnic or other forms of belonging), thus constituting a further source of socialisation of the child to cultural values and practices.

- We put 'digital ecology' at the social level (knowing that we have also put technological provision and regulation at the national level) because children within a country can experience different digital ecologies. So we are interested here in all the ways that the specific assemblage of digital devices, platforms and services used by children shape the ways they engage with the internet (and, through the internet, with the wider world). But we emphasise the different digital ecologies children may encounter. For example, children may participate in a coding club or a gaming community, or they may share a particular fandom online or congregate around a particular social networking service. At home and school, too, children have very different digital opportunities (and while this may be captured by a focus on home or school, our purpose is to highlight the importance of the digital at different levels of analysis. The different digital ecologies children participate in have their own character and affordances – commercially or publicly funded, for instance, or local or international in membership, or safe or transgressive in purpose. The notion of affordances recognises that 'the significance of technology lies not in what an artefact "is", not in what it specifically does, but in what it enables or affords as it mediates the

relationship between its user and other individuals' (Hutchby and Moran-Ellis, 2001, p. 3; see also Earl and Kimport, 2011).[10] The design of a platform and its appropriation by young people, then, is likely to favour or inhibit particular – empowered, safe, responsible – uses of the internet.

At the country level

- Here the changes between the original and the revised model are fewer, largely because our interview- and survey-based methods have centred on empirical research with children (and parents) rather than on country-level indicators. Working within Europe, it has also proved that within-country differences are much greater than any cross-country differences we could observe, leading us to devote more effort to identifying within-country sources of difference.

- We certainly do not mean to underestimate the importance of societal factors, but in the model we merely sketch what these might be, leaving it to future research to hypothesise which factors shape children's online experiences within a country, and also to conduct the research that might see whether cross-national variables may explain observed differences in children's online experiences across Europe (and beyond).

- Some specific changes are suggested, however. We have relabelled 'socioeconomic stratification' as 'societal inclusion' (inequality and welfare) to emphasise the importance of inclusion (or, as a problem for many children, forms of social and digital exclusion, where inequality may potentially be mitigated by welfare provision; Helsper, 2012).[11] We also thereby include additional dimensions of inequality to the socioeconomic, such as ethnicity, urban concentration, linguistic differences, systematic racism/exclusion of minority groups or marginalised groups, cognitive and/or physical disabilities.

- We have conjoined technological provision or infrastructure with regulation, not because there is no distinction, but because they are so heavily enmeshed in practice: technological infrastructures are established within particular regulatory frameworks, regulation evolves partly in response to technological innovation, and so forth. We define both in the broadest terms (including law, policy, self- and co-regulatory

bodies and normative practices, for instance, in the concept of 'regulation'), in the absence of strong evidence demonstrating which technological/regulatory factors matter most in explaining children's online experiences across countries. The aim is to recognise the interdependence of technological and regulatory infrastructures and the shifting interplay between media convergence, global brands and concentration (via acquisitions or partnerships).

▪ We have widened education to include other forms and institutions of knowledge (the national provision for libraries and museums, for instance). Thus we include the array of structural and institutional regulations, provisions and practices related to how the state provides education for its citizens, as well as all the private/commercial services that provide access to knowledge.

▪ We have added 'media' to the notion of culture and values, because in a heavily mediated society, culture and values cannot easily be separated from media representations (especially those of 'childhood', 'good parenting', the nature of risk, etc.). But the larger idea is to point to the holistic system of meanings of a given society, including religious confessions and practices, subculture practices, linguistic differences, public service media, tensions between freedom and censorship, media panics about childhood, and so forth.

Design of the model

▪ At all levels, there is recognition that the processes of influence go both ways, as indicated by the bidirectional arrows (of which we could include more, except for a desire for visual clarity of the model). It is particularly important to recognise that children themselves influence their family, peers, educational relationships and their community, online and offline. In other words, the engagement with the opportunities and risks of the internet is better characterised as a process of mutual learning, among all the different actors involved at the social level and even country level. In addition to making the arrows bidirectional rather than unidirectional (as in the original model), we have added a crucial feedback loop, to acknowledge that the relation between a child's identity and wellbeing is

transactional; the ways in which each influences the other unfolds over time in complex ways.[12]

▪ We have drawn broken diagonal lines at the heart of the model. This is to emphasise two key points. First, although the concepts of practices and skill seem very different, they are interdependent and, further, difficult to distinguish in practice. For example, if a child uses the privacy settings on a SNS, this implies that they know how to do so. Indeed, many researchers prefer to measure reported practices as a more concrete measure of skill than asking children if they know how to do X or Y. The broken line between opportunities and risks is equally significant, although here our intent is to acknowledge that these labels embed a judgement about whether an activity (e.g., making a new online contact) is an opportunity ('a new friend') or a risk (a potential abuser). This judgement is partly difficult to reach in the absence of a clear knowledge of outcomes and partly because judgements vary – notably, children may view an activity differently from adults.

