Article

new media & society
2018, Vol. 20(3) 1103–1122

DOI: 10.1177/1461444816685930
journals.sagepub.com/home/nms
SAGE

European research on children's internet use: Assessing the past and anticipating the future

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Abstract

In this article, we reflect critically on the research agenda on children's Internet use, framing our analysis using Wellman's three ages of Internet studies and taking as our case study the three phases of research by the EU Kids Online network from 2006 to 2014. Following the heyday of moral panics, risk discourses and censorious policy-making that led to the European Commission's first Internet Action Plan 1999–2002, EU Kids Online focused on conceptual clarification, evidence review and debunking of myths, thereby illustrating the value of systematic documentation and mapping, and grounding academic, public and policy-makers' understanding of 'the Internet' in children's lives. Consonant with Wellman's third age, which emphasizes analysis and contextualization, the EU Kids Online model of children's online risks and opportunities helps shift the agenda from *how* children engage with the Internet as a medium to how they engage with the world *mediated by* the Internet.

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Keywords
Children, digital skills, Europe, Internet, Internet safety, online opportunities, online risks, research agenda, evidence-based policy

Setting the scene

In 2003, *New Media & Society* published an assessment of the emerging research agenda on children's use of the Internet, noting considerable speculation but rather few findings (Livingstone, 2003). At the time, fewer than half of all European households had Internet access, with wide divides within and across countries (Eurostat, n.d.). The Internet, then, meant expensive fixed-line connectivity via a desktop computer, a far cry from today's personalized digital devices with their multiplicity of apps linking to diverse networked services. Children's Internet use was concentrated in wealthy countries, making for few challenges to a universalizing discourse, which implied that 'children' or 'the internet' or 'risks and opportunities' mean much the same everywhere, again, a far cry from today's globalized networks marked by cross-national differences of history, culture and policy-making (Cortesi and Gasser, 2015; Livingstone et al., 2015a). Increasingly across the world, today's children are – or wish to be – 'always on', with both them, their families and their schools relying on the Internet for any and all dimensions of childhood. On the horizon are 'the internet of things', smart homes, wearable devices, robotics, augmented and virtual reality, and as hitherto, children and young people are likely to be pioneers in their appropriation (Gubbi et al., 2013; Manches et al., 2015; Thomas and Lupton, 2015).

Although the body of empirical work on children and young people's use of the Internet was initially small, steps were being taken to shape research and policy agendas, building on established traditions of research from mass communication, family studies, child development, consumption research, information sciences and educational technology research. In this article, our purpose is to review how the research agenda has developed in order to understand the past and present, and to identify future directions that may benefit research on children's use of the Internet and also – via policy-making – children's Internet use itself. We draw on Barry Wellman's (2004) three ages of Internet studies (see also Ess and Dutton, 2013), although we find that the three ages took longer to unfold, with more overlap among the 'ages' than Wellman originally specified. With our focus on developments in Europe, we take as our case study the three phases of work by the EU Kids Online network of 150+ researchers from 33 countries, funded by the European Commission (EC) from 2006 until 2014. Since this network is recognized by European policy-makers for its insights and pan-European findings, and since the authors have played a leading role within the network, giving them inside knowledge of its work, we hope that this is productive in understanding the intersections between research and policy regarding children's Internet use. We also recognize the critical challenges of conducting independent research (published in peer-reviewed journals) in tandem with sustaining a dialogue with policy-makers (Livingstone, 2013).

In 2003, the EU Kids Online evidence database could locate only 150 or so published studies on European children's Internet use. While there were already several European centres of excellence, findings were scattered, reflecting individual research interests or

disciplinary traditions more than a shared multidisciplinary endeavour. Indeed, there was little sense of a European approach, with the most highly cited studies having been conducted in the United States, where cultures of childhood and Internet-related policy have been rather different (Drotner and Livingstone, 2008). Ten years later, paralleling the rapid rise of Internet adoption by European households (Eurostat, n.d.), the EU Kids Online database contained 1500+ entries, reflecting a marked expansion of research on children's Internet use in Europe (Ólafsson et al., 2014). But, as we shall show, this is not simply a matter of more of the same. We argue that Wellman's first age, dubbed 'punditry rides rampant', captures the heyday of moral panics, risk discourses and censorious policy-makers that surrounded the early history of the EC's Internet Action Plan (EC, 1999–2002). The shift in policy and funding discourse, leading to the main expansion in European research, including EU Kids Online's 2010 survey of 25,000 European children's online risks and opportunities, is captured by Wellman's second age ('systematic documentation of users and uses'). His third age ('from documentation to analysis') characterizes the present challenge of uniting theory and evidence to deepen multidisciplinary research insights cross-nationally in order to provide a firm but critical foundation for a forward-looking policy and the practice needed to keep pace with a fast-changing socio-technological environment.

The three ages of research on children and the Internet

Moral panics and worried policy-makers

The 1990s were characterized by techno-utopianism and dystopianism in equal measure, as Wellman (2004) describes, with analysts tending to act as if 'the world had started anew with the internet' (p. 124). 'Online' was widely seen as somehow unreal ('virtual' and 'cyber'), a 'technological marvel' entirely distinct from 'offline' (which was 'real') and with the potential to reform, transform and enlighten. Social media had hardly been invented or were used just by a few niche users, often self-avowed 'geeks' or gamers. Children were described as 'digital natives' by contrast with their 'digital immigrant' parents and teachers (although critiques of this binary opposition quickly mounted; see Helsper and Eynon, 2010). Moral panics about technological change fuelled anxieties about 'stranger danger' and pornography, framing the Internet as an ungovernable 'Wild West', unsafe for the impressionable young.

Media coverage from this period highlighted the risks of violent and pornographic content, grooming and aggressive conduct, as research showed (Haddon and Stald, 2009), albeit with cross-cultural variations (Ponte et al., 2009). This, in turn, influenced the research agenda, for example, in terms of policy and funding bodies' concern to measure the prevalence and consequences of online risks (Stald and Haddon, 2008). The EC (1997) enacted the recommendations of its *Green Paper on the Protection of Minors and Human Dignity in Audiovisual and Information Services* by coordinating the 'development of national self-regulation by promoting common codes of practice and principles to be applied by the Member States, industries and interested parties and the European Union' (p. 1). Addressing the already-heightened public concern over risks to children but paying little attention to the potential benefits (these being partly addressed separately by other

EC structures through the promotion of digital skills in education), the goal was safety oriented with restriction as the prescribed regulatory remedy ('to ensure that minors do not gain access, without the consent of their parents or teachers, to legal content which may impair their physical, mental or moral development', EC, 1997: para. 2.2.1).

