



## **Digital childhood? Global perspectives on children and mobile technologies**

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# Digital childhood? Global perspectives on children and mobile technologies

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## Abstract

Mobile devices play a growing role in the everyday lives of children around the world, prompting important questions about their effects on childhood experiences. Exploring the recent global trends in children's use of smartphone devices, we examine the reconfiguring of children's communicative practices and cultures of connectivity, documenting the opportunities and risks that smartphone technology affords. Throughout the chapter we challenge the notion of "digital childhoods," drawing on the most reliable research on children and smartphones including findings from Global Kids Online, which suggest that digital divides intersect with existing social inequalities, exacerbating the barriers for less privileged children. This raises further questions about the long-term consequences for children's development, rights, and future access to opportunities and resources.

**Key words:** childhood, mobile technologies, communicative practices, online risks

## Introduction

Mobile phones and digital devices have a growing role in the everyday lives of children,<sup>1</sup> their use becoming increasingly "domesticated" and "normalized" (Haddon, 2017; Mascheroni & Ólafsson, 2016; Wartella et al., 2016). In wealthy countries, where children's access to smartphones is approaching saturation, and in middle- and low-income countries, where children's access is highly unequal (Banaji, Livingstone, Nandi, & Stoilova, 2018), children's daily experiences are increasingly transformed by digital technology use in ways yet to be thoroughly understood and likely to be highly differentiated by context. Many questions arise. What are the implications for childhood of the widespread adoption of the intensified forms of communication enabled by the smartphone? Are children's identities, relationships, and communication practices being reshaped by the increased sharing, greater visibility, uncertain audiences, personalized information environments, converged content platforms, and the growing reliance on data as the currency of daily life (boyd, 2014; Lupton & Williamson, 2017)?

These uncertainties, considerably fueled by media-fanned panic and anxiety, resurrect a long-standing discomfort with technological innovation in relation to childhood, infusing the public debate with fear, as was previously the case for the computer, electronic games, or television (Livingstone, 2018). Countering some of the arguments, and hyperbole, about the transformation of childhood in the age of mobile communication, some researchers point to

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<sup>1</sup> Following the United Nations Convention on the Rights of the Child (UNCRC) (1989), we define a "child" as a person under the age of 18.

the continued, albeit intensified and diversified, uses of new internet-enabled mobile technologies (Vincent & Haddon, 2018).

However, there is little question that the arguments in favor of transformation predominate. These tend to point both to new functionalities and new practices of engagement. In terms of functionality, by comparison with the prior generation of mobile phones, today's smartphones integrate mobile communication with internet connectivity, high resolution screens, fast processing power, and geolocation technology, thus offering networked multimedia performance and more sophisticated functionalities adaptable to individual users via application software. They therefore enable a shift in practices—towards a “post-desktop” ecology (Mascheroni, 2014) where internet access happens “on the go” (Haddon & Ólafsson, 2014; Ling & Bertel, 2013) and afford a broader range of communication channels and audiences; as well as an unprecedented ease of communication at any time and place, often for free (Mascheroni & Ólafsson, 2016; Vanden Abeele, 2016).

Further changes are facilitated by the introduction of touch-screen technology, creating possibilities even for the youngest users—infants, toddlers, and preschoolers—to have a haptic engagement with smartphones and tablets (Chaudron, 2015; Goggin, 2013). Over a quarter of three- to four-year-olds in the UK (29%) use a mobile phone, rising to 93 percent of 12- to 15-year olds (Ofcom, 2017). The same study shows an increase in device ownership even amongst the youngest users, and an intensification of children's use of phones and tablets in terms of frequency of use and variety of practices. Even when they do not personally own a device, younger children tend to start using smartphones by borrowing from family members (Chaudron, 2015; Haddon & Vincent, 2014). Recent evidence from the US indicates that 95 percent of children aged 0–8 live in families where they can access a smartphone (Rideout, 2017). This extended use of smartphones and other hand-held devices in early life suggests a blur between childhood and youth (Goggin, 2013). By the time they become teenagers, children are inseparable from their mobile devices and even see them as an extension of their body (Mascheroni & Ólafsson, 2014) due to the key role smartphones play in their everyday activities and communication.

The personalized and privatized uses of smartphones further the rise of a youthful “bedroom culture” across all ages already initiated by previous generations of personalized media (Livingstone, 2007). This promotes mediated forms of children's private and individualized leisure, expression, and social relationships even within the home and away from parental supervision. One consequence is heightened parental anxiety about what children are doing online, in great proximity but in ways inaccessible to the parental eye, posing new pressures on children's right to privacy, hitherto little debated or defended because it was less under threat (Livingstone, 2008; UNICEF, 2017b). However, mobiles and smartphones not only offer more independent means of communication and internet use to children; they also present parents with new ways to engage in remote—even covert—supervision (Vanden Abeele, 2016). Hence, mobile communication affordances (Schrock, 2015) are, paradoxically, both accelerating the independence of older children and limiting their autonomy. Thus, they are associated not only with transformations of childhood and youth,

but also with changes in the child-parent relationships and the practices of parenting and family life (Mascheroni, 2018; Vanden Abeele, 2016).