▪ The broken lines are drawn diagonally to acknowledge the empirical findings from the EU Kids Online survey that practices and skills, on the one hand, and opportunities and risks, on the other, tend to be positively correlated – in each case, the more children experience the one, the more they tend to experience the other, and vice versa.

▪ Finally, we have refocused the revised model on outcomes (wellbeing, rights) that are not restricted to the online domain. What matters in relation to children's internet use matters to all aspects of their lives and is far from restricted to their online experiences. This allows us to pose the overall research question embedded in the model in more precise terms. Rather than asking, as before, what individual, social and country level factors influence children's online harm or coping, we now ask, what individual, social and country level factors influence children's engagement with the internet, and how does that engagement, in turn, influence their wellbeing? In other words, social science has long shown that the factors identified in the model in the outer layers of the model influence children's wellbeing, but in the digital age we must also

ask, what difference does it make to their overall wellbeing if children also (or increasingly) engage in particular ways with the internet?

Questions for future research

Researchers like to conclude that 'more research is needed', and indeed it is. Reflecting on our past decade of qualitative and quantitative research, we propose the following questions as a priority. We frame them in terms of the main elements and relations among those in our revised model. Of course this list is far from comprehensive, and we invite researchers to debate these, identify more or better questions if they wish, and to help us take this agenda forward theoretically and empirically.

1. In relation to children's *identity and resources*, beyond the obvious demographic variables, which factors make a difference to the outcomes of internet use? There is too little research on ethnicity, sexuality, culture, fandom or other subgroups, and too little that examines variations in terms of resilience, vulnerability, expertise, experience or motivations (for a thorough review of this growing literature, see Vandoninck, 2015).

2. *Access* to the internet, which may itself be considered a right and the lack of which is increasingly problematic, represents a fast-changing phenomenon. As the pervasiveness of mobile devices to access the internet makes the integration of online activities into children's everyday life practices ever more seamless, research must not only track the nature of access but also inquire into the new opportunities or risks that it may facilitate.

3. In calling for a multidimensional analysis of children's *digital skills and literacies*, we urge not only more research on the nature of these skills and literacies, but also more research evaluating their mediating role in relation to children's wellbeing, along with more research on the ways in which skills can be developed. Such research can draw on the insights of media literacy and media education research as well as that of information literacy and allied fields (for a recent review, see Livingstone et al., 2013; for developments in measuring digital skills, see van Deursen, Helsper and Eynon, 2015).

4. Our conception of the '*ladder of opportunities*' has been empirical – the least practised activities were seen meaningfully at the top, since they seem particularly interactive, creative or civic in nature. But we lack a theory-led account of what to expect at the top (or bottom) of the ladder, possibly differentiated by circumstance. Nor is it yet well understood how online opportunities may (or may not) result in tangible benefits to children.

5. Most of *the risks* examined thus far have concerned potential harm to children's safety, but attention is now rightly focused also on the risks to their personal data – yet which commercial risks linked to data collection and profiling, personalised and location-sensitive marketing, etc. are now being discussed, little empirical research is available yet. This raises the question as to what *other kinds of risks* should be researched, and our qualitative research with children sketched a host of concerns from children (Smahel and Wright, 2014), including privacy issues and online reputation management, the misuse of personal data (Haddon and Vincent (2014), and potentially problematic situations arising from the convergence of peer pressure in relation to practices of self-presentation ('selfies') and sociotechnical affordances (new apps, mobile devices, etc.; see Mascheroni, Vincent and Jimenez, 2015).

6. This raises some specific questions about the interplay between children's digital practices and the *proprietary policies* and mechanisms developed by private companies that own digital platforms. For the areas of risk that are not regulated by government legislation, these are largely managed through self-regulation (see, for example, Lievens, Dumortier and Ryan, 2006; Lievens, 2007, 2010; McLaughlin, 2013) and privatised governance (see, for example, DeNardis, 2014) in ways that, while they become part of the normalised digital ecology, may affect the nature and scope of risks and harms that children experience. Whether these operate in the interests of children, how the actions of industry and regulators on the one hand, and families on the other, shape each other, and what improvements should be called for, merits further research.

