Young and Online: Children's perspectives on life in the digital age

The State of the World's Children 2017 Companion Report

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“Life is a blind lottery. You cannot choose the circumstances of your birth: your gender, your ethnicity, your parents’ wealth, or your disability. Yet technology has the immense potential to even the playing field. Technology can transform the way children learn, connect and discover opportunities for their wellbeing and development. In a world of growing inequalities and uncertainties, technology can be a source of empowerment, enabling children to become the authors of their futures and to rise above the cycle of disadvantage.”

Philip Chan, Youth Advisor, RErights.org, 2017

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Acknowledgments

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All of the photos used in this report were generated in the workshops with children and young people.

Partners

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The Institute for Culture and Society researches transformations in culture and society in a globalizing digital age.

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RErights

RErights.org is a youth-centred participatory consultation platform that enables children aged 10–19 to share their insights and experiences regarding the digital age. The platform was developed by the Institute for Culture and Society at Western Sydney University, in partnership with the Young and Well Cooperative Research Centre, Digitally Connected, and UNICEF's Voices of Youth.

rerights.org

“It is in the very nature of the human condition that each new generation grows into an old world.... [We must] decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chance of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world.”

Arendt 1961, pp. 177; 196

Foreword

Viewed through the eyes of an older generation, the impact of digital technology on children and young people can seem striking. Travel to almost any city and you will see the faces of children lit by glowing screens, seemingly detached from the world around them. Talk to parents, carers and teachers and it will not be long before you hear them talk about children and young people as "distracted," "glued to their screens," and "sleep-deprived". Turn the pages of any newspaper – if you're of a generation that still reads newsprint – and the headlines pop off the page: "Digital heroin," "generation sext," "millennial narcissists".

There's no doubt that much of this discourse around digital technology reflects genuine concerns. But in all of it, something is too often left out – the insights and experiences of children and young people themselves. Far from being uncritical users of digital technology, children and young people have strong opinions: They greatly appreciate the upsides – the opportunities for social connection, the fun of creating and sharing videos, the chance to learn new skills and research schoolwork. But they also understand the downsides, and sometimes with a subtlety that many adults – born in a more analogue era – cannot match.

The views of children and young people matter, and not just because of their right to expression. They matter because, as users of technology and the internet, children and young people often enjoy high levels of autonomy, so their knowledge and attitudes determine what they do online and why. And they matter because this generation will live in a digital world for the rest of their lives, shaping and potentially being shaped by digital technology and connectivity.

With the aim of capturing some of these views, a unique global research project was launched in 2017 by a team from UNICEF's *The State of the World's Children* report and RErights.org, an initiative led by Western Sydney University in partnership with Digitally Connected and UNICEF's Voices of Youth. Building on the success of workshops organized for the Children's Rights in the Digital Age report in 2014, the project designed a methodology to guide delivery of adolescent-engagement workshops around the world.

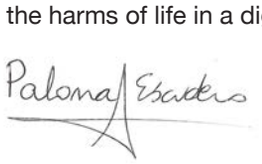
Facilitated by UNICEF Country Offices and National Committees, 36 workshops were held in 26 countries.

These numbers far exceeded the project team's initial expectations and are a testament to the commitment of UNICEF Country Offices and National Committees to reach out to and engage with children and young people. Without their unstinting support, this project would never have happened.

This project also depended on the enthusiasm and generosity of the workshop participants themselves – almost 500 children and young people worldwide. Their eagerness to join the workshops clearly illustrates the hunger of many children and young people for their views to be heard. As one 17-year-old participant in Peru said, "It is good to know that there are people who wish to listen to what adolescents have to say."

These children and young people are making a difference. Their views informed UNICEF's *The State of the World's Children Report 2017: Children in a Digital World* and they are the basis for this special companion report. Their insights clearly draw our attention to the issues affecting children and young people as they navigate the digital world. Although these issues may play out differently in local contexts around the globe, we are reminded of the potential of connectivity to empower children and young people to help solve issues affecting them and their community, wherever that may be in the world.

But their voices must not stop here. As more and more children and young people enter the digital space in the years to come, we all have a role to play—in our local contexts and collaboratively across borders—to ensure their needs, hopes and wishes are better understood and to ensure they enjoy the opportunities and avoid the harms of life in a digital world.



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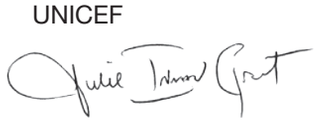


Julie Inman Grant
Australian eSafety Commissioner **Professor**

Megan Mitchell
Australian National Children's Commissioner

Main messages

Connection, communication and sharing

Children are overwhelmingly positive about the role that digital technology might play in their lives. They identified connection, communication and sharing as the key benefits of engaging with digital technology.

Divides

Social, cultural and economic divides profoundly shape both the challenges and the opportunities children face in using and making the most of digital technologies. Not all children have the same opportunities to enjoy the benefits of digital technologies and efforts must focus more intently on supporting them to connect and participate meaningfully.

Barriers

Many children navigate significant barriers to their online participation. Poor connectivity, prohibitive costs of data and devices, and a lack of appropriate equipment are key barriers for many children around the world, particularly in low-income countries. They say that safety concerns, rules imposed by parents, carers and schools, and limited digital literacy also constrain their digital practices.

Social change

Children see digital technology as vital to their development and their capacity to contribute to their communities. Even in places with limited access, children believe digital technology supports them to seek and generate information, to contribute to awareness-raising, and to work with others to respond to real-world challenges. However, children's ability to mobilise digital media for these purposes is dependent on resolving access and digital literacy issues.

Education

Children view digital technology as central to achieving their goals for their futures, and many use digital technology for learning purposes, at school and beyond. But the benefits of technology for children's education are unevenly distributed both inter- and intra-nationally. Social, cultural and economic divides mean that many children are still far from being able to reap the potential educational benefits of digital technology.

Concerns

Children are concerned about commonly discussed online risks, such as interacting with strangers online, accessing inappropriate content, or being exposed to malware or viruses. They also worry about the reliability of their access to technology; parental intrusion into their 'private' lives online; and their digital literacy skills. In general, children have a strong understanding of and practical strategies for dealing with a wide range of risks they may encounter online.

Family life

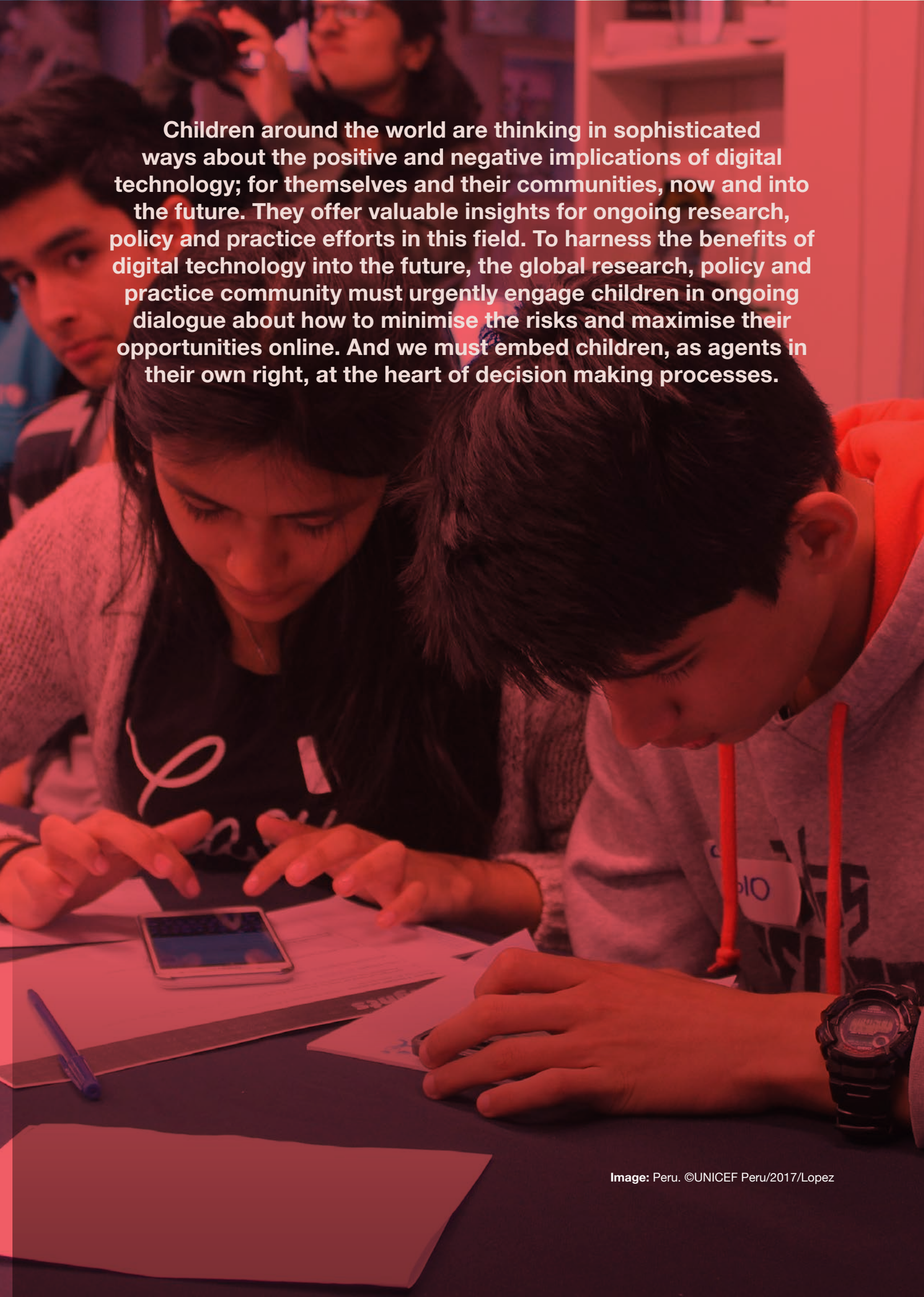
Digital technology use impacts on family dynamics in both positive and negative ways; it facilitates and strengthens family interactions and also causes intra-family tensions. Children generally understand their parents' concerns for their wellbeing online. Children noted that they both teach and learn from siblings, parents and grandparents about digital technology, indicating there is scope to use intergenerational relationships to enhance the digital literacy of children and adults.