Whilst evidence of important transformations of childhood and mobile cultures is rather compelling, the actual implications for children need further critical attention and careful contextualization. To what extent are the above observations, even the way of framing the questions, led by the viewpoint of the global North rather than the global South? After all, nine-tenths of the world's population live in the global South—including the fast-growing majority of the world's mobile and smartphone users (Livingstone, Carr, & Byrne, 2016). Reviewing the emerging evidence and offering tentative answers, this chapter considers the global trends of mobile usage by children. We observe, first, that not everyone is equally able to take advantage of the digital age. We move on to explore whether mobile technologies have afforded new opportunities to children or indeed, new and more intensified risks, as the public debate tends to assume. In our approach, we adopt a distinctively cross-national framework which attempts to decenter the predominantly Western focus of much literature published in the English language, drawing on our work with the Global Kids Online network and its comparative survey-based evidence base produced by research partners in 14 countries across the globe.<sup>2</sup>

### **Digital childhoods—global perspectives**

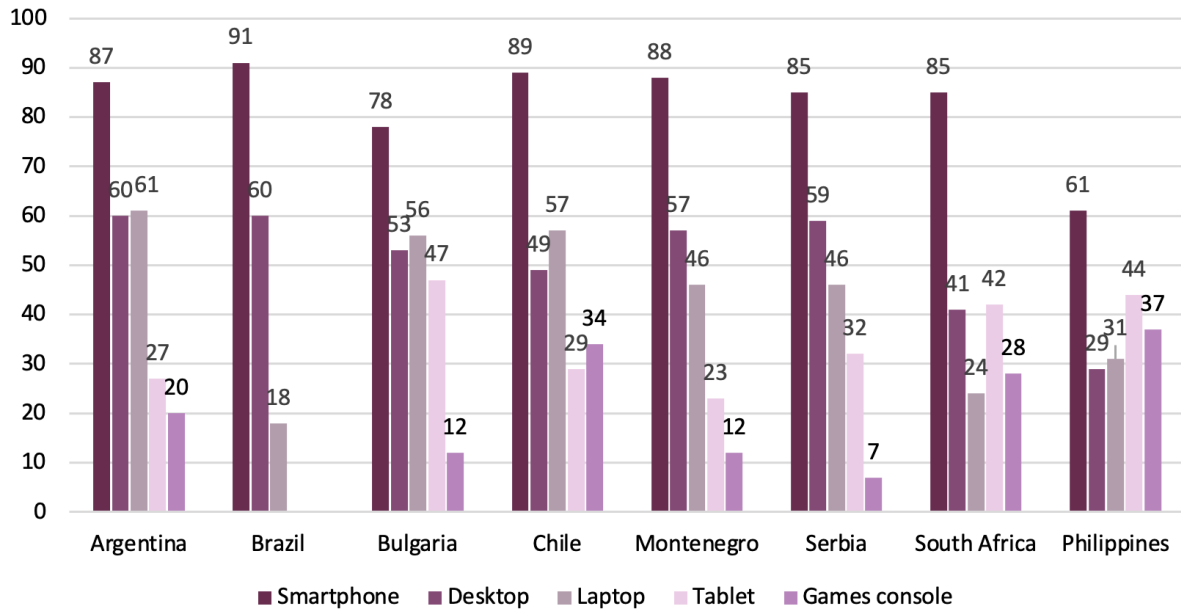
In the global South, where children comprise up to half of the population, although smartphone affordability is restricted to a relatively privileged few, smartphones have the potential to bring new opportunities to some of the world's most marginalized children (UNICEF, 2017a). Smartphones offer a cheaper and more accessible connectivity, making internet access increasingly mobile-dependent (Livingstone et al., 2016). This is shown by Global Kids Online's recent comparative study of children's use of the internet, which found that the smartphone is the preferred device for internet use in all the countries surveyed, ahead of desktop and laptop computers, tablets, and game consoles (see Figure 1). The use of personal computers and laptops is particularly low in the low-income countries studied,<sup>3</sup> such as South Africa and the Philippines, where these devices are less common and more expensive to obtain, and where mobile phones may offer the only opportunity for children to be connected.