In 1999, the European Parliament and European Council (1999) initiated a Multiannual Community Action Plan on promoting safer use of the Internet by combating illegal and harmful content on global networks. A series of benchmark studies were conducted, primarily by UK non-governmental organizations (NGOs), to guide the following five action lines: (a) hotlines to report illegal 'child pornography' content, (b) online content classification and filtering, (c) legislation, (d) self-regulation and (e) public awareness raising (Staksrud, 2013). Projects funded under the Internet Action Plan, later the Safer Internet Programme (and now the Better Internet for Kids Programme), invited researchers to join a multistakeholder dialogue to promote self-regulatory solutions, but did not then fund research directly. The result was an at-times fearful discourse of control over children's access and content, with parents and teachers targeted as ultimately responsible for children's Internet use and its consequences (Staksrud and Ólafsson, 2013), entrenching a taken-for-granted bifurcation between policy and practice concerned to minimize online risks and that designed to maximize online opportunities, for example, in relation to education, participation or digital literacy.

At around this time, in the United States, the early Pew Internet (2001) and Kaiser Family Foundation (2000) studies were beginning, while the Canadian Media Awareness Network (2001) pioneered in evidence gathering regarding children's online activities and skills in their early and influential efforts towards evidence-based awareness raising. Some researchers sought deliberately to bridge the risks and opportunities divide, recognizing that potentially conflicting recommendations were being addressed to the same children – at the simplest, resulting in measures to restrict or infrastructure to increase children's Internet use, depending on whether the research concerned online risks or opportunities. In the first multinational European project capturing both risks and opportunities, the Safety, Awareness, Facts and Tools (SAFT) project was funded in 2002 by the Safer Internet Action Plan to survey parents and children in five northern European countries (Denmark, Iceland, Ireland, Norway and Sweden), albeit defined by the funder not as research but as 'knowledge enhancement', to guide national awareness-raising campaigns and to identify how children could be better protected online, including by gaining digital skills and educational support (SAFT, 2004). With related work conducted by the UK Children Go Online research project (Livingstone and Bober, 2004) and the nine-country Mediappro (2006) project, among some others, a European approach emerged that examines online risks and opportunities simultaneously, also exploring the potential for children's media literacy and parental mediation to ameliorate the former and enhance the latter within a largely self-regulatory policy climate.

Reliable empirical findings were then sufficiently rare that they effectively challenged commonplace assumptions grounded in the moral panic agenda. For instance, while many campaigns focused on 'stranger danger', research showed that children were struggling with then-unrecognized cyberbullying from peers. Policy-makers and the media began to recognize how research could contribute, while in parallel, researchers were also learning – often by making mistakes – to forge an independent but collaborative

dialogue with policy-makers so as to manage not only research dissemination but also the deployment of findings in the subsequent development of policy and practice (Livingstone, 2013). It was in this emerging context that the EC then sought more systematically to 'establish a knowledge base on new trends in the use of online technologies and their consequences for children's lives' (European Commission (EC) Information Society, 2009). Its call was answered by the EU Kids Online network, initially formed of researchers in 21 countries, later rising to 33.

Moving away from universalizing assumptions ('the child', 'Internet use') and away from treating 'the Internet' as a singular 'black box', the EU Kids Online network asked when and how children were using the Internet, what it meant for them (in terms of emotions, attitudes and perspectives), how this resulted in particular online risks and opportunities, and for whom. A social shaping approach to 'the Internet' allowed the research to counter technological determinisms, while theories of family dynamics and everyday life helped counter media moral panics (Berker et al., 2006; Lievrouw and Livingstone, 2006). The analysis of online risk drew from established theories of risk (itself defined as the probability of harm) and resilience – the ability to deal with negative experiences online or offline (Coleman and Hagell, 2007; Renn, 2008; Reyna and Farley, 2006; Vandoninck et al., 2013), complemented by an account of children's agency (their ability to act independently and to make their own choices) – to frame expectations regarding online opportunities – developed within the new sociology of childhood (James and Prout, 1990). In a key step towards operationalizing this framework and rendering it communicable in public fora, the network developed a classification of children's online opportunities and risks designed to make visible the breadth of topics of research interest (see Table 1). Perhaps predictably, the risk half of this classification has been one of the network's most cited outputs within European policy documents, pointing to the heuristic value of clarifying terminology, scoping topics and mapping their interrelations in a context of public and policy uncertainty.

Importantly, at a time when children were still strongly framed by policy-makers and the public as 'vulnerable innocents', the classification acknowledged children's agency within the communicative flow, distinguishing the child as a *recipient* of mass-produced content, as a *participant* in a peer- or adult-initiated interaction or as an *actor* who contributes to producing risky content or contact (Staksrud and Livingstone, 2009). Thus, it clarified how diverse online opportunities and risks reflect the complexity of 'the internet', itself a source of mass-produced content and a space of interaction, without – as we sought to stress – necessarily blaming children (or calling for punishment, quite the contrary) for the consequences of their actions.

Also importantly, the network urged 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 (Haddon and Livingstone, 2014; O'Neill et al., 2011). In other words, while much of EU Kids Online's work has examined the risk side of the classification, undoubtedly reflecting its funding source, its members were committed to explaining that a focus on risk alone is insufficient. Opportunities matter too, including to the understanding of risk, since as the evidence subsequently demonstrated, risks and opportunities are positively inter-correlated (Livingstone et al., 2012; Vandoninck et al., 2013).

Table 1. Classification of children's online opportunities and risks by child's role.

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

Source: Staksrud et al. (2009).

The breadth of the project invited a comparative approach to methodology, with the network developing qualitative and quantitative tools to analyse children's experiences of the Internet (a) across different locations and platforms of Internet use; (b) as perceived by children and their parents; (c) across multiple types of online risk as well as for risks experienced online versus offline (face to face or via traditional media); (d) where children are positioned as victim and/or perpetrator; (f) across groups of children (e.g. varying not only demographically but also in motivation, vulnerability, resilience and social mediations); (g) according to diverse strategies of safety mediation and coping tactics; and (h) across European countries, representing a variety of cultural contexts. Thus, the conditions were established by which to advance the research and policy agenda systematically, far beyond the age of 'punditry rides rampant'.