7. It also invites further research on children's desire to experiment and even transgress boundaries (c.f. 'risky online opportunities'; Livingstone, Ólafsson and Staksrud, 2013; see also Livingstone, 2014a; boyd, 2014). Too much research positions children as recipients of online risks or opportunities rather than understanding their *role as agents* in the digital age. Yet it is only by understanding children's agency that we will understand how children learn to cope and become resilient when engaging with the internet (although see Vandoninck, d'Haenens and Segers, 2012; Coleman and Hagell, 2007; Colombo and Fortunati, 2011; and on vulnerability, see Schoon, 2006; Livingstone and Palmer, 2012).

8. EU Kids Online made considerable progress in defining, measuring and understanding *how parents mediate* their children's internet use (Garmendia et al., 2012; Dürager and Sonck, 2014), how children perceive parental mediations (Haddon, 2015), and how parental perceptions of online risks influence and shape children's own perceptions and concerns (Mascheroni, Jorge and Farrugia, 2014). But how is parental mediation changing as parental skills develop over time? And can we extend a similar depth of analysis to understanding *the role of other socialising agents* in children's lives?

9. Children are socialised to digital media at a *very young age*. Indeed, the touch screen interface means that children can access smartphones and tablets relatively independently at an earlier age than for technologies such as laptops (Chaudron, 2015). The model discussed in this report was developed for 9- to 16-year-olds, so how does it apply for younger children? (Or even for adults?)

10. *Sociotechnological innovations* in smart/wearable/ubiquitous everyday devices (as captured by the notion of 'the internet of things') raises particularly intense challenges for research on children's lives, both the potential benefits, which have barely been scoped, and the potential harms, where moral panics are already shaping parental (and researchers') imaginations.

11. Having refocused the model on children's wellbeing and rights, research should now develop a richer analysis of both. The many debates over both concepts in studies of childhood and social/public policy are only now recognising the potential of the internet to contribute to, even to reconfigure the pathways to wellbeing. By focusing on *wellbeing*, research can begin to open up new questions about the beneficial outcomes (at both individual and collective level) of young people's engagement with the internet – for example, in terms of sociality or identity, formal and informal learning, social and democratic participation, health and sexual information, creativity and coding. This, in turn, positions risk of harm primarily as an impediment to wellbeing, along with the risk of not having internet access (in light of the 'participation gap'; Hargittai and Walejko, 2008; see also Jenkins, 2009).

12. Finally, by emphasising the relations between online and offline inclusion and the broader (beneficial and negative) outcomes of internet use by children, the revised framework also brings to the forefront the question of *children's rights* in the digital age and how to balance protection and autonomy: the right to *protection* from the variety of risks that a child may encounter on the internet, through specific policies aimed at regulation, awareness-raising and the empowerment of children by fostering their skills and resilience as well as through legal protection; the right to the *provision* of educational technology, access to positive online content and efforts to promote children's digital skills, in an equitable way; the right to *participation*, that is, the inclusion of children in all societal processes, including in matters of education, research and governance of ICTs (Livingstone and Bulger, 2014).[13] In this lies the recognition that there are also new issues relating to rights (and indeed, responsibilities) that come with online participation, such as issues of privacy and data protection, and the right to protection against all forms of online abuse.

Acknowledgements

Endnotes

[1] In fact, the final report for phase 1 included a parallel table for opportunities (educational, civic, creative and identity-related) broken down by the same three categories of content, contact and conduct.

[2] As originally proposed in Livingstone and Helsper (2007). This was then tested using EU Kids Online data in Pruulmann-Vengerfeldt and Runnel (2012).

[3] Peers matter too, although we lacked resources to pursue this in depth; see Kalmus, von Feilitzen and Siibak (2012).

[4] Visit bit.ly/13Z8ZrD

[5] All EU Kids Online reports and selected presentations are available at http://lse.ac.uk/EUKidsOnlineReports

[6] See reports at http://netchildrengomobile.eu/reports/

[7] For Net Children Go Mobile, see http://netchildrengomobile.eu/; for a comparison of EU Kids Online survey findings (2010) and Net Children Go Mobile (2014), see Livingstone et al. (2014).