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<sup>2</sup> Global Kids Online is an international research project on children's internet use ([www.globalkidsonline.net](http://www.globalkidsonline.net)) coordinated by the London School of Economics and Political Science (LSE) and UNICEF's Office of Research-Innocenti and research partners in Albania, Argentina, Brazil, Bulgaria, Canada, Chile, Ghana, India, Montenegro, New Zealand, the Philippines, Serbia, South Africa, and Uruguay. We would like to thank our colleagues from these countries for sharing their data. For a discussion of the methodology, see Byrne et al. (2016) and Stoilova et al. (2016). For country findings, see [www.globalkidsonline.net](http://www.globalkidsonline.net)

<sup>3</sup> We use The World Bank's classification available at: <https://datahelpdesk.worldbank.org/knowledgebase/topics/19280-country-classification>

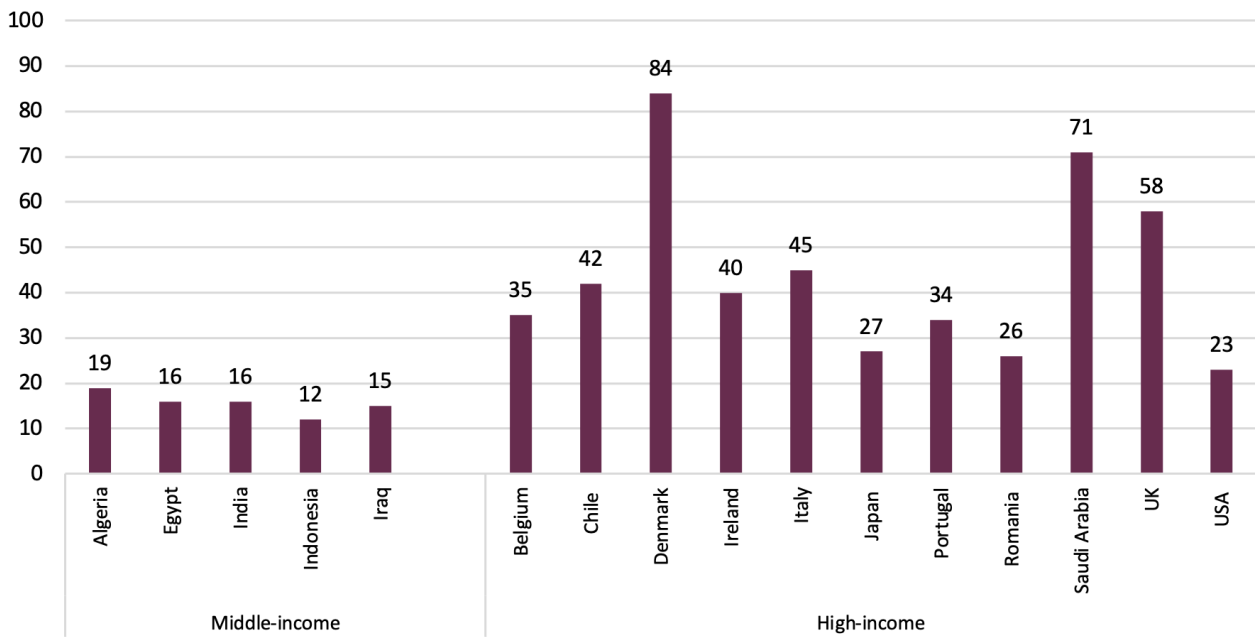
Figure 1: Children who connect to the internet via the device at least once a month or more often (%)



*Base of all Global Kids Online figures: Children who use the internet aged 9–17 (but 13–17 in Argentina). Note: Estimates for samples in Serbia and the Philippines were small pilot surveys; in South Africa a convenience sample was used; in all other countries, the sample is nationally representative. Valid n: Argentina (n=882), Brazil (n= 3,068), Bulgaria (n=1,000), Chile (n=1,000), Montenegro (n=911), Serbia (n=195), South Africa (n=636), the Philippines (n=116). Source: www.globalkidsonline.net*

Smartphone penetration in low-income countries has been heralded for its potential “leapfrogging effect” (Castells, Fernandez-Ardevol, Qiu, & Sey, 2007), enabling children from less advantaged regions and social groups to catch up quickly, thus closing the gap of digital and thereby social exclusion. But this potential has not yet been realized due to persisting inequalities related to affordability and connectivity between and within regions and nations. Even in Europe, which has been at the forefront of adoption of mobile communication, 46 percent of children aged 9–16 who used the internet owned a smartphone in 2013, but this ranged from 26 percent in Romania to 86 percent in Denmark (Mascheroni & Ólafsson, 2014). In comparison, children from lower- or middle-income countries have much more limited access to mobile devices and fewer than two in ten children own a smartphone in such countries as Algeria, Egypt, India, Iraq, or Indonesia (see Figure 2).