Health

Despite their concerns about the potential negative impacts of digital technology on their health and happiness, when weighing the impacts, the vast majority of children say either that technology's effects were positive, or were a balance of positives and negatives. Even so, more evidence is needed about the impacts of digital technologies for children's health and wellbeing to enable targeted health interventions and to ensure that technology-based health initiatives do not inadvertently reinscribe existing health inequities.

Child-centred framings

The ways children talk about their concerns often echo mainstream media narratives and the adult-centric concerns of online safety initiatives, limiting their ability to imagine the opportunities digital media afford. It is critical that children be given space and encouraged to develop their own languages and ideas about the opportunities digital technology afford.



Children around the world are thinking in sophisticated ways about the positive and negative implications of digital technology; for themselves and their communities, now and into the future. They offer valuable insights for ongoing research, policy and practice efforts in this field. To harness the benefits of digital technology into the future, the global research, policy and practice community must urgently engage children in ongoing dialogue about how to minimise the risks and maximise their opportunities online. And we must embed children, as agents in their own right, at the heart of decision making processes.

Image: Peru. ©UNICEF Peru/2017/Lopez

Image: Tunisia. ©UNICEF Tunisia/2017/Chebbi

Contents

Executive Summary

Since 1980, the United Nations' Children's Fund (UNICEF) has published its annual, flagship *The State of the World's Children* report, which examines research, policy and practice relating to a key issue affecting the lives of children internationally, and is an important resource for states, NGOs and other duty bearers invested in promoting the rights of children. *The 2017 The State of the World's Children: Children in a Digital World* report (SOWC 17) focuses on how digital technologies are impacting the lives of children.

In June 2017, 490 children aged 10–18, from 26 different countries[1] and speaking 24 official languages, participated in workshops held by UNICEF Country Offices and National Committees to share their views on how and why they use digital technologies in their everyday lives, as well as their aspirations for the future of our digitally mediated world.

Undertaken with the aim of generating data with children for publication in the SOWC 17 report, this project was a joint effort of the RErights.org team in the Institute for Culture and Society at Western Sydney University, UNICEF New York and a network of 26 UNICEF Country Offices and National Committees. It built on a previous international study that channelled children's insights into global efforts to reinterpret the Convention on the Rights of the Child for the digital age (Third et al. 2014).

Summaries of the findings of this project have been included in the SOWC 17 report. This Companion Report, which should be read alongside the main report, explores in further detail the rich contributions of children for understanding the opportunities and challenges digital technologies present in their everyday lives.

Children's digital technology access and use is a subject of burgeoning interest and sometimes intense concern, as well as an area for necessary action if the global community is to work collectively to ensure digital technology can be harnessed to deliver on children's provision, protection and participation rights, now and into the future.

The digital age brings both new opportunities and challenges for children, and digital media can operate to both enhance and infringe their rights.

The risks to children online are real, and they are particularly acute in the global South, where children are rapidly coming online, particularly via mobile platforms. And in many places, policy, legislative and regulatory instruments struggle to keep pace with rapid technological change.

At the same time, too tight a focus on the potential harms can undermine the abilities of children and the organisations that work with and for them to seize the opportunities and benefits of the digital age for realising their rights.

And there is still a paucity of reliable data about children's digital practices that can support effective policy, education and programs, particularly in the global South.

[1] Workshops were conducted by 23 UNICEF Country Offices and National Committees (Bangladesh, Belarus, Bhutan, Brazil, Burundi, Central African Republic, Democratic Republic of the Congo, Timor-Leste, Fiji, Guatemala, Jordan, Kiribati, Malaysia, Republic of Republic of Moldova, Nigeria, Paraguay, Peru, Senegal, Solomon Islands, Thailand, Tunisia, Uruguay, and Vanuatu) and three National Committees (Japan, Republic of Korea and Portugal).

In the workshops for this project, adolescents reflected on how and why they use digital technologies via a series of youth-centred, participatory activities including surveys, short-answer questions, creative exercises (e.g., drawing), scenario-based exercises and small group discussions. These activities explored seven key topics: barriers to access and use; family life; education and learning; risks and concerns; health; their futures; and social change. Participants generated a rich bank of qualitative data – diagrams, drawings, written text and digital photographs – which was translated by UNICEF personnel, and analysed by the RErights.org team using thematic and discourse analysis methods.

The evidence collated in this report demonstrates that adolescents around the world are thinking in nuanced and sophisticated ways about the complex, positive and negative potentialities of digital technology, not just for their own immediate experiences but also for those of their communities and the world at large. They offer critical insights for ongoing research, policy and practice efforts in this field. Highlights from the study include:

1. Barriers to digital participation

Many adolescents must navigate significant barriers to their online participation. For many participants in this study, access challenges – poor connectivity, prohibitive costs of data and devices, and a lack of appropriate equipment – remain the key barriers. For some, the potential to encounter harm while using digital technology makes them think twice about going online. Participants also sometimes perceive the rules imposed by parents, carers and schools, as well as limited digital literacy, as constraints on their digital practices. For those in low-income countries, in particular, adolescents' need for reliable, regular and quality access is acute and requires strong commitment from and action by states and other duty bearers.

2. Social change

Participants see learning to use digital technology as vital to their development and their capacity to contribute to their communities. In stark contrast to claims that today's adolescents are disengaged, participants in the study are concerned about issues in their communities ranging from the need to reduce violence to tackling climate change. Even in communities with limited access, adolescents believe digital technology has an important role to play in enabling them to seek and generate information, to contribute to awareness-raising, and to work with others to respond to real-world challenges. However, the capacity for children to leverage digital media for these purposes is dependent on resolving access and digital literacy issues.

3. Education

Internationally, efforts are underway to harness emerging technologies to support children's learning in formal and informal settings. However, the findings of this study paint a deeply uneven picture of the role of technology in their education. Social, cultural and economic divides profoundly shape the likelihood that adolescents will experience the positive impacts of technology-based innovation for their education. And many are still far from being able to reap such benefits. Nonetheless, adolescents view digital technology as central to achieving their goals for their futures. It is thus vital that educational settings seek further ways to support children to develop a wide range of digital skills and literacies in order that every child can reach their full potential.

4. Concerns

Participants report a range of concerns regarding their engagement with digital technologies. These include commonly discussed online safety concerns – such as such as fears of interacting with strangers online, accessing inappropriate content, or being exposed to malware or viruses – while others relate to the reliability of their access to technology; parental intrusion into their 'private' lives online; and their digital literacy skills. In general, adolescents have a strong understanding of and practical strategies for dealing with a wide range of risks they may encounter online.

Adolescents are attuned to the tensions between their desire to engage online, their need to protect themselves, their responsibilities to others, and the responsibilities of adults to ensure children can live and grow well in the digital age. The ways adolescents talk about their concerns often echo mainstream media narratives and the adult-centric concerns of online safety initiatives, limiting their ability to imagine the opportunities digital media afford. This underscores the need for those with an investment in supporting the provision, protection and participation rights of children to enlarge the spaces for them to develop their own ways of thinking about and articulating their digital practices.

5. Family life

Whilst cognisant of potential harms they might encounter when using digital technology, participants in this study were overwhelmingly positive about the role that it could play in their lives. In particular, they identified connection, communication and sharing as the key benefits of engaging with digital technology. Digital technology use was reported as impacting on family dynamics in both positive and negative ways; it facilitates and strengthens family interactions and also causes intra-family tensions. Adolescents from across different national and cultural settings report strikingly similar observations about the impacts of digital technology on family life, indicating that there is scope for countries to collaborate in driving solutions to support effective technology practices in families.

6. Health

Despite their concerns about the potential negative impacts of digital technology on their health and happiness, when weighing the impacts, the vast majority of participants stated either that technology's effects were positive, or were a balance of positives and negatives. Even so, more evidence is needed about the impacts of digital technologies for children's health and wellbeing to enable targeted health interventions and to ensure that technology-based health initiatives do not inadvertently reinscribe existing health inequities. And once this evidence has been generated, it will be important to work with children to design and implement effective technology-based health interventions.

7. Diversity

Social, cultural and economic divides profoundly shape both the challenges and the opportunities children face in using and making the most of digital technologies now and into the future. This report finds that children's experiences of digital technology in low-income countries differ greatly from those of their high-income country counterparts. So too, within countries, structural factors such as socio-economic status, gender and geography mean that not all children have the same opportunities to use digital technology to live well. Too often, technological devices, platforms and services are designed for the mainstream, and the needs of marginalised children are an afterthought. This places enormous pressure on those children and the organisations that serve them. It is thus vital that the diverse needs of children everywhere are embedded at the centre of technology design.

Children have much to contribute to the process of meeting the challenges and maximising the opportunities of the digital age. However, children's participation is all too often reduced to one-off, extractive consultation processes to canvass children's insights on adult-defined issues and channel them into existing decision making processes, with the result that children have very limited influence in the decisions that shape their lives. The authors of this report call upon the global community to urgently seek ways not just to listen periodically to children, and not just to respond to their insights and suggestions, but to embed a radical openness to children's participation and a commitment to ongoing intergenerational dialogue at the heart of the organisations and institutions that work with and for children.

This report foregrounds children's priorities, hopes and aspirations for digital technology, as well as their understandings of the risks and potential harms they confront in the digital age. The process of generating the data for the project depended on a highly collaborative effort across national borders, institutional boundaries and diverse communities, and is testament to the commitment of Country Offices, National Committees, and UNICEF broadly to coordinated efforts to enhance the visibility and influence of children's contributions to key debates. It is precisely this kind of spirit of collaboration that must drive ongoing efforts to grapple with the meanings and implications of digital technology and develop the necessary responses.