[8] For unprotected networkers, the challenge is that parents are not as involved in their children's internet use as in the supported risky explorers cluster that they otherwise resemble, probably because, as with the semi-supported risky gamers, the internet is a relatively recent addition in many families, especially for the parents. For those protected by restrictions, the question for policy-makers, parents and educators in these countries is whether opportunity uptake can be increased while simultaneously limiting more extensive risk of harm. It is possible that this could be achieved by a move away from more restrictive forms of mediation towards more active mediation patterns. Such an approach would have to acknowledge that risk will thereby result, and further investigation is needed to see whether children can become sufficiently resilient to cope with risk when they encounter it. Among semi-supported gamers, parents may do

relatively little because the online opportunities and associated digital skills have only emerged relatively recently in these countries, so supportive structures and good practice are not yet established. Although parents seem to be trying strategies across the board, further investigation is needed to understand why levels of risk are relatively high and what further interventions would be beneficial to encourage opportunities and reduce harm. For supported risky explorers, there is a relatively small group of vulnerable children in these countries that experience similar levels of risk to their peers but lack the parental mediation and opportunities also enjoyed by their peers. Policy-makers should therefore support parents and schools, and stimulate industry players to enhance responsible practices in relation to internet safety, including seeking to reach and support those few vulnerable children who may 'get lost' in an environment full of experts.

[9] Although our 2014 qualitative report, responsive to themes children themselves wished to raise, did examine such issues. See Smahel and Wright (2014).

[10] By adopting this approach to technology, we attempt to recognise the material opportunities and constraints that technologies provide to users, and that these affordances only acquire meaning through the various ways in which individuals use them. Mobile communication is paradigmatic in this respect as it emphasises the social dimension of communicative affordances, by showing how affordances (e.g., portability of devices and communication/communities of interaction) are shaping and shaped by social uses (the so-called 'perpetual contact'). While individuals may negotiate their 'anywhere, anytime' accessibility to others, the entrenchment of communicative affordances into normative communicative practices means that children may feel the pressure to always be available to peers. See Mascheroni and Vincent (under review).

[11] For recent evidence of how socioeconomic inequality matters at the family level, see Mascheroni and Ólafsson (2015), Livingstone et al. (2015) and Paus-Hasebrink, Sinner and Prochazka (2014).

[12] There are some similarities with Valkenburg and Peter's (2013) 'differential susceptibility to media effects model', although the model offered here is more strongly cyclic in its emphasis on bidirectional and transactional influences.

EU Kids Online

References

- *Barbosa, A. (2013)* ICT Kids Online Brazil: Survey on internet use by children in Brazil*. São Paulo: Cetic.br. http://cetic.br/media/docs/publicacoes/2/tic-kids-online-2013.pdf*

- *boyd, d. (2014)* It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.*

- *Brikse, I. and Spurava, G. (2014)* Kids online – Safety and risks: Full findings from children survey of 9- to 16-year-olds in Latvia. Riga: *Faculty of Social Sciences, University of Latvia.* http://eprints.lse.ac.uk/60574/

- *Bronfenbrenner, U. (1979)* The ecology of human development*. Cambridge, MA: Harvard University Press.*

- *Buckingham, D. and Willett, R. (eds) (2006)* Digital generations: Children, Young people, and new media*. Mahwah, NJ: Lawrence Erlbaum Associates.*

- *Campbell, A. and Muncer, S. (eds) (1988)* The social child: Studies in developmental psychology. *London: Psychology Press.*

- *Campbell-Sills, L., Cohan, S.L. and Stein, M.B. (2006) 'Relationship of resilience to personality, coping, and psychiatric symptoms in young adults.'* Behaviour Research and Therapy 44*(4), 585–599.*

- *Chaudron, S. (2015)* Young children (0–8) and digital technology: A qualitative exploratory study across seven countries. *RC 93239/EUR 27052. publications.jrc.ec.europa.eu/repository/bitstream /JRC93239/lbna27052enn.pdf*

- *Coleman, J. and Hagell, A. (eds) (2007)* Adolescence, risk and resilience: Against the odds*. Chichester: Wiley.*

- *Colombo, F. and Fortunati, L. (eds) (2011)* Broadband society and generational changes *(vol. 5). Frankfurt am Main: Peter Lang.*

- *DeNardis, L.E. (2014)* The global war for internet governance*. New Haven, CT: Yale University Press.*

- *d'Haenens, L., Vandoninck, S. and Donoso, V. (2013)* How to cope and build online resilience? *London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/48115/

- *Dürager, A. and Sonck, N. (2014)* Testing the reliability of scales on parental internet mediation*. London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/60220/

- *Earl, J. and Kimport, K. (2011)* Digitally enabled social change: Activism in the internet age*. Cambridge, MA: The MIT Press.*

- *Finkelhor, D. (2008)* Childhood victimization: Violence, crime, and abuse in the lives of young people*. Oxford: Oxford University Press.*

- *Garmendia, M., Garitaonandia, C., Martinez, G. and Casado, M.Á. (2012) 'The effectiveness of parental mediation.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 231–244). Bristol: Policy Press.*