Mapping children's Internet use within and across countries

The mid-2000s saw a change of mood, as the Internet 'became embedded in everyday life' and claims about it 'came down to earth' (Wellman, 2004: 125) as researchers – and,

more reluctantly, policy-makers – came to recognize that while the Internet is important it is also ordinary, of this world rather than other worldly, its effects are evolutionary more than revolutionary. Thus, more research funds were made available to study the complexities of children's online experiences. By anchoring the Internet in the history of socio-technological change, research could draw on analytic tools and insights from across the social sciences to document its social shaping and social consequences in real-world contexts (Lievrouw and Livingstone, 2006). And so it did. By 2009, the available evidence had doubled in size to include 390 European studies, as the EU Kids Online database showed, and reviews of work in other parts of the world counted many more, including some in middle-income and high-income countries (Organisation for Economic Co-operation and Development (OECD), 2011, 2012; UNICEF, 2012). New priorities included (a) understanding the implications of evolving platforms (e.g. the rise of social networking services) and devices (notably, the mobile and then smartphone); (b) developing more complex accounts of children's digital skills and literacy; and (c) tracking shifting practices of parental mediation, from television to the Internet; and (d) emerging risks (including self-harm, suicide, pro-anorexia, drugs, hate/racism, gambling, addiction, illegal downloading and commercial risks) and opportunities (including uses of technology to support learning, youthful civic participation, creative expression and the needs of marginalized children).

In the United States, an influential consortium of researchers advising the Attorneys General called for a mix of legislation and education to address growing evidence of online risk (Palfrey et al., 2008), while the MacArthur Foundation's Digital Media Learning initiative spearheaded a wide-ranging effort towards evidence-based practice to deepen young people's opportunities, with digital media primarily across informal learning settings. As noted earlier, research and policy were developing in multiple ways around the world that cannot be encompassed here, but it is relevant to our account that in Europe, policy-makers and the public remained confident in the potential of formal education to stimulate opportunities, with awareness raising used to support children and parents in a strongly self-regulatory policy context (which is not to say that such confidence was well-placed; see Macenaite, 2016). Hence, research and policy attention was paid to children's agentic strategies of coping with online risk, as well as to independent evaluations of the technical means of supporting them (Donoso et al., 2016; Staksrud et al., 2009). Also noteworthy, and far from commonplace in many countries, the arrival of the second age saw the researchers systematically invited to co-construct the research and policy agendas in tandem with the EC's Better Internet for Kids programme and its associated stakeholder groups. Thus, researchers in the field became not only producers of documentation but also stakeholders on a par with others. As such, they could introduce robust theoretical and empirical frameworks that introduced alternative perspectives on children's online well-being, risks and rights.

The EC considerably increased the available funding for what it called 'knowledge-enhancement', funding the EU Kids Online network to conduct a major cross-national survey of 25,000 children aged 9–16 years and their parents in 25 European countries. Based on the resulting wealth of open-access data (Livingstone, 2011), the network generated findings by which to confront the myths of children's online risk dominant in the first age with the evidence prioritized by the second age (illustrated in Table 2). Indeed,

Table 2. Top 10 myths and findings about children's online risks.

Myths	Findings (from the EU Kids Online 2010 survey)
Digital natives know it all	Children knowing more than their parents have been exaggerated – only 36% of 9- to 16-year-olds say it is very true that 'I know more about the internet than my parents'; 31% say 'a bit true', and two in three 9- to 10-year-olds say 'not true'. Talk of digital natives obscures children's need for support in developing digital skills
Everyone is creating their own content now	In the past month, only one in five used a file-sharing site or created a pet/avatar, and half that number wrote a blog. While social networking makes it easier to upload content, most children use the Internet for ready-made, mass-produced content
Putting the PC in the living room will help	53% of children go online at their friends' house, 49% go online in their bedroom and 33% go online via a mobile phone or handheld device. So this advice is out of date. It would be better to advise parents to talk to their child about the Internet or share an online activity with them
Under-13s cannot use social networking sites (SNS) so no worries	With 38% of 9- to 12-year-olds having a SNS profile, it is clear that age limits don't work. Since many 'underage' users registered with a false age, even if the provider did tailor privacy and safety settings to suit young children, they could not identify them
Bullies are baddies	Most (60%) 11- to 16-year olds who bully – online or offline – have themselves been bullied by others, and 40% of those who bully online have been bullied online. Both those who bully and who are bullied online tend to be more psychologically vulnerable, suggesting a vicious cycle of behaviour that damages both victim and perpetrator
People you meet on the Internet are strangers	Most (87%) 11- to 16-year-olds are in touch online with people they know face to face. A quarter are in touch with people unconnected with their social circle, and 9% met offline someone they first met online. Few went unaccompanied or met someone older, and only 1% had a negative experience. The challenge is to protect children from rare but harmful occurrences without limiting the opportunities of the majority
Offline risks migrate online	In part, the evidence supports this – children who report more offline risks of various kinds are more likely to report more risks online and more likely to report harm as a result. But offline risk does not predict all online risk, so it cannot be assumed that children not considered at risk offline are not at risk online. We still do not know all the factors that account for online harm, and it is important to see both online and offline risks in the context
Everyone is watching porn online	Estimates for exposure to pornography online are lower than many anticipated – a quarter saw sexual images in the past year online or offline, and one in seven saw them online, rising to a quarter of older teens. Even assuming some under-reporting, it seems that media hype over pornography is based on unrepresentative samples or just supposition

Table 2. (Continued)

Myths	Findings (from the EU Kids Online 2010 survey)
Teaching digital skills will reduce online risk	More skills are associated with more, not less, risk – because more use leads to more skills, more skills lead to more opportunities and opportunities are linked to risk. One reason that opportunities and risks are linked is because children must explore and encounter some risk to gain resilience. Also, exploring for information or fun leads to unexpected risks because the online environment is not designed with children's interests in mind (for instance, too many pop-ups). But more skills could reduce the harm that some children experience from online risk
Children can get around safety software	Only 28% of 11- to 16-year-olds say they can change filter preferences. And most say what their parents do in relation to their Internet use is helpful (27% 'a lot', 43% 'a little'). However, it is true that nearly half think their parents' actions limit their online activities, while a third say they ignore their parents (7% a lot, 29% a little).

Source: Livingstone et al. (2011a).
PC: personal computer.

the wealth of survey findings generated within and across countries (Livingstone et al., 2011b) is still relied on by policy-makers, notwithstanding that some have worried that the point estimates of children's online experiences are highly time sensitive, given the pace of technological – and accompanying social – change. In fact, a seven-country update and extension of the work by the Net Children Go Mobile project reveal that change is slower than many might imagine (Livingstone et al., 2014; Mascheroni and Ólafsson, 2014).