Figure 2: Smartphone ownership by children (%)



*Source: Algeria, Iraq, Saudi Arabia: GSMA (2013); children aged 8–18, but 8–17 in Iraq; Japan, India, Indonesia, Egypt, Chile: GSMA (2012); children aged 8–18, but 10–18 in India; Belgium, Denmark, Ireland, Italy, Portugal, Romania, UK: Mascheroni & Ólafsson (2014); 2013 data, children aged 9–16; USA: Lenhart (2012), children aged 12–17. Note: More recent data on some of the high-income countries is available but has not been used for better comparability across countries.*

Whereas in European countries smartphones are used by children and parents alike (Mascheroni & Ólafsson, 2016), in some lower-middle-income countries, such as India and Indonesia, smartphone ownership is approximately twice as high for children than parents (GSMA, 2012), perpetuating the contested notion of the “digital native” suggesting that children lead the way of adopting technological innovations (Helsper & Eynon, 2010). Being less financially independent, women and girls from lower and middle-income countries particularly struggle with the cost of mobile devices and airtime — they are 21 percent less likely to own a mobile phone than men and boys, a proportion that rises to 23 percent for women and girls in Africa, 24 percent in the Middle East and 37 percent in South Asia (Banaji et al., 2018). In addition to affordability, socio-cultural divides that affect girls’ life opportunities in general (such as access to education, employment inequalities, caring responsibilities, parental supervision, gender and sexual violence, and cultural stereotypes) may act also to limit girls’ opportunities to access and engage with mobile technologies (Banaji et al., 2018).

Concerns about digital divides do not end with the issue of smartphone ownership. New divides in digital skills and outcomes of internet use are evident in online engagement (van Deursen & Helsper, 2017). When children have the opportunity to grow up in digitally rich, multi-device homes, they tend to use a smartphone as part of a range of technological devices facilitating their communication, online participation, and development of skills transferrable across devices and services (Bond, 2014; Chaudron, 2015). By contrast, children who grow

up in low-income families are more likely to rely only on a smartphone for internet access (Madden et al., 2013). In this way, they may get “only a second-best online experience” because of the lack of a full keyboard for data input and interactivity and may be exposed to intensified online risks because of the personalized nature of the device (Haddon & Vincent, 2014; Stald & Ólafsson, 2012; UNICEF, 2017a). As digital divides occur alongside or intersect with existing social inequalities, they exacerbate the barriers for less privileged children (Third et al., 2017; van Deursen & Helsper, 2017). So, whilst many children live “digital childhoods”, many others do not (Banaji et al., 2018), and miss out on the opportunities that new mobile technologies can offer.

### **Exploring the opportunities**

Children living in contexts of high smartphone penetration and developed digital markets are participating in an increasingly hyperconnected ecology (Vorderer, Hefner, Reinecke, & Klimmt, 2017) in which mobile phones are one of the many smart devices and appliances comprising the Internet of Things (Bunz & Meikle, 2018; Mascheroni & Holloway, 2017).<sup>4</sup> Within such a digital ecology, smartphones have substantially broadened the terrain of opportunities—offering always “at hand” possibilities for communication, creativity and participation, learning, expressing identity and belonging, improving health and wellbeing, and for enjoying play and entertainment (Goggin, 2013). So, while internet-connected mobile devices afford a range of new opportunities to children, do any of these prospects derive particularly from the use of smartphones? The research suggests that they do.

Children who are smartphone users tend to spend more time online and engage in a wider range of activities, especially communication and entertainment-related practices (Mascheroni & Ólafsson, 2014). Furthermore, children who start using a smartphone at a younger age develop an advantage in digital skills earlier on and enhance this as they get older (Stald et al., 2014). It is unlikely that such differences result solely from smartphone use, being associated with additional characteristics such as socio-economic background, family technology use, peer practices, and mobile culture, all of which influence children’s use of the devices (Stald & Ólafsson, 2012).