Our hope is that this report contributes to efforts to centre children's insights, expertise, and aspirations in ongoing discussions and decision making processes that aim to minimise the risks and maximise the benefits of digital technology, not just for children but for the broadest possible population.

“The internet was designed for adults, but it is increasingly used by children and young people – and digital technology increasingly affects their lives and futures. So digital policies, practices, and products should better reflect children’s needs, children’s perspectives and children’s voices.”

Anthony Lake, Executive Director, UNICEF

Introduction

Since 1980, UNICEF has published its annual flagship report, *The State of the World's Children* (SOWC), which examines research, policy and practice relating to a key issue affecting the lives of children and young people internationally. Bringing together expert commentary, children's and young people's voices, case studies, and supporting data and statistics, the SOWC report is an important resource for nation states, NGOs and other organisations with an investment in promoting the rights and wellbeing of children and young people everywhere.[1]

The 2017 SOWC report (SOWC 17), Children in a Digital World (*www.unicef.org/SOWC2017*), focuses on children's and young people's use of digital technologies; an issue of burgeoning interest and sometimes intense concern, as well as a area for necessary action if the global community is to work collectively to ensure digital technology can be harnessed to deliver on children's and young people's provision, protection and participation rights, now and into the future.

This year, in the spirit of Article 12 of the Convention on the Rights of the Child (UNCRC), the SOWC report team worked with RErights.org, the Institute for Culture and Society at Western Sydney University and a network of 26 country offices to deliver data gathering workshops to elicit the views of 490 children and young people aged 10–19 on their use of digital media for diverse purposes in a wide variety of settings, as well as their future aspirations for a digitally mediated world. A summary of the findings of this data gathering exercise has been included in the SOWC 17 report. However, the depth and nuance of the insights generated by children and young people about their digital practices warrants further elaboration than was possible in the limited space of the SOWC 17 report. Hence, this Companion Report; which should be read alongside the main report, and which we hope does justice to the rich contributions of children and young people internationally to the study we conducted.

This report foregrounds children's and young people's priorities, hopes and aspirations for digital technology, as well as their understandings of the risks and potential harms they confront in the digital age. The process of generating the data that is analysed herein depended on a highly collaborative effort across national borders, institutional boundaries and diverse communities, and is testament to the commitment of Country Offices, National Committees, and UNICEF broadly to coordinated efforts to enhance the visibility and influence of children's and young people's contributions to key debates. Our hope is that this report contributes to efforts to centre children's insights, expertise, and aspirations in ongoing discussions and decision making processes that aim to minimise the risks and maximise the benefits of digital technology, not just for children but for the broadest possible population. We hope this report will be used by global policy makers, governments, NGOs, educators, service providers, children, young people, and the communities in which they live and grow, as they collectively grapple with the meanings and implications of digital technology and develop the necessary responses.

[1] For the purposes of this report, children are defined as everyone under the age of 18, in line with the UNCRC, Article 1 (OHCHR 1989). Young people are defined as those aged 10–24 and the term adolescents refers to those aged 10–19 in accordance with the UNICEF's definitions (UNDESA, n.d.).

Background

Article 12 of the Convention on the Rights of the Child (UNCRC. See OHCHR 1989) asserts the right of children to participate in the debates and decision making processes that affect their lives, granting children civil and political rights that are normally reserved for adults (Third et al. 2014, p.16). However, as many scholars have noted, the realisation of this promise remains limited inasmuch as research, policy and programming tends to remain grounded in ideas and practices that work to marginalise or overlook the insights, experiences and agency of children as political actors in their own right (l'Anson 2011, p.104; Fitzgerald & Graham 2008 p.65; Davies et al. 2011, n.p.).

At the same time, evidence suggests that, when it is done well, children's participation can have significant benefits for policy, practice and broader society; benefits that extend far beyond the impacts on children and young people themselves. As Graham and Fitzgerald note:

> Children's participation is accepted as strengthening the status of children, challenging issues associated with their social exclusion, emboldening the accountability and responsiveness of institutions, as well as contributing far-reaching benefits for children's wellbeing, their families and wider communities. (2010, pp. 344-5)

In recent years, scholars, child rights advocates, policy makers, professionals working with children, and many others have identified the need to find ways to enhance children's meaningful participation and engagement.

There are already a diverse range of initiatives designed to foreground children's views and position them to influence the agendas of youth-serving organisations, institutions and governments at local, national, regional and international levels. Such initiatives include, for example, children's councils and parliaments[2], youth fora[3], youth blogging initiatives[4], and innovative digital platforms for channelling children's and young people's views and insights into policy and programming[5]. These initiatives all contribute, to varying degrees and in different modalities, to activating children's contributions to processes of governance and social change. But, on their own, they are not – and cannot be – enough to deliver on the promise of broad-based participation that is enshrined by the UNCRC.

Definitions of and mechanisms for achieving children's participation remain contested, and are largely dependent on the ways their citizenship is conceptualised (Collin 2015). To date, calls for enhanced youth participation have strongly emphasised the importance of children 'having a voice' about the challenges and opportunities they encounter in their everyday lives. However, too often, the well-intentioned focus on surfacing their 'voices'

[2] For an example of a national children's parliament, see the Nelson Mandela Children's Parliament in South Africa (http://www.nelsonmandelachildrensfund.com/news/2016-nelson-mandela-childrens-parliament). For an example of a local government children's parliament, see the 2168 Children's Parliament hosted by the Liverpool City Council in Australia (http://www.liverpool.nsw.gov.au/community/our-community/living-in-2168). For a critique of youth councils, see Taft and Gordon, 2013.

[3] For example, the European Youth Forum is a peak youth platform representing over 100 youth organisations across Europe. The Youth Forum aims to "empower young people to participate actively in society to improve their own lives by representing and advocating their needs and interest and those of their organizations" (http://www.youthforum.org/european-youth-forum/).

[4] One example is UNICEF's Voices of Youth. An initiative of the Division of Communication at UNICEF Headquarters in New York, Voices of Youth is "a global community for young people to learn about and discuss development issues… [and] to communicate and collaborate effectively to make a positive difference in their countries and communities". (http://www.voicesofyouth.org/en/page-1).

[5] See, for example, UNICEF's U-Report initiative (https://ureport.in/about/) and RErights.org (https://rerights.org).

(see Graham & Fitzgerald 2010; l'Anson 2013) works to limit ideas about children's participation to their inclusion in the existing, formal, adult-centred, decision making processes of governments, institutions and youth-serving organisations via, for example, "youth round tables, liaison with government representatives, and involvement in local council initiatives" (Harris 2008, p. 484). This sometimes means that only those children with the necessary cultural capital and political savoir – those Banaji and Buckingham label the 'usual suspects' (2013, p. 11) – are positioned to participate, further marginalising those who are excluded by extant formal political structures and channels. In this context, "nonparticipation (or disengagement) might well be construed as a rational response to the available opportunities" (Banaji & Buckingham 2013, p.13).

Framing children's participation in this way also elides consideration of how their less conventional, everyday, and often technologically-enabled, repertoires and activities – which frequently unfold beyond the sphere of sanctioned decision making spaces and adult authority (Ito et al. 2008, p.ix) – might constitute meaningful forms of participation. If decision makers and other duty bearers are to meaningfully engage children, we need to reach out to them in the spaces they already inhabit and work with their existing practices. There is thus a need to take account of "the more mundane everyday interactions and the routine informal opportunities for meaningful participation in children and young people's daily lives" (Horgan et al. 2013, p.2).

The focus on 'hearing children's voices' also often reduces their participation to one-off or limited duration consultations that can be extractive in nature and disconnected from the ongoing circuits of dialogue and feedback that shape policy and practice. As Percy-Smith notes "participation is now generally equated with consultation, from which it is assumed that professionals respond to the needs articulated by young people" (2010, p.108). As a consequence, despite the emphasis of the Convention on enabling children's participation, internationally, it remains "difficult to find examples where young people have had a major influence on decision making and service commissioning" (Percy-Smith 2010, pp.107–8), even where engagement and participation activities are undertaken in good faith.

Internationally, a wide range of organisations and institutions have mobilised systems and processes to enhance children's participation. In addition to dedicated programs, organisational mechanisms for enhancing children's participation include formal policies that commit to engaging children in the life of such entities and/or broader society, as well as budget allocations, participation frameworks, monitoring and evaluation processes, and a range of reports and other knowledge brokering collateral. While such provisioning of children's participation is critical, it can also result in an instrumental approach to their participation that does little to transform the adult-child power differentials that shape existing decision making processes. Indeed, Fleming argues that "practitioners and policy-makers need to move from the organisational focus of much current participation and young people need to set the agenda for action' (2013, p.493).

At the same time the challenges of engaging children in some settings must be recognised. Indeed, for some of the countries that participated in this study, this was the first time anyone in their country had collected data about how and why children use digital media. This points to the need to support such countries to develop capacity to collect and use data in ways that maximise the impact while working within the constraints of available resources. With appropriate coordination, guidance and flexible data collection tools and processes, collaborating across national boundaries and benefitting from exchanges with others is one way to strengthen capacity.

One promising pathway towards strengthening children's participation is through leveraging their enthusiasm for new technologies. Research, as well as everyday experience, shows that, in those places where they have regular and reliable access to digital media, children are using digital media in inventive ways to participate in public life (Third et al. 2014). An accumulating body of evidence shows that children search for information and opinion about the issues they perceive as relevant; develop and express their views and opinions; form meaningful connections with both peer-based and intergenerational communities of debate and local action; and create, share and interact with a wide range of visual and textual artefacts in relation to issues about which they care (see for

example Swist et al. 2015; Collin 2015; Cortesi et al. 2013; Gasser et al. 2012; Cohen et al. 2012; Collin et al. 2010). Digital media thus potentially offer a range of avenues for amplifying children's contributions and strengthening their participation.