But more important in research terms – and, after much explanation to stakeholders, in policy fora also – are the relationships among the variables measured and the theoretical assumptions they operationalize. As illustrated by the EU Kids Online model that guided the network's approach to research design and analysis (see Figure 1), the following research questions were asked: for which children under which circumstances does Internet use lead to risk resulting in either harm or coping, and why? Specifically, the model identified a cause–effect process to account for 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 (or opportunities taken up) and (d) the risk factors consequently encountered by the child in the online environment.

Countering the tendency to homogenize 'children' especially in policy circles, the ways in which children differ among themselves in their social development and socio-psychological strengths and difficulties were prioritized in the model (Smahel et al., 2014). Also prioritized were the key outcome measures – harm (as reported by the child) or coping (by the child) – it being important to recognize the vital indeterminacy between evidence of risk (such as exposure to pornography) and evidence of harm (for instance, to liberal sexual

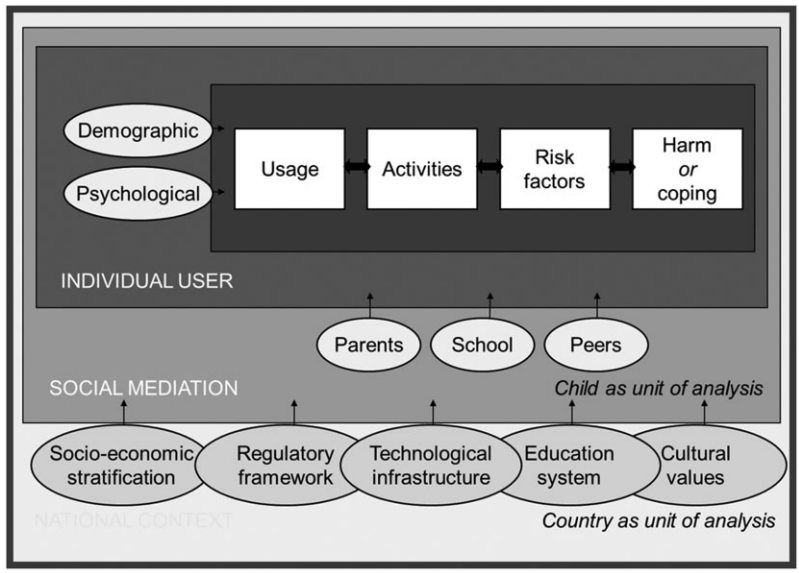

Figure 1. The EU Kids Online original model of children's online risk of harm.
Source: Livingstone et al. (2011b).

norms or healthy sexual self-confidence). In this way, the network countered the panicky media messages, which imply that risk inevitably results in harm (for instance, that exposure to pornography is always problematic), irrespective of children's agency or life circumstances. Thus, in addition to the simple findings (illustrated in Table 2), the model permitted researchers to test hypotheses derived from the model, thereby evidencing the relationships among the risks (Görzig and Livingstone, 2012) and across the risks and opportunities (Hasebrink, 2012), as well as to the importance of children's age (Smahel et al., 2014) and strengths and vulnerabilities (Vandoninck et al., 2013), as well as the role of parental mediation (see, for example, Green et al., 2014; Paus-Hasebrink et al., 2013). Later efforts examined the mediating role of children's digital skills and literacies (Sonck and De Haan, 2013) and the development of (digital) resilience (Vandoninck et al., 2013).

Crucially, the model depicted no direct relationship between antecedents and consequences, for usage, activities and risk factors had all been shown by prior research to mediate in ways that make a difference. Indeed, as the research and policy debates matured, attention has been increasingly focused on identifying and evaluating the mediators of children's online risks and opportunities. To this end, the linear model of individual-level factors was embedded within a wider social and cultural frame that drew from Urie Bronfenbrenner's (1979) ecological approach of encircling layers of social influence from close to distant. The focus on social mediators invited research on how adults mediate children's online experiences not only through parental mediation strategies (themselves long researched in the field of children and media; see Paus-Hasebrink et al., 2013) but also through peer and teacher mediation, school policies, government regulation and the wider media climate of anxieties and opinion. In the psychological and

social context of children's lives, both risk factors and protective factors occur. 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 – such as the receipt of unwanted sexual messages – and protective factors – such as the use of filters or availability of safety tools – occur. This means, notably, that offline risk is linked to online risk, and that offline vulnerability is linked to online vulnerability (Haddon and Livingstone, 2014). Other findings are summarized in Livingstone et al. (2015b), although it should be noted that while many of the results were statistically significant, they are mostly fairly small in terms of effect size. Thus, it was not possible to propose a highly explanatory model because much of the variance observed remains unexplained. Whether this reflects limitations of conceptualization, operationalization or measurement remains for future research.

The focus on country-level mediators, pursued not through surveying individual children and parents but by bringing external country indicators into the analysis of the survey findings (Lobe et al., 2011), recognized the potential roles of societal stratification, regulation, infrastructure, education and values in mediating outcomes. This enabled the second major mapping exercise undertaken by EU Kids Online – the classification of countries on the basis of measures of children's online experiences and structural indicators. With this combined model, hypotheses could be tested at the individual level (e.g. about wealthier vs poorer children or high vs low Internet users) and at the country level (e.g. about the importance of GDP or different education systems). The survey data for Internet use, risks, opportunities and parental mediation were entered into a cluster analysis (Helsper et al., 2013). This distinguished four groups of countries, as shown in Figure 2:

- *Unprotected networkers*. Children's online experiences are fairly narrow, prioritizing social media use and thereby resulting in some risk.
- *Protected by restrictions*. Children concentrate on practical and fairly basic online activities associated with relatively low risk because parents are cautious, and thus restrictive, of wider online exploration.
- *Semi-supported risky gamers*. Children enjoy moderate online opportunities focused on games, and experience relatively high risk and harm, because parents undertake diverse but relatively ineffective types of mediation.
- *Supported risky explorers*. These children are more experienced in social networking, and while this does lead them to encounter sexual risks online, their parents actively guide their Internet use, also enabling opportunities.