- *Goodman, R., Meltzer, H. and Bailey, V. (1998) 'The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version.'* European Child and Adolescent Psychiatry 7*, 125–130.*

- *Green, L., Brady, D., Ólafsson, K., Hartley, J. and Lumby, C. (2011)* Risks and safety for Australian children on the internet: Full findings from the AU Kids Online survey of 9–16 year olds and their parents. *http://cultural-science.org/journal/index.php/culturalscience/arti cle/view/49/129*

- *Greenfield, P. and Yan, Z. (2006) 'Children, adolescents, and the internet: a new field of inquiry in developmental psychology.'* Developmental Psychology 42*(3), 391–394.*

- *Haddon, L. (2015) 'Children's critical evaluation of parental mediation.'* Cyberpsychology: Journal of Psychosocial Research on Cyberspace 9*(1), article 2. www.cyberpsychology.eu/view.php?cisloclanku= 2015051402&article=2*

- *Haddon, L. and Vincent, J. (2014)* European children and their carers' understanding of use, risks and safety issues relating to convergent mobile media*. Milano: Educatt.* http://netchildrengomobile.eu/reports/

- *Haddon, L., Livingstone, S. and EU Kids Online network (2012)* EU Kids Online: National perspectives*. London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/46878/

- *Hargittai, E. and Walejko, G. (2008) 'The participation divide: Content creation and sharing*

in the digital age.' Information, Communication & Society 11*(2), 239–256.*

- *Hasebrink, U. (2014)* Children's changing online experiences in a longitudinal perspective. *EU Kids Online, London.* http://eprints.lse.ac.uk/60083/

- *Hasebrink, U., Livingstone, S. and Haddon, L. (2008)* Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online*. Deliverable D3.2 for the EC Safer Internet Plus Programme. London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/21656/

- *Helsper, E.J. (2012) 'A corresponding fields model of digital inclusion.'* Communication Theory 22(*4), 403–426.*

- *Helsper, E.J. and Eynon, R. (2010) 'Digital natives: where is the evidence?',* British Educational Research Journal 36*(3), 503–520.* http://eprints.lse.ac.uk/27739/

- *Helsper, E.J., Kalmus, V., Hasebrink, U., Sagvari, B. and de Haan, J. (2013)* Country classification: Opportunities, risks, harm and parental mediation*. London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/52023/

- *Hermida, M. (2013)* EU Kids Online: Schweiz*.* www.eukidsonline.ch/wp-content/uploads/2013/05/EU_Kids_Online_Schweiz.pdf

- *Hutchby, I. and Moran-Ellis, J. (2001) 'Introduction: relating children, technology and culture.' In I. Hutchby and J. Moran-Ellis (eds)* Children, technology and culture: The impacts of technologies in children's everyday lives *(pp. 1–10). London: Routledge.*

- *Kalmus, V., von Feilitzen, C. and Siibak, A. (2012) 'Effectiveness of teachers' and peers' mediation in supporting opportunities and reducing risks online.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 245–256). Bristol: Policy Press.*

- *Jenkins, H. (2009)* Confronting the challenges of participatory culture: Media education for the 21st century*. Cambridge, MA: The MIT Press.*

- *Lemish, D. (2015)* Children and media: A global perspective*. Malden: MA: Wiley-Blackwell.*

- *Lievens, E. (2007) 'Protecting children in the new media environment: Rising to the regulatory challenge?'* Telematics and Informatics 24*(4), 315–330.*

- *Lievens, E. (2010)* Protecting children in the digital era: The use of alternative regulatory instruments. *Leiden/Boston MA: Martinus Nijhoff.*

- *Lievens, E., Dumortier, J. and Ryan, P.S. (2006)* 'The co-protection of minors in new media: A European approach to co-regulation.' *Journal of Juvenile Law & Policy 10, 97.*

- *Livingstone, S. (2013*) 'Online risk, harm and vulnerability.' ZER: Journal of Communication Studies 18*, 13–28.* www.ehu.es/zer/hemeroteca/pdfs/zer35-01-livingstone.pdf

- *Livingstone, S. (2014)* EU Kids Online: Findings, methods, recommendations*. London: EU Kids Online, LSE.* http://lsedesignunit.com/EUKidsOnline/

- *Livingstone, S. (2014a) 'Developing social media literacy: How children learn to interpret risky opportunities on social network sites.'* Communications. The European Journal of Communication Research 39*(3), 283–303.* http://eprints.lse.ac.uk/62129/

- *Livingstone, S. and Bulger, M. (2014) 'A global research agenda for children's rights in the digital age.'* Journal of Children and Media 8*(4), 317–335.* http://eprints.lse.ac.uk/62130/