Despite this potential, however, children's participation via new technologies is not always recognised by adult-centred institutions. Indeed, adult centred frameworks and institutions may misrecognise young people's politics and activist modalities (see, for example, Harris 2008, p.484) or, at worst, dismiss their practices as 'silly citizenship' (Hartley 2010). This is particularly the case where children's everyday digital participation takes on new forms, such as via visual social media.

In short, as Graham and Fitzgerald note, "we have not yet resolved how best to theorize, interpret and practise children's participation in everyday social and political life" (2010, p.343). What might it require to move from a model of episodic consultation with children towards a more systematic, inclusive and meaningful model of participation?

We join the growing body of theorists and practitioners who argue a clear need for mechanisms to embed children in ongoing debates and decision making, in ways that meet children in the spaces in which they are already actively contributing, and which dovetail with their existing communication and participation practices, digital or otherwise. Their evidence suggests a need to involve children in meaningful dialogue across time about their changing practices, needs and priorities, as well as a requirement to work with children to generate, interpret and activate a broader range of evidence in policy and practice (See, for example, Third et al. forthcoming 2018).

To create the spaces and opportunities for ongoing dialogue, and to channel co-research with children and young people into policy and practice, requires 'reciprocating organisations and institutions' that value children and young people as agents in their own right; can take their views on board in an iterative manner; and respond flexibly to what they say they need. However, the challenge is not simply about listening to them and being willing to act on their insights and suggestions; it is about embedding a radical openness to children's participation and a commitment to ongoing intergenerational dialogue – however messy and sticky that may be in practice – at the heart of the organisations and institutions that work with and for children. That is, we must engage children, and grapple with and alongside them, precisely because they can produce a "stutter" (Dahlberg & Moss 2005, p. 160) in adult narratives, for "as soon as one can no longer think things as one formerly thought them, transformation becomes both very urgent, very difficult and quite possible" (Foucault 1988, p.155).

What is required, then, is "organisational and institutional reflexivity and transformation, the shape of which can only be determined in partnership with children and young people" (Third et al. forthcoming 2018). It demands that adults and the entities they lead and populate confront the uncomfortable task of turning our attention "towards ourselves and the environment within which we work" (Graham & Fitzgerald 2010, p. 354) and to consider, in earnest, what kinds of transformations in our thinking, structures, processes and practices might be necessary to deliver on the promise of Article 12. We must scrutinise to what extent our programs for change might embed adult-centric assumptions. We must interrogate how forms of agenda setting, accountability and reporting might inhibit or enable children's participation and engagement. We must engage with the question of how to enable forms of participation that articulate with the everyday of children's lives. We must generate actionable evidence in partnership with children. And we must be wary of easy solutions. As Lister has argued, "a key test of participatory initiatives and processes… is whether they… challenge traditional power relations or simply reinforce them" (2007, p. 439).

The challenge of facilitating children's and young people's participation in research, policy and practice relating to digital media is a pressing one. For growing numbers of children and young people around the world, daily life is increasingly characterised by interactions with "the internet and mobile technologies, digital networks and databases, digital contents and services, along with diverse other information and communication technologies… [and] artificial intelligence, robotics, algorithms and 'big data' and the 'internet of things'" (Livingstone, Lansdown & Third 2017, p. 8). This proliferation of digital technologies is implicated in broad ranging transformations in the experience of

everyday life in many places; shifts that range from the ways children – and, indeed, adults – imagine their individual selves and their relationships to others, to new forms of social, political and economic engagement and cultural production, exchange and consumption (Third et al. forthcoming 2018). While digital media are potentially implicated in new forms of inclusion, current evidence shows that digital exclusion develops along the faultlines of conventional socio-cultural inequalities and is concentrated in vulnerable groups (Helsper & Reisdorf 2017; Helsper 2014; Helsper 2012; Witte & Mannon 2010). And, of course, new trends are constantly emerging – for example, artificial intelligence, virtual reality, augmented reality, algorithmic content production, to name just a few that are current – the consequences of which research, policy and practice efforts to date are barely able to imagine, let alone measure and respond in the interests of children.

It is broadly acknowledged that the digital age brings with it both new opportunities for and threats to children, and that digital media can operate to both enhance and infringe their rights (Livingstone, Lansdown & Third 2017, p. 6). The risks to children online are real, and we know that, for socio-structural reasons, some children are more at risk than others online (Barbovschi et al. 2013; Livingstone & Bulger 2013; Metcalf et al. 2013; Livingstone & O'Neill 2014; Kleine et al. 2014; Robinson et al. 2014; Livingstone & Third 2017). The risk and safety challenges are particularly acute in the global South, where children are coming online in dramatic numbers, particularly via mobile platforms (Byrne et al. 2016; Livingstone & Bulger 2013; Livingstone et al. 2015), and where "fast-paced, widespread growth often occurs far ahead of any understanding of what constitutes safe and positive use in digital contexts" (Livingstone, Byrne & Bulger 2015, p. 3). Children are frequently early adopters, and their uptake often outpaces that of their adult counterparts (ITU 2014). In parts of the global South, in particular, this means children do not always benefit from the guidance of parents, teachers and other caregivers. Nor are the policy, legislative and regulatory instruments always adequate to the task of supporting and protecting children online (Livingstone et al. 2014). Further, too often, safety strategies have focused on children's capacities to keep themselves safe online rather than the responsibilities of adults to develop online environments that protect their best interests (for example, the need for proprietary platforms that gather and onsell children's data to be held to account for children's privacy and data security rights. See Livingstone, Lansdown & Third 2017).

An effect of the enormity of the safety challenges is that, over the last decade or so, research, policy and practice has focused on how to foster the necessary skills, behaviours and protective measures to support and safeguard children as they go online. However, it is also clear that the risk and safety focus that currently dominates research, policy and practice is not necessarily serving children well. For example, a 2014 study on which the project reported here is based found that "the discourses available to children currently focus almost exclusively on risk and protection, and this is potentially undermining their capacity to imagine, and articulate, the benefits digital media offers them in realising their rights" (Third et al. 2014, p. 36; see also De Haan & Livingstone 2009). As such, there have been calls for research, policy and practice to better balance the protection of children from harm with attention to fostering the opportunities and benefits of engaging online (Third 2016; Davies et al. 2011).

In reality, this is a very challenging task and the path forward is anything but clear. A 2017 Case for a General Comment on children and digital media to help guide interpretation of the UNCRC outlines in detail the various and complex challenges that confront the global community in actioning children's rights in an era characterised by online and networked media (Livingstone, Lansdown & Third 2017, pp.3–7). It summarises the challenges as follow:

> Many states struggle to recognise children as agents and rights-holders with a significant stake in the digital world, undermining their ability to fulfil their fundamental duty of care to children in the digital environment. On the one hand, too many children are being exposed to significant harm. On the other hand, a protectionist mentality often inhibits states' capacity to realise the expansive possibilities for the digital to support children's rights. This is compounded by a lack of rigorous and actionable evidence to support effective policy and interventions, particularly in the global South" (Livingstone, Lansdown & Third 2017, p.8).

The issues are not just important but urgent. The pace and scale of transformation in the digital age means that "we have a limited window of opportunity to centre children's rights before systems, processes and industry practices sediment" (Livingstone, Lansdown & Third 2017, p. 20).

Here, because it demands attention to children's protection, provision and participation (Livingstone, Carr & Byrne 2015, p. 8), a rights-based approach provides both a useful heuristic for conceptualising the complex terrain across which children's digital practices play out and collide with the priorities of vested interests, and a framework to develop and guide the implementation of responses. However, in order to foster the opportunities that digital media may afford children and young people, we must be wary of conceptualising the issues too narrowly. Research shows – and the evidence presented in this report only confirms this – that the key issue for many children around the world is the lack of regular and reliable access to digital media (Third et al. 2014; Livingstone & O'Neill 2014). As such, amidst our efforts to address children's rights, their provision rights – what we might term their *rights to* digital media – must be foregrounded ever more strongly. So too, we must focus on enhancing the realisation of children's *rights in* online and networked spaces. However, we must also recognise that digital media are deeply imbricated with the contexts in which children live and grow, and so must be wary of distinguishing too sharply between the online and the offline. Indeed, evidence shows that children do not readily make such distinctions but move flexibly between online and offline settings (Ito et al. 2010; Black & Walsh 2011; Third et al. 2014). Thus, the most ambitious and demanding challenges – because they trouble the neat distinctions adults often draw between online and offline spaces – centre on how to harness digital media to support the realisation of the full range of children's *rights in the digital age* (Livingstone & Third 2017, p. 667. See also Livingstone & Bulger 2013).

To achieve this requires more creativity and inventive thinking than has been possible to date. Conventional systems, processes and analytical tools are not always equipped for the task. Indeed, states, NGOs and other entities that work with and for children are calling out for "principled, coherent and authoritative guidance" (Livingstone, Lansdown & Third 2017, p. 4) to support their efforts to recognise and promote children's rights and best interests. It is here that children's participation might constitute a key component of the required step change.

The importance of engaging children in developing the necessary responses was recognised at a Day of General Discussion (DGD) on 'Digital media and children's rights' held in September 2014 by the UN Committee on the Rights of the Child, which concluded that:

> States should ensure that children are consulted in order to take into account their views and experiences in developing laws, policies, programmes, and in the setting up of services, and other measures relating to digital media and ICTs. This should include girls as well as boys, and children in vulnerable or marginalized situations. Children should also be actively engaged in the design and implementation of initiatives aimed at fostering safe use of digital media and ICTs, including online safety. In particular, States are encouraged to establish online spaces, where children can express their views and opinions in a responsible and safe manner (CRC 2014, pp. 21-22).