However, analysis at country level proved difficult. There was some evidence that national socio-economic stratification, provision for regulation, technological infrastructure, education system and cultural values can be linked to the country classification (and, on occasion, to the explanation of country rankings on particular measures). These efforts proved useful to policy-makers, by suggesting which country-level policies and practices were associated with more opportunities and fewer risks, while also pinpointing key choices facing governments (most notably, whether to minimize risks at the cost of children's online opportunities; see O'Neill, 2014). Yet the findings did not generate wholly

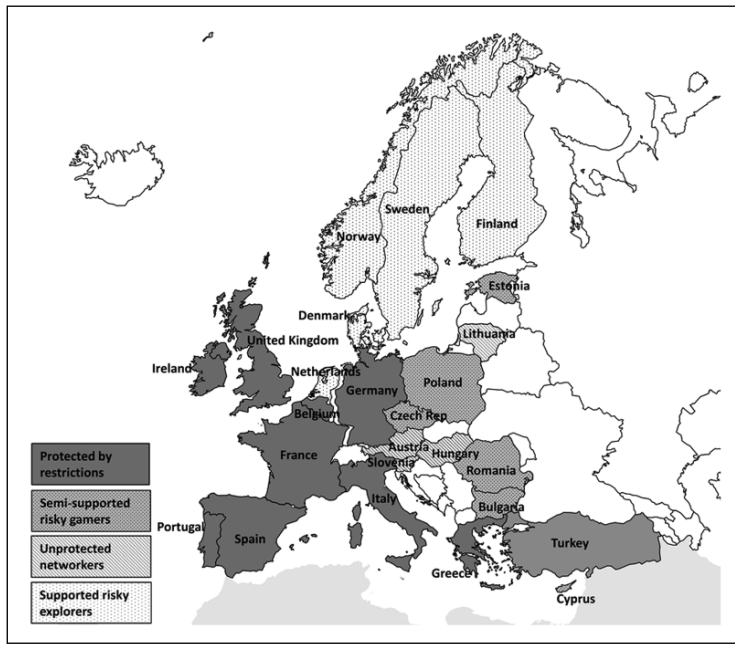

Figure 2. Mapping children's online experiences by country.
Source: Helsper et al. (2013).

satisfactory explanations for differences within Europe. Somewhat ironically, it may be concluded, at a time when Internet use was spreading considerably across the globe, this distinctively cross-national study proved more successful in explaining within-country differences than between-countries differences. This may be due to the lack of comparable indicators or, more likely, to the underdevelopment of theory on which to base hypotheses and select indicators.

Nonetheless, the challenge of linking children's online experiences to the cultural contexts in which they occur remains in Europe and far beyond. Until this is met, policymakers may import policies from another country to their own, possibly inappropriately, or reject lessons learned elsewhere on the grounds that their country is distinct, again possibly inappropriately. Wide-ranging literature reviews by international bodies seek to guide policy and practice in both the Global North (OECD, 2011, 2012) and South (UNICEF, 2012) by capitalizing judiciously on the knowledge gained in the age of 'systematic documentation of users and uses'. Such efforts and their struggles take us to the present age of (children's) Internet studies.

The age of analysis

While Wellman's first age moved away from panics and myths to concepts and empirical research, the second age sought to systematize previously scattered research, especially the disconnected fields of risk and opportunity, bringing them together in a coordinated

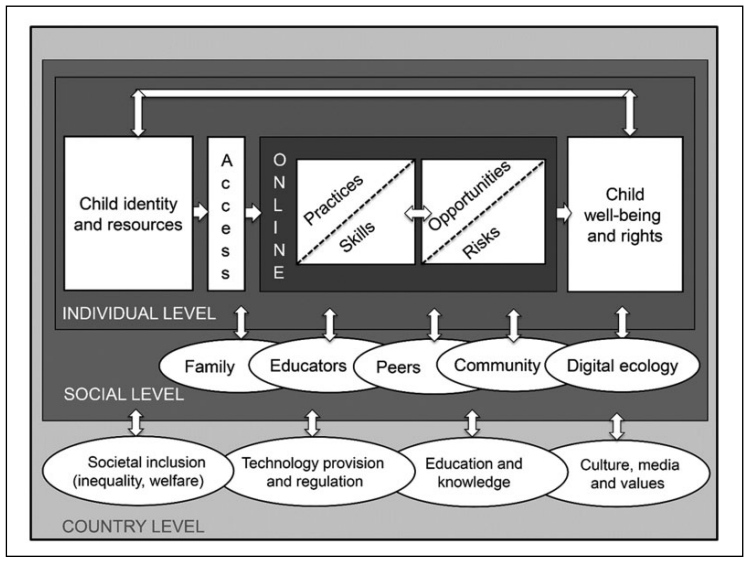

Figure 3. The EU Kids Online revised model of children's outcomes of Internet use.
Source: Livingstone et al. (2015b).

model that prioritized the comparative method. But it is in Wellman's third age – now centre stage in the present decade – that, he suggests, the hard work really begins. For the EU Kids Online network, this work has taken the form of rethinking the model (see Livingstone, 2013; Livingstone et al., 2015b) in the light of the huge expansion of research – now to 1500+ studies in Europe, plus many more internationally (Ólafsson et al., 2014). The revised model, shown in Figure 3, institutes two key changes.

The first is to limit the scope of the inner box ('online') to clarify that while the research task remains that of understanding the risks and opportunities afforded by the online environment, the outcomes concern children holistically – in terms of their embodied, located and social as well as online selves. This clarifies the overarching research question. Without the 'online' box, the model would be similar to other models from the past decades in asking, how do individual, social and country factors shape outcomes? But by adding the 'online' box (and by comparing the central horizontal arrows with the top direct arrow from child identity to well-being, defined inclusively as 'health and safety, their material security, their education and socialization, and their sense of being loved, valued and included in the families and societies into which they are born; see UNICEF, 2007: 1), the model asks, in essence what difference does the digital make? At the same time, it foregrounds the ways in which children's lives are and have always been grounded in their family, school, community and other cultural contexts. Now that the Internet offers new pathways to outcomes for individuals, new social contexts ('digital ecologies') and new macro concerns ('technology provision and regulation'), new research is needed to guide policy and practice (Donoso et al., 2016).

The second key change is to rebalance the earlier weighting towards online risks, with equal attention now to the opportunities of Internet use. Both are probabilistic (risk refers to the probability of harm, opportunities to the probability of benefit), and both arise from the affordances of the online environment in interaction with the child's identity and resources. The broken line between opportunities and risks acknowledges 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), and the line is diagonal to signal the observed positive correlation between opportunities and risks. Relatedly, the model now includes children's digital skills and practices, again shown by a broken diagonal line to acknowledge that these concepts are difficult to distinguish in practice (e.g. if a child uses the privacy settings on a social network site, it implies they know how to do so) and positively correlated.