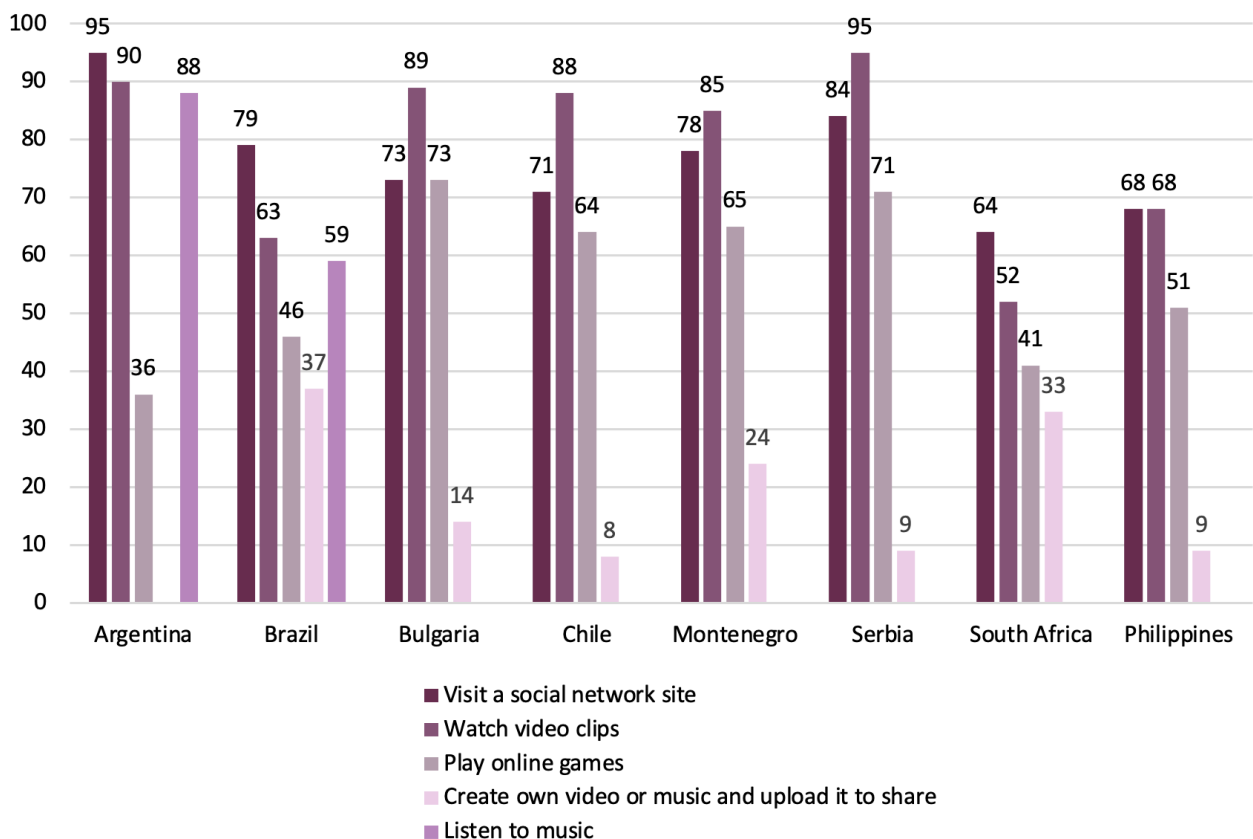
Widespread access to smartphones has created opportunities for new learning experiences as children have mastered a range of smartphone-related skills and competences, often transferable to the use of other smart devices (Mascheroni & Cuman, 2014). Most children know how to install mobile apps in all countries surveyed by Global Kids Online—ranging from 60 percent in South Africa to 95 percent in Argentina and Serbia (Byrne, Kardefelt-Winther, Livingstone, & Stoilova, 2016). In addition to device-specific skills, smartphone users are found to possess better overall digital literacy, such as higher operational and browsing skills (e.g. bookmarking a website, comparing websites and deciding if information is true) or better safety skills (e.g. blocking unwanted content and changing privacy settings) (Stald et al., 2014; Vincent, 2014). Whilst smartphones do not necessarily create the skills, they provide a range of opportunities to apply and improve them in practice.

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<sup>4</sup> The term ‘Internet of Things’ (IoT) refers to sensor-based objects connected to networks (Bunz & Meikle, 2018).

The usability and ease of navigation of smartphone devices makes them a preferred option for entertainment and creativity (Mascheroni & Cuman, 2014). Children using smartphones are more likely to access such entertainment content (Mascheroni, 2014), and have more extensive opportunities to do so on this device with applications that are free and easy to install. Comparing children who use a smartphone to those who use other devices (including a more basic mobile phone), it has been shown that the smartphone users are more likely to watch video clips, download music or films, use a webcam, visit a chatroom, spend time in a virtual world, or create a character, pet, or avatar (Stald et al., 2014). They are also more likely to post content created by them (photos, videos, music, messages). This does not necessarily mean that smartphones are prompting the intensification of these activities because the use of the device might be the result of an initial interest in these activities in the first place. However, the ease of creating and sharing content like photos and videos, combined with effortless participation in social networks, make smartphones particularly good mediators of these social and entertainment activities and a means to escape boredom (Mascheroni, 2018; Vincent, 2015). Entertainment activities, such as watching films and video clips, playing online games, and listening to music are amongst the most popular in all countries, as revealed by Global Kids Online (see Figure 3).