Article 12 is considered a guiding principle of the UNCRC, establishing children's participation rights as critical to enabling the broad range of their provision and protection rights. As such, the DGD's recommendations can be read as the expression of the desire to deliver on the totality of children's rights in the digital age, and this is important in and of itself. However, we might also think more expansively about the value for broader processes of social transformation of engaging children as political agents in their own right. At this moment in which the digital has truly taken hold, the global community is in need of fresh insights, perspectives and ways of doing. Children have much to offer in response to this need.

In a 1961 essay, political theorist, Hannah Arendt, observed that, "it is in the very nature of the human condition that each new generation grows into an old world… that is, a pre-existing world, constructed by the living and the dead" (Arendt 1961, p.177). Arendt notes that, out of a desire to protect their 'newness', adults often try to cordon children off in a world of their own that is separated from the old world. Against this tendency to simply enclose them in a sphere of protection, she argues that it is the responsibility of

adults to gradually introduce children – those "the Greeks simply called oi neoi, the new ones" (Arendt 1961, p.176) – to the old world. For Arendt, the fact of children's newness demands that adults:

> decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chance of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world (Arendt 1961, p. 196).

Taking inspiration from Arendt, then, we might say that, in the digital age, it is the task of adults – of parents, of professionals, of institutions, of governments – not to cordon children off in a secluded world of protection, but to find ways to gradually introduce them to an old world, a world that precedes them, without negating their newness and without dampening the opportunities their newness offers to an old world (Third et al. forthcoming 2018). In other words, the responsibility of adults and the institutions and communities that organise social life is to induct children into the world *safely*, *responsibly* and *incrementally*, always being attentive to the need to make space for and nurture the *possibilities* they might offer up for reimagining both ourselves and the world we share with them. It is with this vision for engaging with children and their newness in mind that we might seize the opportunity of the digital age to 'rejuvenate' our common world.

While the increasing use and impact of digital technologies is manifest globally, it is not immune to the sway of socio-political histories and structures. The digital is not separate from our 'material' world, and in our world not all groups always have equal access, voice or influence. In this research then, we have made effort to include and understand the contributions of children who, as a result of their circumstances, might not otherwise have the opportunities to engage. However, we are deeply cognizant that, in experimenting with the distributed data gathering methodology that is explicated in what follows, such efforts have not been perfect, and that there is a need to strive for ever more effective ways of channelling a diversity of experiences and insights into research, policy and practice.

The data and analysis we present here is not representative of all children across the world; nor is it a complete and transparent portrayal of the experiences of those specific groups who took part. The research team is acutely aware that, in selecting and narrating the contributions of adolescents, we play a role in mediating their insights that is inevitably implicated in asymmetrical power relations. As such, rather than the transparent documentation of adolescents' views, we present this report as an artefact of one particular moment in a process of intergenerational dialogue.

Finally, this report does not represent an end-point of a process of engagement with children. Rather, it is one step in a process of experimenting with ways of engaging children in ongoing, intergenerational dialogue, directed at minimising the harms and maximising the benefits of digital technologies, for children and adults alike.

It is with the above commitments and considerations in mind that the RErights.org and SOWC teams have undertaken the study reported here. We hope this report illuminates some of the richness and depth of children's digital practices; reveals intersections and divergences between how children and adults perceive and experience digital life; and inspires reflection on and questioning of the ways researchers, practitioners, and decision-makers currently view, explore and intervene in digital life.

“United, with a commitment to participatory methods, and with an unfaltering belief that children should be the authors of their futures, we can seize the opportunities, and mitigate the risks, that digital media offer children to conceptualise and enact their rights – both individually and collectively – into the future.”

Third et al. 2014, p.75

Aims and Objectives

This project has two primary short-term objectives:

1. To work with children and young people in diverse settings to generate qualitative evidence about the ways they access, use and make sense of digital media in the contexts of their everyday lives, for inclusion in UNICEF's 2017 *The State of the World's Children* (SOWC 17) report.
2. To develop a methodology and accompanying training and resources to strengthen the capacity of UNICEF Country Offices and National Committees to work with children to generate dialogue and evidence that can directly inform their work at the country level.

Internationally, there is a growing trend to include children and young people in the development and implementation of relevant research, policy and practice. This trend is increasingly manifest in work carried out by UNICEF and associated agencies and partners. Nonetheless, as identified in the Background section of this report, there is significant scope to engage children and young people more systematically and routinely in ongoing conversations about the issues that impact their everyday lives and their communities.

The longer term and primary aim of the research that underpins this project is thus to experiment with ways to inspire and scale ongoing dialogue between diverse children, young people, policy makers and other duty bearers about the role of digital media in society, in order that we can leverage intergenerational expertise and new ways of doing for the realisation of children's rights, everywhere, in the digital age.

This project thus has the following secondary objectives:

1. To develop, trial and test alternative ways of engaging a wider range of children and young people in a timely and meaningful manner in the work of UNICEF and other child rights organisations and agencies; particularly as these entities work through the issue of how to leverage digital media practices to realise children's rights and meet the Sustainable Development Goals.
2. To demonstrate the value for research, policy and practice of working with children and young people to identify and document their lived experience of both the challenges and opportunities that digital media present.
3. To leverage children's and young people's insights about digital media to identify new areas of potential inquiry and action for future research, policy and practice. The project's data collection and ensuing analysis are driven as much by the idea of identifying new, potentially fruitful lines of inquiry for future research, policy and practice as they are by the idea of documenting a diversity of children's and young people's perspectives.
4. To contribute to efforts to position children's and young people's knowledge and insights about digital media to influence the design and implementation of research, policy and programs in a broad range of settings, through the inclusion of the findings of this study in SOWC 17.

Methods

Distributed data gathering

UNICEF's networks of country and regional offices and representatives offer direct pathways to within-country communities, organisations, and educational centres for distribution of policy, information, engagement, and research materials, and provide a logical mechanism through which to connect with local populations about relevant issues. For SOWC 17, UNICEF based their youth outreach activities around these networks by equipping their offices to facilitate local workshops with adolescents about their views and experiences of digital technologies.

Adolescents' insights on their access to and use of digital technologies were generated using a distributed data gathering process developed by RErights.org, with input from UNICEF. The methodology was originally co-designed by the RErights.org team and members of the Young and Well Cooperative Research Centre's Youth Brains Trust (see Third et al. 2014), providing a tested and effective process that could be extended and adapted for the purposes of SOWC 17.

The distributed data gathering methodology entailed Country Offices and National Committees running local workshops with children and young people, according to a standard method, and then sharing the resulting data with the RErights.org team for analysis. To ensure the quality of the data generated via this process, in the lead up to the workshops, facilitators were briefed, via video conference and written materials, about workshop recruitment, content, administration, as well as standards, ethics and methods for delivery. For further information about the facilitator training, see **Safeguarding adolescents in the workshop settings** below.

Figure 1: World map showing the 26 countries in which the 490 child research participants are based.

Bangladesh
Belarus
Bhutan
Brazil
Burundi
Central African Republic
Democratic Republic of the Congo
Fiji
Guatemala
Japan
Jordan
Kiribati
Malaysia
Nigeria
Paraguay
Peru
Portugal
Republic of Korea
Republic of Moldova
Senegal
Solomon Islands
Thailand
Timor-Leste
Tunisia
Uruguay
Vanuatu

Workshop themes

Working with UNICEF and a series of key advisors to identify relevant themes for the report, the RErights.org team developed a range of workshop activities, a workshop resource kit, and training to support UNICEF regional and country offices to run four-hour face-to-face workshops with participants aged 10–19, capturing their views on five key themes:

- digital technology in their homes;
- barriers to their digital technology use;
- digital technology and learning;
- digital technology and their future;
- using digital technology to create positive social change.

UNICEF offices could also choose to complete extra activities on two optional themes:

- concerns about digital technology;
- digital technology and health.

The complete workshop methodology used in this project can be found at: ***http://doi.org/10.4225/35/5a248c6b047e5***

Top: Brazil. ©UNICEF Brazil/2017/Coe. **Bottom:** Tunisia. ©UNICEF Tunisia/2017/Chebbi

What is RErights.org?

RErights is a youth-centred participatory consultation platform that enables children and young people aged 10–19 to share their insights and experiences regarding the digital age.

The platform was developed by the Institute for Culture and Society at Western Sydney University, in partnership with the Young and Well Cooperative Research Centre (2011–2016), Digitally Connected, and UNICEF's Voices of Youth. It builds upon a methodology developed for a study with 148 children and young people from 14 countries and speaking eight languages, the results of which were presented to the United Nations Committee for the Rights of the Child's Day of General Discussion in Geneva in September 2014 (see Third et al. 2014).

The platform works with children, young people and other stakeholders to identify relevant themes and co-design data gathering activities around them. Children and young people can then participate in these activities individually or in groups. And they can choose to contribute either online (via the platform's website, ***www.rerights.org***) or via facilitated face-to-face workshops. These activities generate qualitative content (e.g. text, photos, artwork, etc.) that is then analysed by the RErights.org team – and, where possible, by children and young people themselves – and presented back to RErights.org participants and relevant stakeholders. The idea is to create spaces for children and young people to develop their own understandings and languages for talking about the issues they face; in the first instance, in relation to their digital practices. In doing so, the RErights.org team aims to inspire an ongoing conversation between children, young people, policy makers and other duty bearers so that the decision making processes that impact children's and young people's lives can be more meaningfully informed by their views and interpretations across time.

Current RErights.org activities focus on children's and young people's rights in the digital age. However, the platform is designed to be flexible and so can easily accommodate activities about different issues and themes. The website and workshop resource kit include guidelines and materials that have been developed for facilitators running either online or offline workshops with organised groups. Wherever possible, the RErights.org online platform incorporates learning materials and links to resources so that young participants can explore the issues they are discussing, while also developing their digital literacy.