- *Livingstone, S. and Haddon, L. (eds) (2009)* Kids Online: Opportunities and risks for children*. Bristol: Policy Press.*

- *Livingstone, S. and Haddon, L. (2009a)* EU Kids Online: Final report. Deliverable D6.5 for the EC Safer Internet Plus Programme. *London: EU Kids Online, LSE.* http://eprints.lse.ac.uk/24372/

- *Livingstone, S. and Haddon, L. (2012) 'Theoretical framework for children's internet use.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 1–14). Bristol: Policy Press.* http://eprints.lse.ac.uk/55436/

- *Livingstone, S. and Haddon, L. (2014)* A thematic network to stimulate and coordinate investigation into the use of new media by children. Final management report*.* http://eprints.lse.ac.uk/60228/

- *Livingstone, S. and Helper, E.J. (2007) 'Gradations in digital inclusion: Children, young people and the digital divide.'* New Media and Society 9*, 671–696. http://eprints.lse.ac.uk/2768*

- *Livingstone, S. and Palmer, T. (2012)* Identifying vulnerable children online and what strategies can help them. Report of the seminar arranged by the UKCCIS Evidence Group*. London: UK Council for Child Internet Safety (UKCCIS). http://eprints.lse.ac.uk/44222/*

- *Livingstone, S., Cagiltay, K. and Ólafsson, K. (2015) 'EU Kids Online II dataset: a cross-national study of children's use of the internet and its associated opportunities and risks.'* British Journal of Educational Technology 46*(5), 988–992.*

- *Livingstone, S., Haddon, L. and Görzig, A. (eds) (2012)* Children, risk and safety online: Research and policy challenges in comparative perspective*. Bristol: Policy Press. Abstracts available at http://eprints.lse.ac.uk/44761/1/EUKidsOnlinebookExecSummary.pdf*

- *Livingstone, S., Hasebrink, U. and Görzig, A. (2012) 'A general model of determinants of risk and safety.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 323–337). Bristol: Policy Press.*

- *Livingstone, S., Ólafsson, K. and Staksrud, E. (2013) 'Risky social networking practices among "underage" users: Lessons for evidence-based policy.'* Journal for Computer-Mediated Communication 18*(3), 303–320. http://onlinelibrary.wiley.com/doi/10.1111/jcc4.12012/epdf*

- *Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011)* Risks and safety on the internet: The perspective of European children. Full findings*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/33731/*

- *Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011a)* EU Kids Online II: Final report*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/39351/*

- *Livingstone, S., Mascheroni, G., Ólafsson, K. and Haddon, L. (2014)* Children's online risks and opportunities: Comparative findings from EU Kids Online and Net Children Go Mobile*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/60513/*

- *Livingstone, S., Ólafsson, K., O'Neill, B. and Donoso, V. (2012)* Towards a better internet for children: Findings and recommendations from EU Kids Online for the CEO Coalition*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/44213/*

- *Livingstone, S., Grandío, M., Wijnen, C., Costa, C. and Papaioannou, T. (2013) 'Situating media literacy in the changing media environment: critical insights from European research on audiences.' In N. Carpentier, K. Schroeder and L. Hallett (eds)* Audience transformations: Shifting audience positions in late modernity *(pp. 210–227). Bristol: Intellect. http://eprints.lse.ac.uk/64072/*

- *Livingstone, S., Mascheroni, G., Dreier, M., Chaudron, S. and Lagae, K. (2015)* How parents of young children manage digital devices at home: The role of income, education and parental style*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/63378/*

- *McLaughlin, S. (2013) 'Regulation and legislation.' In B. O'Neill, E. Staksrud and S. McLaughlin,* Towards a better internet for children? Policy pillars, players and paradoxes *(pp. 77–91). Gothenburg: Nordicom.*

- *Mascheroni, G. and Ólafsson, K. (2015) 'The mobile internet: access, use, opportunities and divides among European children.'* New Media & Society*, 1–23.*

- *Mascheroni, G. and Vincent, J. (under review) 'Perpetual contact as a communicative affordance: opportunities, constraints and emotions.'*

- *Mascheroni, G., Jorge, A. and Farrugia, L. (2014) 'Media representations and children's discourses on online risks: Findings from qualitative research in nine European countries.'* Cyberpsychology: Journal of Psychosocial Research on Cyberspace 8*(2), article 2. www.cyberpsychology.eu/view.php?cisloclanku=2014072101&article=2*