Figure 3: How often have you done these things online in the past month?  
 (% 'At least every week' or more often, by country)





*Valid n: Argentina (n=867), Brazil (n= 3,068), Bulgaria (n=1,000), Chile (n=1,000), Montenegro (n=911), Serbia (n=195), South Africa (n=641), the Philippines (n=115). Source: www.globalkidsonline.net*

As Figure 3 demonstrates, children most often take advantage of the opportunities for socializing and communication offered by smartphones—for example, no fewer than two-thirds of the internet-using children interviewed visit a social network site at least weekly. Using a smartphone, children can communicate via multiple channels and group messages, building close and engaged contact with peers, and maintaining quasi-perpetual connectivity and availability (Haddon, 2017; Mascheroni, 2014). Many children believe they are more sociable since having a smartphone, especially because apps like WhatsApp allow for communication in groups free of charge, enabling autonomous and continuous access to peer groups (Haddon & Vincent, 2014; Vincent, 2015). This allows young people to reinforce existing friendship ties, build new relationships, and strengthen family interactions—crafting alternative spaces and moments for communication, which can supplement or, in some cases, replace, face-to-face socializing (Haddon, 2017). Smartphones also afford opportunities for self-disclosure, online self-expression, identity experiments, and creating intimacy via confiding in others, thus becoming the prerequisite for social wellbeing (Mascheroni & Vincent, 2016; Vincent, 2015).

Social media and instant messaging, alongside news apps, are important information channels that provide easy and dynamic ways of keeping up with the news, learning cross-culturally, and staying in touch with “the world.” Improved access to learning and educational opportunities via digital media is not new, but smartphones provide an “always at hand” gateway to information and the possibility to seek answers in real time (Vincent, 2015)—an environment of connected learning utilized in both formal and informal settings. The diversity and abundance of available information creates the need to find and manipulate digital data effectively and to learn independently and critically.

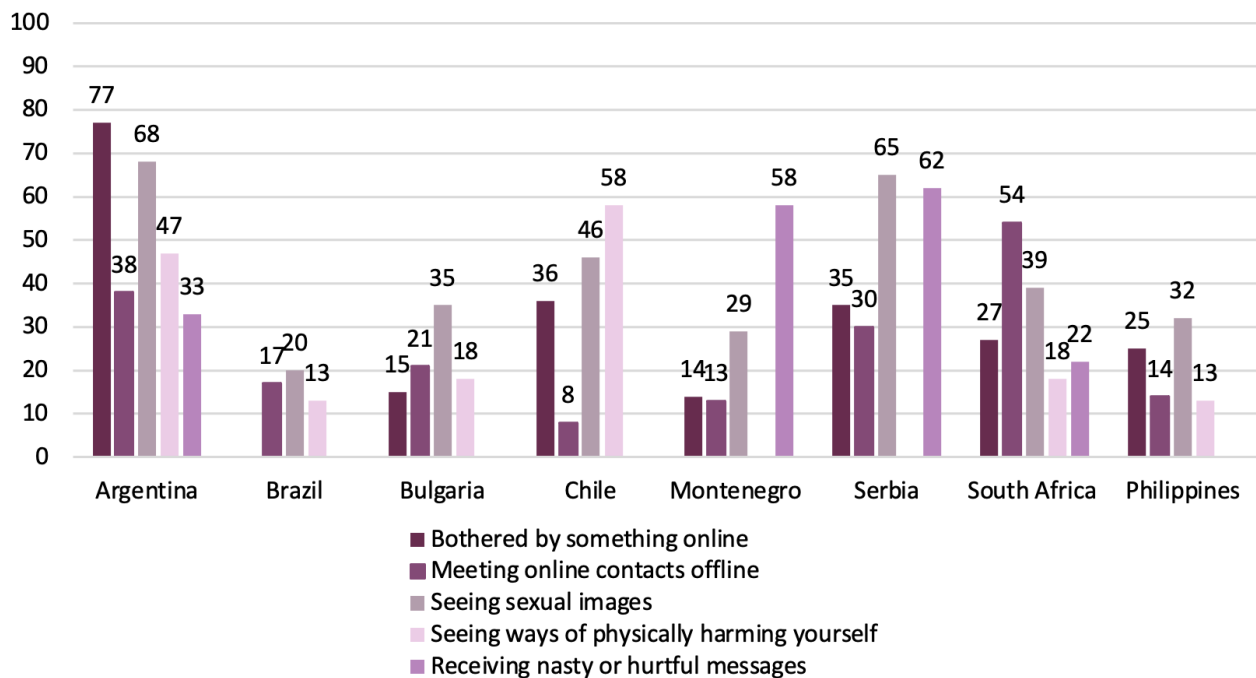
Mobile devices are also seen as offering children greater opportunities for civic participation and access to citizenship rights and politics (Goggin, 2013; Vincent, 2015). By enabling children’s access to information and helping them to develop civic capacities, smartphones can help children to play a more active role in their families and communities and seek additional support when needed. Even in countries with more limited access, children see digital technologies as central to their ability to discuss, collaborate, and campaign around issues they experience (Third et al., 2017). These devices have been used by governments and non-governmental actors, particularly in low- and middle-income countries, to mobilize support and provide children with humanitarian aid, access to wellbeing interventions, or as a means of coping with dislocation (Banaji et al., 2018; UNICEF, 2017a). However, smartphones cannot afford these opportunities without the necessary provisions at the national level related to accessibility, education and training, policy and regulatory mechanisms. The benefits of smartphone use are also accompanied by possible negative effects on children’s wellbeing and online safety, as well as uncertainties about the longer-term impact of growing up with smart technologies. Public and parental anxiety about the

intensification of existing risks and the emergence of new ones can themselves become obstacles to children’s digital practices, as we discuss in the next section.