Recruitment and sample

UNICEF recruited 490 adolescents aged 10–19 across 26 countries, to conduct 36 workshops (eight countries hosted more than one workshop) between 1 June and 28 June, 2017. Workshops were held in Bangladesh, Belarus, Bhutan, Brazil, Burundi, Central African Republic, Democratic Republic of the Congo, Timor-Leste, Fiji, Guatemala, Japan, Jordan, Kiribati, Malaysia, Republic of Republic of Moldova, Nigeria, Paraguay, Peru, Portugal, Senegal, Solomon Islands, Republic of Korea, Thailand, Tunisia, Uruguay, and Vanuatu. Workshops were conducted in 18 languages. Twelve of the 36 were conducted either exclusively or primarily in English. The average workshop size was 13; the smallest workshop had seven participants and the largest had 20. Fifty-six per cent of participants were female, and 43% male (gender was not specified for 1% of participants). All countries completed workshop activities relating to the five standard themes, and 16 countries completed one or more activities relating to the optional themes.

Country offices recruited a diverse sample of adolescents to participate in workshops. Some countries also chose to run workshops with specific groups of disadvantaged adolescents (e.g., refugees in Jordan, adolescents experiencing homelessness in Nigeria, LGBTQI adolescents in Brazil).

Top: Jordan. © UNICEF Jordan/2017/Dot Media. **Bottom left:** Democratic Republic of Congo. ©UNICEF DRC/2017/Njangu. **Bottom right:** Japan. ©UNICEF Japan/2017/Nakai

Data and analysis

Participants worked individually and in groups to complete surveys, short-answer questions, creative exercises (e.g., drawing), scenario-based exercises and small group discussions. Workshop activities aimed to elicit and capture participants' perceptions and experiences of digital technology in their own words, on particular themes and issues. Apart from one short scale-based survey, the bulk of collected data was qualitative, consisting of paper-based short-answer surveys, diagrams, drawings, written text and digital photographs. All data was digitised by participating countries and uploaded to country-specific, secure digital repositories; then collated by the RErights.org team using data analysis software and platforms.

The data – and, by extension, the analysis – generated by this project should not be regarded as internationally representative. Rather, the aim was to canvass and represent a wide range of children's and young people's views on their access to and use of digital technology, and the meanings and aspirations they associate with their technology practices. The research team sought to use workshops to identify commonalities and points of divergence between the insights and experiences of children in different settings. Further, the research team saw workshops not only as a mechanism for gathering data with children and young people, but also as a way to experiment with creating spaces for children and young people to develop their own languages for talking about their digital practices and to engage in conversations with duty bearers.

Thematic analysis was applied as the primary technique for interpreting the data. Individual researchers each entered data from specific workshops, to gain familiarity with the data associated with particular activities and to maintain consistency of analysis. During data entry, researchers categorised relevant data blocks (e.g., phrases, quotes, sentences) according to a range of pre-identified themes, and derived new themes in response to the data. The team then reviewed and discussed relevant data and individual analyses, checking and refining theme interpretations. Where necessary, the research team sought to check the interpretation of data with Country Office and National Committee representatives who had conducted the workshops. Analyses were summarised and presented using quotes and images from participants; synopses, which included core insights and ideas derived from data; and charts and graphics depicting key concepts and general trends.

The research team worked in English, Spanish and French. All content received in other languages was translated into English by UNICEF Country Offices and National Committees. Quotes are cited with minor corrections to spelling or grammar to aid readability and/or correct transcription errors. However, children's and young people's content has not otherwise been altered. With the exception of responses recorded during group work, the age, gender and country of each participant are cited.

Top: Republic of Moldova. ©UNICEF Republic of Moldova/2017/Golea. **Bottom:** Central African Republic. ©UNICEF Central African Republic/2017/Bamoy

Participant feedback

Adolescents who participated in the workshops will receive a child-friendly summary of the key findings of the study, as well as a link to the full report online. The research team are in the process of using the data submitted by each country to tailor short summaries of the research findings for individual Country Offices and National Committees.

Safeguarding adolescents in the workshop setting

Because the workshops were conducted internationally and involved a wide range of adolescents, the research team was especially mindful of incorporating measures and safeguards to ensure participants' wellbeing.

Anticipating ethical challenges and preventing negative impacts on research participants constituted a key component of the research design process. Consideration of the ethical challenges ranged from the potential exclusion of particular kinds of adolescents from participation in the project to developing strategies to ensure that research participants were not adversely affected by their participation.[6]

The research team also sought to ensure adolescents' wellbeing through the thorough preparation of facilitators. Facilitators were selected to run workshops based on their experience working with adolescents in group settings.

A comprehensive workshop resource kit outlined the workshop rationale and provided guidance on implementing each of the activities. This content was developed and vetted by the research team and shared with all facilitators, who were given opportunities to provide feedback.

Leading up to the implementation of the workshops, two real-time, online video conferences were held with facilitators to brief them about the project and provide opportunities to discuss the workshop and ask any questions. While the research team judged that workshop activities would not cause overt discomfort or distress, facilitators were briefed on how to handle sensitive situations. Facilitators were advised to consider the appropriateness of activities for their individual participants, based on their experience and personal knowledge of the adolescents in their workshop groups. To guard against potential psychological harm to particularly vulnerable participants, a standard Satisfaction with Life questionnaire (Diener et al. 1985) was included in the workshop materials. Where there was any doubt about whether participation in the study would have adverse consequences for a participant, facilitators were asked to, discreetly and in confidence, administer the mental health survey to screen participants for inclusion. Cards with contact details for local support services were also provided on workshop tables.

We suggest that the steps and processes described here should be seen as the minimum safeguards required for future implementations of this methodology.

Ethics approval

This research has ethics approval from Western Sydney University's Human Research Ethics Committee (Reference no. H11101).

If children in your country did not participate in this study, they can still do so. Please email us: *rerights@westernsydney.edu.au*

[6] For example, for the set of activities relating to health and wellbeing, the research team were keen to understand how adolescents search for and evaluate online health information. Participants were asked to identify a health issue and to search for information during the workshop. The workshop manual stipulated that this search must be done in small groups so as to mitigate the possibility that children and young people might search for information relating to a health and wellbeing issue they are currently experiencing and find information that causes them anxiety. In this kind of way, the study sought to mobilise the necessary protective measures.

Limitations of the study

All research projects – especially ones of this scale – must balance ideal research design with the demands of practical implementation. Members of the research team engaged in constant dialogue with each other, with a range of project advisors, and country representatives to iteratively reflect on the project, identify emergent challenges, develop strategies to ensure the ethical conduct of the project, and to monitor progress. This iterative, collaborative approach strengthened the research design, inasmuch as it leveraged regular input and a range of expertise. Nevertheless, despite the research team's efforts, because this project was undertaken with a short timeline and limited resources, compromises inevitably had to be made. We thus identify and acknowledge the following limitations to the study. Where possible, strategies for addressing these limitations should guide future implementations.

01

Diverse data collection needs of participating countries

Many UNICEF Country Offices and National Committees do not have access to any – let alone reliable – country-specific data about children's and young people's digital practices. As a result, some of the participating offices took the opportunity of this study to meet local data collection requirements, meaning that the data was sometimes being collected for more than one purpose. As a consequence, there may have been some uncontrolled variation in workshop delivery and data collection across different national settings. Working with a distributed data gathering methodology inevitably produces such variations and, thus, future implementations must factor this into the design by more systematically reflecting on such inter-country differentials and recording the ways local offices tailor the methodology to meet local data needs in tandem with their contributions to the process of cross-national data collection.

02

Quality control in the distributed data gathering process

The research team views the collaborative nature of the design and implementation as a strength of this project. However, the research team is also mindful of the challenges that such an approach surfaces, and so worked to have checks and balances in place to ensure the quality of the data generated.

The research team requested that Country Offices and National Committees use facilitators with experience in youth participation and/or research. Nominated facilitators took part in an online training session and had access to a comprehensive workshop manual and materials. They were also encouraged to reach out to members of the research team when they had questions or were looking to tailor the workshops to local contexts. Nonetheless, controlling for the role of diverse facilitators in the data collection process presented a challenge. Ideally, future resourcing and timelines would enable closer facilitator involvement in the research design and capacity for them to run pilot workshops to test, refine and, where desirable, tailor project processes and procedures. Such a process would enable the research team, Country Offices and National Committees to collaboratively negotiate and document how to better balance the need for a degree of standardisation in the data collection processes (in order to enable reliable cross-

03

country comparisons), with the specific dynamics and evidence requirements in different settings.

We recommend that, where possible, future implementations of the methodology with UNICEF Country Offices and National Committees should involve the same facilitators to leverage their experience and skill.

Language, translation and contextually-specific interpretation of data

Translation was undertaken by UNICEF Country Offices and National Committees to ensure that translation was informed by local knowledge and understandings, as well as familiarity with the workshop process and participants. In theory, back translation – whereby English translations are independently re-translated into the original languages and checked for consistency of meaning – or simultaneous independent translation from the original languages into English would have acted as checks on translation reliability. For reasons of limited time and resources, the research team was unable to implement these reliability checks. Generally, in practice, resource and logistical factors mean such secondary translation processes are very rarely implemented comprehensively across full data sets. While we are confident that the skills, experience, and local knowledge of the UNICEF translators resulted in reliable translations, we recommend that future implementations of this methodology look to include translation reliability checks across selected samples of the data.

Working with a distributed data gathering process under strict time constraints and with limited resources, the research team encountered some challenges in interpreting the data in contextually nuanced ways. When this occurred, the research team reached out to Country Offices and National Committees to seek clarification on how to make sense of the data children had provided. Ideally, future iterations of this methodology would establish a process for working with Country Offices, National Committees, children and young people to co-analyse and interpret the data.