In terms of model design, at all levels there is recognition that the processes of influence are likely to be bidirectional, including that children surely influence as well as being influenced by their family, peers, educational relationships and their community, online and offline. The model also reflects smaller adjustments to all these concepts (for instance, preferring 'family' as more inclusive than 'parents', and 'educators' as more inclusive than 'school'; see Livingstone et al., 2015b). Relatedly, 'community' was added to recognize the extended social networks that children interact with (whether in their locale, or through religious or ethnic or other forms of belonging). 'Digital ecology' was introduced to capture the importance of the specific assemblage of digital devices, platforms and services used by children. 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. As a considerable body of research has shown in the past decade, these different digital ecologies have distinct affordances (Mascheroni and Vincent, 2016; Schrock, 2015), insofar as they are commercially or publicly funded content and values, for instance, local or international in membership, safe or transgressive in purpose – and these shape children's (and the wider public's) experiences and outcomes.

Researchers in and beyond Europe have particularly examined the interrelations among the variables at the heart of the model, linking these to demographic and social factors, but we suggest, with less work as yet tracing the outcomes for children. A crucial feedback loop has been added to acknowledge that the relation between a child's identity and well-being is transactional; the ways in which each influences the other unfolds over time in complex ways. However, more research is now needed to understand the implications for outcomes that matter.

Where originally the focus was on whether a child reported harm from an online risk or found a way to cope, the revised model adopts a holistic approach to the many ways in which Internet use may influence a child's well-being, encompassing both the ways that online opportunities result in benefits and the ways that online risks result in harms. Further, we add mention of rights with reference now to the UN Convention on the Rights of the Child (UN CRC) (United Nations [UN], 1989) not because research can 'test' rights-related outcomes in any simple sense, but because rights serve, increasingly it seems, as an effective discourse that links empirical findings (regarding, say, privacy or safety or learning) to policy imperatives (in terms of regulation or state provision or other kinds of intervention; see Staksrud, 2013).

Looking ahead

As the Internet becomes ever more embedded into children's 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 also, more importantly, *through* the Internet. In other words, the research agenda no longer concerns children's relationship with the Internet as a medium but, more profoundly, it concerns their relationship with the world as mediated by the Internet in particular and changing ways. This means that, potentially, any and all elements in the model – consider, for example, family, educators, culture and inequality – may themselves be reconfigured in the digital age, no longer meaning what they meant or operating as they did in earlier times.

From our present vantage point, we can discern three significant challenges. The first is geographic and, thereby, cultural, economic and political. With Internet use becoming increasingly important for children beyond the Global North (Cortesi and Gasser, 2015), there have already been efforts to replicate the EU Kids Online model and survey findings in new countries, including Brazil (Barbosa, 2013), Russia (Soldatova et al., 2014), Australia (Green et al., 2011), Switzerland (Hermida, 2013) and Latvia (Brikse and Spurava, 2014). Now extended and, in some ways, transformed into the Global Kids Online project (Stoilova et al., 2016), related research is also underway in Argentina, Chile, the Philippines, Serbia and South Africa, with research interest growing in further middle- and even low-income countries. This raises serious questions for a model developed for European children based on European theory and methods, certainly challenging assumptions that what holds in one country is likely to hold in another, or that children's online experiences are much the same everywhere.

The second is socio-technological. New phenomena call for attention, there are new cohorts of young children (Hasebrink, 2014) and new 'digital generations' of parents (Colombo and Fortunati, 2011) to be studied, and an evolving digital ecology (including new opportunities for coding or gamified learning, the 'internet of things', virtual and augmented reality technologies, educational apps, etc.) reshaping children's interactions with the Internet and, more profoundly, with the world (Chaudron et al., 2015; Eynon, 2015; Marsh et al., 2015). On one hand, touchscreen devices and screenless toys enable more sensory, embodied forms of engagement with the Internet. On the other hand, such tools extend the personal data collected from and about children, raising privacy concerns, even leading some to argue that children's worlds and childhoods are increasingly datafied and commodified (Lupton, 2016). For sure, as technological innovations unfold, research tells us that children's social practices creatively adjust around them. Yet many are becoming fearful that the scope for children's agency is being overridden by powerful global corporates that own the major platforms shaping users' risks and opportunities in the interests of profit rather than child well-being (Staksrud, 2013; Van Dijck, 2013).

The third concerns the policy landscape. Already we see signs that the pace of change, and pressures on stakeholders, seems to encourage a reversal from the important mantra of evidence-based policy to a reliance, once again, on the dictates of public anxieties and political expediency. But on the positive side, we see growing interest in a rights-based approach that must surely work in children's best interests (from the Council of Europe,

Human Rights Council and Internet Governance Forum), although this is difficult to advance practically on an international basis, especially when faced with an increasingly proprietary and age-blind Internet infrastructure. Rather than looking into a crystal ball, we will look forward to the 10-year update to this article, the research it will review and the still unknown conditions of children's lives that it will critically examine. We venture to hope that while much could change, the principles articulated in the EU Kids Online research will still be valued – to recognize children's agency, to contextualize their Internet use in particular countries or contexts of childhood, to keep both risks and opportunities in view and to recognize their interconnections, to design research and policy that respects children's lives holistically, and to eschew moral panics in favour of the contribution of rigorous theory and evidence.

Acknowledgements

We thank the EU Kids Online network for their comments and suggestions on a preliminary version of this work, published in Livingstone et al. (2015b).

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship and/or publication of this article: The EU Kids Online network has been funded by the EC Safer Internet Programme (later, the EC Better Internet for Kids Programme) in three successive phases of work from 2006 to 2014.

References

Barbosa A (2013) *ICT Kids Online Brazil: Survey on Internet Use by Children in Brazil*. São Paulo, Brazil: Cetic.br (in Portuguese). Available at: http://cetic.br/media/docs/publicacoes/2/tic-kids-online-2013.pdf

Berker T, Hartmann M, Punie Y, et al. (eds) (2006) *The Domestication of Media and Technology*. Maidenhead: Open 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. Available at: http://eprints.lse.ac.uk/60574/

Bronfenbrenner U (1979) *The Ecology of Human Development: Experiments by Design and Nature*. Cambridge, MA: Harvard University Press.

Chaudron S, Beutel ME, Černikova M, et al. (2015) *Young Children (0–8) and Digital Technology: A Qualitative Exploratory Study across Seven Countries* (JRC 93239/EUR 27052). Available at: http://publications.jrc.ec.europa.eu/repository/handle/JRC93239

Coleman J and Hagell A (eds) (2007) *Adolescence, Risk and Resilience: Against the Odds*. Chichester: John Wiley & Sons.

Colombo F and Fortunati L (eds) (2011) *Broadband Society and Generational Changes*, vol. 5. Frankfurt am Main: Peter Lang.

Cortesi S and Gasser U (eds) (2015) *Digitally Connected: Global Perspectives on Youth and Digital Media*. Harvard, MA: Berkman Center Research.