- *Mascheroni, G., Vincent, J. and Jimenez, E. (2015) '"Girls are addicted to likes so they post semi-naked selfies": Peer mediation, normativity and the construction of identity online.'* Cyberpsychology: Journal of Psychosocial Research on Cyberspace 9*(1), article 5. www.cyberpsychology.eu/view.php?cisloclanku=2015051401&article=5*

- *Masten, A.S. (2001) 'Ordinary magic: Resilience processes in development.'* American Psychologist 56*(3), 227.*

- *O'Neill, B. and Staksrud, E. (2014)* Final recommendations for policy. *London: EU Kids Online, LSE. http://eprints.lse.ac.uk/59518/*

- *O'Neill, B., Staksrud, E. and McLaughlin, S. (eds) (2013)* Children and internet safety in Europe: Policy debates and challenges *(pp. 91–107). Gothenburg: Nordicom. Abstracts available at http://eprints.lse.ac.uk/57403/*

- *Paus-Hasebrink, I., Sinner, P. and Prochazka, F. (2014). Children's online experiences in socially disadvantaged families: European evidence and policy recommendations. At http://eprints.lse.ac.uk/57878/*

- *Pruulmann-Vengerfeldt, P. and Runnel, P. (2012) 'Online opportunities.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 73–86). Bristol: Policy Press.*

- *Renn, O. (2008)* Risk governance: Coping with uncertainty in a complex world*. London: Earthscan.*

- *Reyna, V.F. and Farley, F. (2006) 'Risk and rationality in adolescent decision making implications for theory, practice, and public policy.'* Psychological Science in the Public Interest 7*(1), 1–44.*

- *Schoon, I. (2006)* Risk and resilience: Adaptations in changing times*. New York: Cambridge University Press.*

- *Smahel, D. and Wright, M.F. (2014)* The meaning of online problematic situations for children: Results of cross-cultural qualitative investigation in nine European countries*. London: EU Kids Online, LSE. http://eprints.lse.ac.uk/56972/*

- *Smahel, D., Helsper, E.J., Green, L., Kalmus, V., Blinka, L. and Ólafsson, K. (2012)* Excessive internet use among European children. *London: EU Kids Online, LSE. http://eprints.lse.ac.uk/47344/*

- *Soldatova, G., Rasskazova, E., Zotova, E., Lebesheva, M., Geer, M. and Roggendorf, P. (2014)* Russian Kids Online: Key findings of the EU Kids Online II survey in Russia. *Moscow: Foundation for Internet Development. http://eprints.lse.ac.uk/60575/*

- *Staksrud, E. (2013)* Children in the online world: Risk, regulation, rights. *Aldershot: Ashgate.*

- *Staksrud, E., Livingstone, S., Haddon, L. and Ólafsson, K. (2009)* What do we know about children's use of online technologies? A report on data availability and research gaps in Europe. Second edition. London: EU Kids Online, LSE. *http://eprints.lse.ac.uk/24367/*

- *Valkenburg, P.M. and Peter, J. (2013) 'The differential susceptibility to media effects model.'* Journal of Communication 63*(2), 221–243.* http://www.ccam-ascor.nl/images/stories/publications/Journal_PDF_ENG/2013/2013%20Valkenburg%20%20Peter%20DSMM.pdf

- *van Deursen, A.J.A.M., Helsper, E.J. and Eynon, R. (2015) 'Development and validation of the internet skills scale (ISS).'* Information, Communication and Society*. Online at http://www.tandfonline.com/doi/full/10.1080/1369118X.2015.1078834*

- *van Dijck, J. (2013)* The culture of connectivity: A critical history of social media. *Oxford: Oxford University Press.*

- *Vandoninck, S. (2015, in prep.). Dealing with online risks: how to develop adequate coping strategies and preventive measures with a focus on vulnerable children (doctoral dissertation). University of Leuven, Belgium.*

- *Vandoninck, S. and d'Haenens, L. (2014) 'Ways to avoid problematic situations and negative experiences: children's preventive measures online.'* Communications: The European Journal of Communication Research 39*(3), 261–282.*

- *Vandoninck, S. and d'Haenens, L. (forthcoming) 'Children's online coping strategies: Rethinking coping typologies in a risk-specific approach.'* Journal of Adolescence*.*

- *Vandoninck, S., d'Haenens, L. and Roe, K. (2013) 'Online risks: Coping strategies of less resilient children and teenagers across Europe.'* Journal of Children and Media 7*(1), 60–78.*

- *Vandoninck, S., d'Haenens, L. and Segers, K. (2012) 'Coping and resilience: Children's responses to online risks.' In S. Livingstone, L. Haddon and A. Görzig (eds)* Children, risk and safety on the internet: Research and policy challenges in comparative perspective *(pp. 205–218). Bristol: Policy Press.*