### More usage, more risks

The risks currently debated in association with smartphone use are broadly related to the following four areas: content, contact, conduct, and commercialism. Some of these risks are familiar from prior screen media (Blum-Ross & Livingstone, 2016), whereas others such as data harvesting, privacy, and online sexual abuse and exploitation are particularly relevant to the era of smart devices. Importantly, the evidence suggests that smartphone-using children have an overall increased likelihood of experiencing a range of risks when compared to their peers. The higher risks relate, for example, to seeing sexual images or receiving sexual messages, seeing negative user-generated content (such as violent images, hate messages, drug-taking, or harming), experiencing personal data misuse, cyberbullying, and contact with unknown people online, or meeting them face-to-face (Haddon & Vincent, 2014; Stald et al., 2014). The Global Kids Online findings demonstrate important cross-country differences in the experiences of risks (see Figure 4). Still, at least one in five children have received nasty or hurtful messages or have seen sexual images in all the countries studied. More than one in ten children experience something online which bothers them, meet online contacts offline, or see ways of physically harming themselves.

Figure 4: Children who have experienced one of these risks in the last month, by country (%)



Valid n: Argentina (n=867), Brazil (n= 3,068), Bulgaria (n=1,000), Chile (n=1,000), Montenegro (n=911), Serbia (n=195), South Africa (n=641), the Philippines (n=115).  
 Source: www.globalkidsonline.net

Part of the explanation of the risk intensification for smartphone-using children lies in the greater time spent using a smartphone and the greater number of activities performed using the device. However, further reasons might be sought in the immediacy and scalability with which children can create and distribute negative content (Haddon & Ólafsson, 2014), sometimes replying too quickly and without forethought (Haddon, 2017; Stald et al., 2014).

The spread of smartphone technology around the world is a catalyst for threats to children, such as online sexual abuse and exploitation (WePROTECT Global Alliance, 2018). Internet-connected, geo-located, and camera-enabled devices facilitate the easy creation of images or videos, including self-generated ones, and their encryption, sharing, live streaming, or remote viewing. This enables the exposure of children to online sexual violence and exploitation and the circulation of offensive material (WePROTECT Global Alliance, 2018). Another risk associated with smartphone use is surveillance (Lyon, 2017; Zuboff, 2015) and data harvesting from children's activities and their commercial use by businesses (Lupton & Williamson, 2017; UNICEF, 2017b). Based on networked connectivity, geo-location, and near-field communication, smartphones can connect children with locally relevant content, nearby services, or co-present users. This gives rise to concerns about the disclosure of personal information to advertisers, data brokers and third parties, behavioral targeting and advertising, and risks to biometric and other sensitive data (UNICEF, 2017b). In some cases, this might be happening without children's ability to understand the implications, to consent, or to protect their privacy and safety (Livingstone, Stoilova, & Nandagiri, forthcoming).

When always at hand, smartphones can also distract from other everyday activities, such as learning, face-to-face interaction, and even sleep (Haddon, 2017; Haddon & Vincent, 2014; Mascheroni, 2018). The fast and quasi-perpetual character of smartphone communication might also lead to a sense of obligatory availability, possible emotional dependence on ongoing communication with peers and family, and a sense of isolation resulting from inability to take part in online communities (Mascheroni & Vincent, 2016; Vincent & Fortunati, 2014). The communicative affordances of smartphones fuel anxieties over children's excessive screen time, which is deemed responsible for the increasing occurrence of attention disorders (Uhls et al., 2014), and risk- and responsibility-aversion (Twenge, 2017). Supposed "addiction" to screens is gathering public attention, although such claims have been criticized for their reductionist approach to complex phenomena and for not taking into account the complex interweaving of various psychological and social factors (Livingstone, 2018; Przybylski & Weinstein, 2017).