04

Participation of marginalised children

Country Offices and National Committees were asked to bring together a diverse group of children. Some countries opted to recruit via and deliver workshops in partnership with organisations that work with specific youth populations (e.g., LGBTQI youth, refugee communities). Where this occurred, the research team was able to make comparisons between diverse groups of children in those places. We note that, wherever we made such comparisons, we have avoided using generic descriptors such as 'disadvantaged', 'marginalised', or 'vulnerable' in preference for the specific descriptors provided by facilitators (e.g. refugees in Jordan, children experiencing homelessness in Nigeria, LGBTQI young people in Brazil).

Some countries ran workshops for different income groups, enabling intra-country comparisons between children of different socio-economic status. However, as this was not done systematically by all countries, and as income group participation at a local level followed category guidelines defined by respective national bodies, systematic comparisons relating to income groups between different countries were not always feasible. Note, however, we were able to make general comparisons between groups of countries categorised by income group using the World Bank's international categories. In future iterations of this study, the research team will consider requiring data to be collected in line with standardised income criteria to enable comparisons between countries to be made with greater reliability.

Fostering the participation of marginalised children – the so-called 'hard to reach' – remains an ongoing pre-occupation of the work of the RErights.org team. The research team invites feedback from interested researchers, policymakers, child-focused practitioners, and children themselves about how to better achieve this objective.

If you wish to share feedback on or contribute to efforts to address the above limitations of this study, please email us at ***rerights@westernsydney.edu.au***

“Children tell us that they want to be respected as persons in their own right, that is, as different from their parents and other adults, and having something to offer that should be seriously considered... This involves being offered the opportunity to be listened to, being asked for a viewpoint, being given choices, having choices respected and checking that decisions suit children as well as adults.”

Graham & Fitzgerald 2010, p.346

Key findings

When given the opportunity to reflect on the role of digital technology in their everyday lives, children are overwhelmingly positive about the possibilities it affords them. They identify connection, communication and sharing as key benefits of engaging with digital technology and they see a vital role for digital technology in their lives, and those of the people around them, both the now and the future. They speak enthusiastically about the ways digital technology enhances their education, health and happiness, and they report that, despite causing occasional conflicts in their families, it strengthens their family ties and provides opportunities for them to explore the world alongside significant others. And they are optimistic about the potential digital technology offers for transforming the complex challenges they and their communities face.

However, many children also report significant challenges accessing and making the most of all that digital technology has to offer. The insights children share indicate that deep inequities shape children's capacity to engage online, and they must often grapple with significant obstacles, including limited digital literacy, in order to participate in the digital world.

Overall, children painted a complex picture of the ways digital technology is – and is not yet – shaping their lives. Their insights indicate that there are difficult – but not insurmountable – challenges ahead for states and other duty bearers with an investment in leveraging the digital to realise children's full range of provision, protection and participation rights.

In what follows, we report the findings of the study conducted by the RErights.org and SOWC teams, in partnership with 23 UNICEF Country Offices and 3 UNICEF National Committees, with adolescents aged 10–19 in 26 countries. Throughout this analysis, in accordance with UNICEF's terminology, we refer to the workshop participants as adolescents.

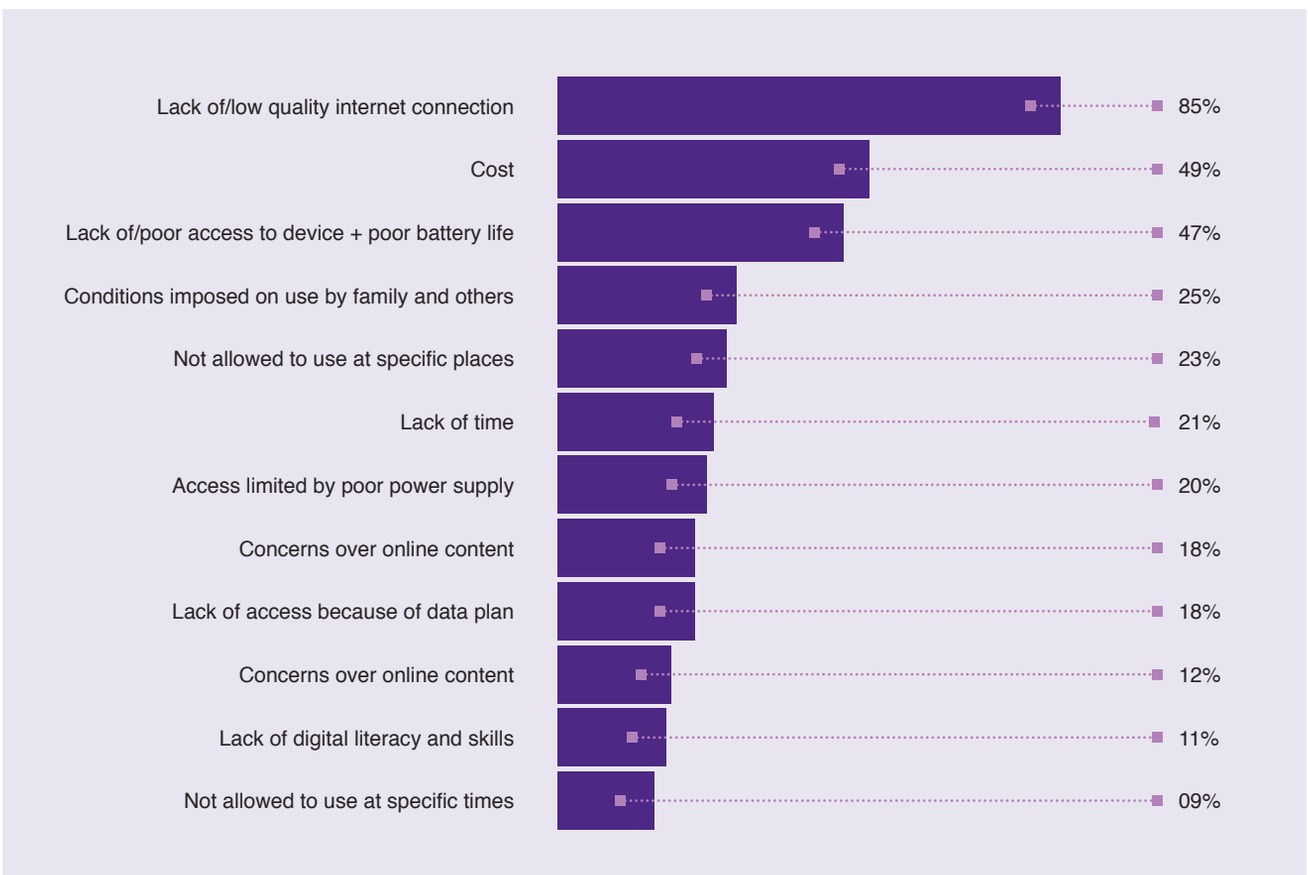
Quotes are cited with minor corrections to spelling or grammar to aid readability and/or correct transcription errors. However, adolescents' content has not otherwise been altered. With the exception of responses recorded during group work, the age, gender and country of each participant are cited.

Barriers to online participation

While children's and young people's access to the internet and digital technologies is rapidly increasing across the globe – particularly in the wake of mobile internet access – millions of them experience significant barriers to their online participation. As the SOWC 17 report identifies, about 29 percent of youth worldwide – around 346 million individuals – are not online. In Africa, three out of five youth (aged 15 to 24) are offline.

Digital divides frequently mirror prevailing economic gaps, amplifying the advantages of children from wealthier backgrounds and compromising the opportunities of the poorest and most disadvantaged children (ITU 2016, p. 3). Unless these gaps in access and skills are identified and closed, connectivity may deepen inequity, reinforcing intergenerational cycles of deprivation.

Figure 2: Most commonly reported barriers to adolescents' access to and use of digital technology (n=434)



Above: Central African Republic. ©UNICEF Central African Republic/2017/Bamoy

It is well-recognised that digital divides go beyond the question of access to hardware and an internet connection (Hargittai 2002; Van Deursen et al. 2014; Van DijK et al. 2012). Of those children and young people who are able to access digital technologies regularly, many are unable to access content in a language that they can speak or that reflects the cultures in which they live. Others have very limited opportunities to develop the digital skills that are necessary to leverage the benefits of being online. And children and young people who rely on mobile phones rather than computers may have an inferior online experience (Napoli 2013, p.9). In short, 'mere access' does not 'ensure equality of opportunity' (Livingstone & Helsper 2007, p. 3) and 'efforts are needed to ensure that children gain the full benefit of ICT along with the skills necessary to use the internet wisely and well for learning, entertainment and social opportunities' (Livingstone et al. 2014, p. 22).

As summarised in Figure 2, adolescents who participated in the study reported here identified a broad range of factors that could prevent or discourage them from using digital technology. The obstacles most commonly reported – particularly by those in low-income countries[7] – related to access. Such access challenges relate to poor connectivity, financial constraints and lack of adequate equipment, reflecting previous research with children that shows that, for many children and young people, "consistent and quality access remains the single largest ongoing challenge" (Third et al. 2014, p.14). Adolescents also noted that the potential to encounter harm while using digital technology often made them think twice about going online. Participants also perceived the rules imposed by parents, carers and schools, as well as social norms relating to appropriate use, as constraints on their use of digital technologies. And some cited limited digital literacy as a factor preventing them from doing what they would like to do online.

Participants had diverse responses for dealing with the barriers they encountered to using digital technologies and going online. Some participants in low-income countries reported that these obstacles were often too difficult to overcome, so they accepted them, working as best they could within existing constraints.

[7] In this report, income groups are defined according to the following classification of participating countries, provided by UNICEF: Low = Burundi, Central African Republic, Democratic Republic of the Congo, Senegal; Lower-Middle = Bangladesh, Bhutan, Timor-Leste, Guatemala, Jordan, Kiribati, Republic of Republic of Moldova, Nigeria, Solomon Islands, Tunisia, Vanuatu; Upper-Middle = Belarus, Brazil, Malaysia, Paraguay, Peru, Thailand, Tuvalu; High = Portugal, Japan, Republic of Korea, Uruguay.