EU Kids Online

Further reports available at

www.eukidsonline.net

Vincent, J. (2015) *Mobile opportunities: Exploring positive mobile opportunities for European children*. At http://eprints.lse.ac.uk/61015/

EU Kids Online (2014) *EU Kids Online: findings, methods, recommendations*. At http://eprints.lse.ac.uk/60512/

Livingstone, S., Mascheroni, G., Ólafsson, K. & Haddon, L. (2014) *Children's online risks and opportunities: Comparative findings from EU Kids Online and Net Children Go Mobile*. At http://eprints.lse.ac.uk/60513/

Hasebrink, U. (2014) *Children's changing online experiences in a longitudinal perspective*. At http://eprints.lse.ac.uk/60083/

O'Neill, B., Staksrud, E. with members of the EU Kids Online network (2014).) *Final recommendations for policy*. At http://eprints.lse.ac.uk/59518/

O'Neill, B. (2014) Policy influences and country clusters. A comparative analysis of internet safety policy implementation. At http://eprints.lse.ac.uk/57247/

Paus-Hasebrink, I., Sinner, P. and Prochazka, F. (2014). *Children's online experiences in socially disadvantaged families.* At http://eprints.lse.ac.uk/57878/

Vandoninck, S., d'Haenens, L. and Smahel, D (2014). *Preventive measures: how youngsters avoid online risks*. At http://eprints.lse.ac.uk/55797/

Holloway, D., Green, L. and Livingstone, S. (2013). *Zero to eight. Young children and their internet use.* At http://eprints.lse.ac.uk/52630/

Helsper, E. J., Kalmus, V., Hasebrink, U., Sagvari, B. and de Haan, J. (2013). *Country classification: Opportunities, risks, harm and parental mediation*. At http://eprints.lse.ac.uk/52023/

Livingstone, S., Kirwil, L., Ponte, C. and Staksrud, E. with the EU Kids Online Network (2013). *In their own words: What bothers children online?* At http://eprints.lse.ac.uk/48357/

d'Haenens, L., Vandonink, S. and Donoso, V. (2013). *How to cope and build resilience*. At http://eprints.lse.ac.uk/48115/

Livingstone, S., Ólafsson, K., O'Neill, B. and Donoso, V. (2012). *Towards a better internet for children: Findings and recommendations from EU Kids Online to inform the CEO coalition*. London: EU Kids Online, LSE. At http://eprints.lse.ac.uk/44213/

Haddon, L., Livingstone, S. and the EU Kids Online Network (2012). *EU Kids Online: National perspectives*. At http://eprints.lse.ac.uk/46878/

Smahel, D., Helsper, E., Green, L., Kalmus, V., Blinka, L. and Ólafsson, K. (2012). *Excessive internet use among European children*. At http://eprints.lse.ac.uk/47344/

Dürager, A. and Livingstone, S. (2012). *How can parents support children's internet safety?* At http://eprints.lse.ac.uk/id/eprint/42872/

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011). *EU Kids Online final report*. At http://eprints.lse.ac.uk/39351/

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011). *Disadvantaged children and online risk*. At http://eprints.lse.ac.uk/39385/

Livingstone, S., Ólafsson, K. and Staksrud, E. (2011). *Social networking, age and privacy*. At http://eprints.lse.ac.uk/35849/

Sonck, N., Livingstone, S., Kuiper, E. and de Haan, J. (2011). *Digital literacy and safety skills*. At http://eprints.lse.ac.uk/33733/

Hasebrink, U., Görzig, A., Haddon, L., Kalmus, V. and Livingstone, S. (2011). *Patterns of risk and safety online*. At http://eprints.lse.ac.uk/39356/

Livingstone, S. and Ólafsson, K. (2011). *Risky communication online*. At http://eprints.lse.ac.uk/33732/

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children: Full findings*. At http://eprints.lse.ac.uk/33731/

Sonck, N., Livingstone, S., Kuiper, E. and., & de Haan, J. (2011). *Digital literacy and safety skills*. At http://eprints.lse.ac.uk/33733/

Livingstone, S., Ólafsson, K. and., & Staksrud, E. (2011). *Social networking, age and privacy*. At http://eprints.lse.ac.uk/35849/

Görzig, A. (2011) *Who bullies and who is bullied online?* At http://eprints.lse.ac.uk/39601/

Livingstone, S., Görzig, A. and., & Ólafsson, K. (2011). *Disadvantaged children and online risk*. At http://eprints.lse.ac.uk/39385/