Exaggerated fears that immersion in fast-paced mediated communication leads to superficial and unreflexive engagement underestimate children's careful considerations aimed at safeguarding their own safety, personality, reputation, friendships, and future prospects (Livingstone, 2008; Mascheroni & Haddon, 2015). Children manage risks arising from smartphone use with an understanding of responsibility, exchanged trust, and varying degrees of closeness to their peers (Bond, 2014), although not all children are equally able to manage risks. Those who are younger or less skilled are more likely to find themselves in risky situations and might be less able to cope with them (Byrne et al., 2016). The safety challenges are also particularly heightened in the global South where children become early

adopters in contexts of rapid device penetration growth which precedes the development of appropriate safeguarding practices and legislation (Banaji et al., 2018; Byrne et al., 2016; Third et al., 2017). Existing vulnerabilities and social inequalities also intensify the effects of experienced harm (Stald & Ólafsson, 2012).

## **Conclusions**

This chapter has examined how smartphone use is shaping the conditions in which childhood and adolescence are played out while being appropriated by children to meet their social and developmental needs and to fit their everyday lives. Whereas the use of smartphones has altered the nature of youth communication, the consequences are better conceived as a combination of change and continuity rather than as a fundamental transformation or rupture with practices afforded by the previous generation of mobile phones or indeed, with prior practices of family, peer, and community communication and connection (Mascheroni & Haddon, 2015; Mascheroni & Vincent, 2016).

Change is most evident in the intensified connections facilitated via social media, involving increased online sharing and visibility, and communication with broader networks beyond immediate friends to incorporate distant friendships, celebrities, and interest groups (Bertel & Stald, 2013). To navigate this terrain of intensified connectedness, which can bring both opportunities and risks, children are learning to employ a number of strategies. They consider how they will reveal personal information, create their online identity, sustain intimacy, and protect their reputations (Bond, 2014; Livingstone, 2008). All of this highlights their active engagement with technology on the one hand and the urgent need to develop digital skills on the other. At the center of this are the affordances deriving from the smartphone, a personalized, emotionally charged, and identity-defining device. Change is also evident in the smartphone itself as the harbinger of the coming age of the Internet of Things (Bunz & Meikle, 2018; Mascheroni & Holloway, 2017). This renders privacy a compelling policy concern, now that the fine-grained details of children's everyday communication, activities, and movements are tracked, calculated, analysed, and predicted in ways that go far beyond what children or their parents are aware of.

In many parts of the world, policy-makers and practitioners who seek to influence children's lives are now experimenting with smartphone technologies as the means to achieve improvements: to provide health information, support parents, signpost community resources, target aid or disaster relief, facilitate confidential sexual and mental health counseling, distribute educational materials, scaffold civic participation, and much more (UNICEF, 2017a, b). With considerably more financial resources and often, technological expertise, big business is also experimenting with new ways of reaching, targeting, persuading, and tracking children through their use of smartphone; sometimes these activities may meet children's interests and needs, albeit at a cost, but many are designed to create new consumer desires among children in the interests of corporate profit. While both public and private drivers of children's expanded smartphone use proceed apace, the risks of harmful or exploitative content, contact, conduct, and commercialism are growing commensurately. This is because until now, given a largely unregulated digital environment, risks and opportunities have tended to go hand in hand. National governments and international organizations are

increasingly focused on the challenge of managing and regulating the digital environment, with children's rights to protection especially a key priority. In response, and concerned that the outcome may be overly protective of both children and wider society to the possible detriment of both children's and adults' digital freedoms and positive rights, some organizations are now advocating a more balanced child rights approach to designing a digital environment in the best interests of children. Notable examples include the work of the Council of Europe (2018), UNICEF (2017a), and the UN Committee on the Rights of the Child (2014).

At the same time that these sober efforts slowly gather strength, public and media attention continues to be absorbed by and anxious about the seeming risks to children of the smartphone, with periodic headlines screaming "harm" and attributing singular and direct causation from smartphone use, "addiction", "abuse", or "brain damage" to children either in the short term or as they grow up. Accompanying such media panics, though attracting less of the limelight, researchers patiently examine the empirical evidence, pointing out over and over again that children's wellbeing is multiply determined and contingently realized in ways that depend on a host of factors and contexts (Livingstone, 2007). The measurement difficulties are similarly not new, insofar as the "effects" of using the smartphone are as difficult to study, as was previously the case for video games or television or even the comic books of a century ago, all of which have attracted media panics in their time (Blum-Ross & Livingstone, 2016). A pressing gap in the current research concerns evidence on the harvesting of data on children's lives as mediated by smartphone use, including through the various apps that children are using as part of their digital cultures and lifestyles. The long-term consequences of an early socialization into smartphone-mediated communication can only be speculated on at this stage, but the early evidence suggests intensified risks from exposure to surveillance and sexualization, more individualized and remote modes of socialization, and greater opportunity and resource gaps between children, affecting especially the rights of children with limited access or skills. This calls for new comparative cross-national research into the digital dimensions of children's lives and their consequences, intended and unintended, and across diverse contexts, including an emphasis on children in the global South.

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