Donoso V, Verdoodt V, van Mechelen M, et al. (2016) Faraway, so close: why the digital industry needs scholars and the other way around. *Journal of Children and Media* 10(2): 200–207.

Drotner K and Livingstone S (eds) (2008) *The International Handbook of Children, Media and Culture*. London: SAGE.

Ess C and Dutton WH (2013) Internet studies: perspectives on a rapidly developing field. *New Media & Society* 15(5): 633–643.

European Commission (EC) (1997) *Commission Communication to the European Parliament, the Council and the Economic and Social Committee on the Follow-up to the Green Paper on the Protection of Minors and Human Dignity in Audiovisual and Information Services Including a Proposal for a Recommendation*. Brussels: Europa. Available at: http://ec.europa.eu/avpolicy/docs/reg/minors/comlv-en.htm

European Commission (EC) (1999–2002) *A Multiannual Community Action Plan on Promoting Safer Use of the Internet by Combating Illegal and Harmful Content on Global Networks* (Four-Year Work Programme). Available at: www.betterinternetforkids.eu/web/portal/policy/better-internet/policy-roadmap/timeline

European Commission (EC) Information Society (2009) *Safer Internet Programme 2009–2013*. Available at: http://ec.europa.eu/information_society/activities/sip/policy/programme/current_prog/index_en.htm

European Parliament and European Council (1999) *Decision No. 276/1999/EC of the European Parliament and of the Council of 25 January 1999 Adopting a Multiannual Community Action Plan on Promoting Safer Use of the Internet by Combating Illegal and Harmful Content on Global Networks* (276/1999/EC, L 33). Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31999D0276

Eurostat (n.d.) *Level of Internet Access – Households*. Available at: http://ec.europa.eu/eurostat/web/products-datasets/-/tin00134

Eynon R (2015) The quantified self for learning: critical questions for education. *Learning, Media and Technology* 40(4): 407–411.

Görzig A and Livingstone S (2012) Adolescents' multiple risk behaviours on the internet across 25 European countries. *Neuropsychiatrie de l'Enfance et de l'Adolescence* 60(5): S148.

Green L, Brady D, Ólafsson K, et al. (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*. Available at: http://cultural-science.org/journal/index.php/culturalscience/article/view/49/129

Green L, Smahel D and Barbovschi M (2014) Contextualizing children's problematic situations online. *Communications* 39(3): 225–231.

Gubbi J, Buyya R, Marusic S, et al. (2013) Internet of Things (IoT): a vision, architectural elements, and future directions. *Future Generation Computer Systems* 29(7): 1645–1660.

Haddon L and Livingstone S (2014) The relationship between offline and online risks. In: Von Feilitzen C and Stenersen J (eds) *Young People, Media and Health: Risks and Rights: Nordicom Clearinghouse Yearbook 2014*. Göteborg: Nordicom, pp. 21–32.

Haddon L and Stald G (2009) A comparative analysis of European press coverage of children and the internet. *Journal of Children and Media* 3(4): 379–393.

Hasebrink U (2012) Young Europeans' online environments: a typology of user practices. In: Livingstone S, Haddon L and Görzig A (eds) *Children, Risk and Safety on the Internet: Research and Policy Challenges in Comparative Perspective*. Bristol: Policy Press, pp. 127–140.

Hasebrink U (2014) *Children's Changing Online Experiences in a Longitudinal Perspective*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/60083/

Helsper EJ and Eynon R (2010) Digital natives: where is the evidence? *British Educational Research Journal* 36(3): 503–520.

Helsper EJ, Kalmus V, Hasebrink U, et al. (2013) *Country Classification: Opportunities, Risks, Harm and Parental Mediation*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/52023/

Hermida M (2013) *EU Kids Online: Schweiz. Schweizer Kinder und Jugendliche im Internet: Risikoerfahrungen und Umgang mit Risiken*. Available at: www.lse.ac.uk/media@lse/research/EUKidsOnline/ParticipatingCountries/PDFs/CH_Swiss-Report.pdf

James A and Prout A (eds) (1990) *Constructing and Reconstructing Childhood*. Basingstoke: Falmer Press.

Kaiser Family Foundation (2000) US adults and kids on new media technology. In: Von Feilitzen C and Carlsson U (eds) *Children in the New Media Landscape: Games, Pornography, Perceptions* (Children and Media Violence Yearbook, 2000). Göteborg: UNESCO International Clearinghouse on Children and Violence on the Screen at Nordicom, pp. 349–350.

Lievrouw L and Livingstone S (eds) (2006) *Handbook of New Media: Social Shaping and Social Consequences*. London: SAGE.

Livingstone S (2003) Children's use of the internet: reflections on the emerging research agenda. *New Media & Society* 5(2): 147–166.

Livingstone S (2011) *EU Kids Online: Enhancing Knowledge Regarding European Children's Use, Risk and Safety Online, 2010* (Data Collection; SN: 6885). Colchester: UK Data Service. Available at: http://dx.doi.org/10.5255/UKDA-SN-6885-1

Livingstone S (2013) Knowledge enhancement: the risks and opportunities of evidence-based policy. In: O'Neill B, Staksrud E and McLaughlin S (eds) *Towards a Better Internet for Children? European Policy Pillars, Players and Paradoxes*. Göteborg: Nordicom, pp. 93–109.

Livingstone S and Bober M (2004) *UK Children Go Online: Surveying the Experiences for Young People and their Parents*. London: LSE.

Livingstone S, Carr J and Byrne J (2015a) *One in three: internet governance and children's rights. Global commission on internet governance paper series*. GCIG paper no. 22. Available at: www.cigionline.org/publications/one-three-internet-governance-and-childrens-rights

Livingstone S, Haddon L, Görzig A, et al. (2011a) *EU Kids Online II: Final Report*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/39351/

Livingstone S, Haddon L, Görzig A, et al. (2011b) *Risks and Safety on the Internet: The Perspective of European Children: Full Findings*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/33731/

Livingstone S, Haddon L and Görzig A (eds) (2012) *Children, Risk and Safety Online: Research and policy challenges in comparative perspective*. Bristol: The Policy Press.

Livingstone S, Mascheroni G and Staksrud E (2015b) *Developing a Framework for Researching Children's Online Risks and Opportunities in Europe*. London: EU Kids Online. Available at: http://eprints.lse.ac.uk/64470/

Livingstone S, Mascheroni G, Ólafsson K, et al. (2014) *Children's Online Risks and Opportunities: Comparative Findings from EU Kids Online and Net Children Go Mobile*. London and Milan: EU Kids Online and Net Children Go Mobile. Available at: http://eprints.lse.ac.uk/60513/

Lobe B, Livingstone S, Ólafsson K, et al. (2011) *Cross-National Comparisons of Risks and Safety on the Internet*. London: EU Kids Online. Available at: http://eprints.lse.ac.uk/39608/

Lupton D (2016) *The Quantified Self*. Cambridge: Polity Press.

Macenaite M (2016) Protecting children's privacy online: a critical look to four European self-regulatory initiatives. *European Journal of Law and Technology* 7(2). Available at: http://ejlt.org/article/view/473

Manches A, Duncan P, Plowman L, et al. (2015) Three questions about the internet of things and children. *TechTrends* 59(1): 76–83.

Marsh J, Plowman L, Yamada-Rice D, et al. (2015) *Exploring Play and Creativity in Pre-Schoolers' Use of Apps: Final Project Report*. Available at: www.techandplay.org

Mascheroni G and Ólafsson K (2014) *Net Children Go Mobile: Risks and Opportunities*. 2nd ed. Milan: Educatt. Available at: www.netchildrengomobile.eu/reports

Mascheroni G and Vincent J (2016) Perpetual contact as a communicative affordance: opportunities, constraints and emotions in young people's uses of smartphones. *Mobile Media and Communication* 4(3): 310–326.

Media Awareness Network (2001) *Young Canadians in a Wired World: The Students' View*. Ottawa, ON, Canada: Media Awareness Network and Government of Canada.

Mediappro (2006) *A European Research Project: The Appropriation of New Media by Youth*. Brussels: Mediappro with the Support of the European Commission/Safer Internet Action Plan.

Ólafsson K, Livingstone S and Haddon L (2014) *Children's Use of Online Technologies in Europe: A Review of the European Evidence Database*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/60221/

O'Neill B (2014) *Policy Influences and Country Clusters: A Comparative Analysis of Internet Safety Policy Implementation*. London: EU Kids Online. Available at: http://eprints.lse.ac.uk/57247/

O'Neill B, Livingstone S and McLaughlin S (2011) *Final Recommendations for Policy, Methodology and Research*. London: EU Kids Online, LSE.

Organisation for Economic Co-operation and Development (OECD) (2011) *The Protection of Children Online: Risks Faced by Children Online and Policies to Protect Them*. Paris: OECD Publishing.

Organisation for Economic Co-operation and Development (OECD) (2012) *Connected Minds: Technology and Today's Learners*. Paris: OECD Publishing.

Palfrey J, boyd d and Sacco D (2008) *Enhancing Child Safety and Online Technologies: Final Report of the Internet Safety Technical Task Force to the Multi-State Working Group on Social Networking of State Attorneys General of the United States*. Durham, NC: Carolina Academic Press.

Paus-Hasebrink I, Bauwens J, Dürager A, et al. (2013) Exploring types of parent–child relationship and internet use across Europe. *Journal of Children and Media* 7(1): 114–132.

Pew Internet (2001) *The Internet and Education: Findings of the Pew Internet & American Life Project*. Available at: www.pewinternet.org

Ponte C, Bauwens J and Mascheroni G (2009) Children and young people in the news: agency, voices and agendas. In: Livingstone S and Haddon L (eds) *Kids Online: Opportunities and Risks for Children*. Bristol: Policy Press, pp. 79–95.

Renn O (2008) *Risk Governance: Coping with Uncertainty in a Complex World*. London: Earthscan.

Reyna VF 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.

SAFT (2004) *SAFT (Safety Awareness Facts Tools) Project* (ed Staksrud E). Oslo: Norwegian Board of Film Classification.

Schrock AR (2015) Communicative affordances of mobile media: portability, availability, locability, and multimediality. *International Journal of Communication* 9: 1229–1246.

Smahel D, Wright MF and Cernikova M (2014) Classification of online problematic situations in the context of youths' development. *Communications* 39(3): 233–260.

Soldatova G, Rasskazova E, Zotova E, et al. (2014) *Russian Kids Online: Key Findings of the EU Kids Online II Survey in Russia*. Moscow: Foundation for Internet Development. Available at: http://eprints.lse.ac.uk/60575/

Sonck N and De Haan J (2013) How the internet skills of European 11- to 16-year-olds mediate between online risk and harm. *Journal of Children and Media* 7(1): 79–95.

Staksrud E (2013) *Children in the Online World: Risk, Regulation, Rights*. Aldershot: Ashgate Publishing.

Staksrud E and Livingstone S (2009) Children and online risk: powerless victims or resourceful participants? *Information, Communication & Society* 12(3): 364–387.

Staksrud E and Ólafsson K (2013) Awareness: strategies, mobilisation and effectiveness. In: O'Neill B, Staksrud E and McLaughlin S (eds) *Towards a Better Internet for Children? European Policy Pillars, Players and Paradoxes*. Göteborg: Nordicom, pp. 57–76.

Staksrud E, Livingstone S, Haddon L, et al. (2009) *What Do We Know about Children's Use of Online Technologies? A Report on Data Availability and Research Gaps in Europe*. 2nd ed. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/24367/

Stald G and Haddon L (2008) *Cross-Cultural Contexts of Research: Factors Influencing the Study of Children and the Internet in Europe*. London: EU Kids Online, LSE. Available at: http://eprints.lse.ac.uk/24380/

Stoilova M, Livingstone S, Kardefelt Winther D, et al. (2016) Global kids online: researching children's rights globally in the digital age. *Global Studies of Childhood* 6: 455–466.

Thomas GM and Lupton D (2015) Threats and thrills: pregnancy apps, risk and consumption. *Health, Risk & Society* 17(7–8): 495–509.

UNICEF (2007) *Child poverty in perspective: an overview of child well-being in rich countries*. Innocenti Report Card 7. Florence: UNICEF Innocenti Research Centre.

UNICEF (2012) *Child Safety Online: Global Challenges and Strategies*. Florence: UNICEF Innocenti Research Centre.

United Nations (UN) (1989) *Convention on the Rights of the Child* (Adopted and opened for signature, ratification and accession by General Assembly resolution 44/25 of 20 November 1989, entry into force 2 September 1990, in accordance with article 49). Available at: http://www.ohchr.org/en/professionalinterest/pages/crc.aspx

Van Dijck J (2013) *The Culture of Connectivity: A Critical History of Social Media*. Oxford: Oxford University Press.

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.

Wellman B (2004) The three ages of internet studies: ten, five and zero years ago. *New Media & Society* 6(1): 123–129.

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