Top: Uruguay. ©UNICEF Uruguay/2017/Lebrato. **Bottom:** Bangladesh. ©UNICEF Bangladesh/2017/Rahman

Above: Republic of Korea. ©UNICEF Korea/2017/Kim

"I can only accept it." (Thailand, gender and age not known)

"[You have to] concentrate on what you must do." (Paraguay, boy, 15)

At the same time, wherever possible, other participants had developed a range of creative workarounds to manage the barriers they experienced going online.

Limited connectivity was by far the main barrier faced by participants. While they mentioned issues ranging from having no internet access at all to wishing for free wi-fi everywhere, the problem for the vast majority of participants was slow or intermittent connection that simply did not meet their needs.

"Internet connectivity – our internet is slow which is very annoying." (Bangladesh, girl, 17)

"I want to search… the internet but the signal is very bad" (Timor-Leste, boy, 16)

"[I have a] slow connection: it's always shutting down and all my tabs get lost." (Tunisia, girl, 16)

Adolescents in a third of the countries participating in the study explicitly reported that inadequate connection was compounded by unstable electricity infrastructure to power devices.

"Lack of electricity to charge the phone." (Burundi, girl, 15)

"No electricity stops me from watching TV." (Vanuatu, girl, 17)

Despite the rapid rollout of digital infrastructure in many countries, rural areas remain underserved (ITU-D n.d.).

Unsurprisingly, then, participants noted that connectivity issues could be more acute in rural areas.

"When I go to the countryside and there's no signal, I get desperate because I can't communicate." (Paraguay, girl, 14)

"No internet is available in rural areas." (Jordan, girl, 16)

Notably, participants frequently exercised a strong degree of agency in developing workarounds for their connection issues. For example, participants dealt with poor connection primarily by planning to use devices when they knew they were likely to have wi-fi access.

"A solution would be avoiding places with low or without signal when we know that we need to use some device. Another solution would be to have more towers that distribute the signal." (Paraguay, boy, 17)

Many participants visited cyber cafes for affordable 3G access, and some accessed an internet connection at their parents' workplace.

"Sometimes when I do researches I go to public internet cafes or I must go to my mum or dad's office." (Solomon Islands, boy, 17)

"I can use internet cheaply at cybercafes but it is not available everywhere." (Bangladesh, boy, 17)

On the other hand, even where young people identified potential workarounds, these could not always be achieved; thus, for example, some participants noted that cyber cafes were not always affordable.

“I want to search… the internet but the signal is very bad.”

(Timor-Leste, male, 16)

Signalling the growing trend in adolescents accessing the internet primarily via mobile devices (Livingstone et al, 2014), other participants noted that wi-fi was not always easy to access, especially in public places.

“In my home town access to wifi might be a bit difficult. Wifi is not always available especially in public places and at my grandparents.” (Tunisia, girl, 16)

A few of the adolescents used their participation in the study to call for cheaper, more stable and comprehensive internet access, including in public places. We should note here that this call for internet access in public spaces can be read as an expression of adolescents’ growing belief that internet access in the twenty-first century is no longer a luxury but a necessity, and thus some called on governments to take responsibility for providing universal access.

“The State should provide free internet.” (Central African Republic, girl, 10)

The unavailability of digital devices, at home or at school, was another barrier experienced by many participants, with significant numbers reporting lack of regular access to a desktop computer, laptop, tablet or mobile phone, particularly in low-income countries.

“We don’t have a computer at home.” (Burundi, girl, 15)

“No availability of technology.” (Jordan, boy, 15)

Even where devices were present, availability issues sometime still arose. Many participants noted that they shared devices with other family members, which sometimes negatively impacted on their ability to predict when or for how long they might be able to use digital devices or go online. For some participants, sharing devices with other family members curbed the amount of time they could spend using digital technologies.

“I need to share the iPad with all my family so I use it just a little bit.” (Republic of Republic of Moldova, girl, 15)

“My parents have priority over the use of technologies at home.” (Portugal, girl, 15)

The phenomenon of device sharing underscores other research, which indicates that “resolving the issue of access need not replicate the ‘one device per person’ model that predominates in the global North” (Third 2016 p.11).

Participants reported complex impacts – both negative and positive – of sharing digital technology with their families (See ‘Family Dynamics’, pp. 72–77).

Devices that were too old, not powerful enough, or inadequate in terms of specifications (e.g., amount of memory) was another barrier reported by participants in the study. Some were saving up to buy a new device, though not all were confident they could achieve this.

“I have to save money to buy it myself but it’s quite expensive.” (Thailand, girl, 16)

Others were aware that compromises would need to be made when purchasing a new device.

“[I will] buy the one that may not have the specs I want but still works for me and has a more affordable price.” (Thailand, gender and age not known)

Battery life was another key challenge, often causing frustration.

“The device’s battery capacity is too small.” (Thailand,gender and age not known)

“I cannot use the mobile phone outside home because battery lasts too short.” (Uruguay, boy, 14)

Many adolescents in the study, particularly those in low-income countries, appear to be using old devices. The age of participants’ devices often meant that battery life was greatly reduced. Where electricity was not reliable, this posed a particularly difficult challenge. Even so, some participants overcame this problem; for example, by using a portable charger or locating places outside the home where they could recharge – although this solution was not available to all.

“[I can get around it by] taking a portable charger with me or having more places available to charge” (Paraguay, girl, 15).

Others switched between devices to maximise their time online.

“My laptop becomes slow after using for some time so I use my smartphone for solving this issue.” (Bangladesh, boy, 17)

A number of participants noted that they often had no access to a charger. Although not explicitly reported by participants, it is possible this is because they share a device with others and the charger is not always kept with the device when it changes hands.

“I can use internet cheaply at cybercafes but it is not available everywhere.”

(Bangladesh, boy, 17)

Socio-economic differences: access[8]

When asked to map how each member of their family uses digital technology, Uruguayan children report similar numbers of devices and patterns of use in their families, regardless of their socio-economic status. Even in the households of the most economically vulnerable children, there is at least one smartphone, and five of the 13 children in this group had their own device. However, participants of lower socio-economic status were more likely to access digital technologies outside of the home. This indicates disparity in device ownership and suggests that participants in higher income contexts experience greater opportunities to engage with digital technology.

Overall, the barriers to accessing and using digital technology on a regular basis that were most commonly reported by Uruguayan participants of diverse socio-economic status included malfunctioning devices, inadequate battery life, unstable internet connection, and insufficient data. Other barriers included a lack of time, conflicting responsibilities, parental restrictions and cost. However, the barrier most frequently mentioned by the most economically vulnerable adolescents was ‘running out of data’, while that of high-income adolescents was ‘being left without wifi’. This suggests that different socio-economic groups are accessing digital technology differently.

After connectivity and the availability of devices, prohibitive costs and financial pressures were found to be the next major barrier to using digital technology.

“[The key challenge is] costly internet packages: I can’t use internet much time as much as I need [because of] costly internet packages.” (Bangladesh, boy, 17)

The prohibitive cost of internet/3G packages meant participants often had to rely on wi-fi that they accessed in public places, which is often associated with a less stable or weaker signal. Participants wanted to see pressure put on governments and internet providers to reduce the costs of connectivity.

“Government should decrease the cost of internet.” (Bangladesh, boy, 17)

Whilst also deterred by the cost of devices, ‘running out of credit’ was the most often reported challenge relating to costs across the sample.

“I had a phone but no credit to make calls.” (Central African Republic, boy, 14)

“I want to call my mum to tell her that my little brother is sick but I have run out of credit.” (Central African Republic, girl, 10)

“There’s no money to recharge.” (Peru, girl, 16)

As the global research, policy and practice community turns its attention to more systematically documenting how and why digital technologies are being used by adolescents in the global South, it is critical that questions about how they navigate the need to finance their digital practices are foregrounded, as costs are a significant barrier and adolescents do not always have control over the necessary financial resources.

Interestingly, in addition to factors of poor connectivity, financial constraints and lack of adequate equipment, participants noted that a range of online risks could curtail or prevent their use of digital technology. In particular, fear of their account being hacked, or of losing control of personal information, was seen as a barrier to fully benefiting from the potential of digital technology.

“At the time of using the internet to collect information, sometimes I am afraid to enter in some website for cyber security problems like hacking.” (Bangladesh, boy, 16)

“Being worried about my privacy makes me reluctant to go online.” (Thailand, girl, age not known)

[8] Separate workshops in Uruguay were conducted with four different groups of participants, classified according to socio-economic status; namely, those who were economically most vulnerable; low-income; middle-income; and high-income.

“I need to share the iPad with all my family so I use it just a little bit.”

(Republic of Republic of Moldova, girl, 15)

Less commonly, participants mentioned concerns about cyberbullying, or having experienced unkind behaviour online, which impacted on the extent to which they engaged online. For further discussion, see ‘Adolescents’ concerns’, pp. 64–71.

Adolescents’ lives are often highly regulated by both formal and informal structures and relationships (Mizen, 2004) and this has consequences for their access to digital technologies. Rules that applied in particular locations, such as schools, were reported as often hindering participants’ ability to access and use digital technology in meaningful ways. Many noted that they were forbidden to bring personal devices to school, or to use them during school hours:

“At school, bringing your own device is not allowed and devices can be confiscated, which is why students need to wait for the computer class to access [technology].” (Democratic Republic of the Congo, boy, 16)

“I think it would be fine to use digital devices at school, but those are only allowed during the break time and lunch time.” (Republic of Korea, boy, 15)

Some participants noted that although technology was provided at school, they did not often have opportunities for ‘technology time’, and sometimes chose to break the rules.

“We have a computer lab in my college but the teachers don’t allow [us] to use the computer lab.” (Bangladesh, boy, 16)

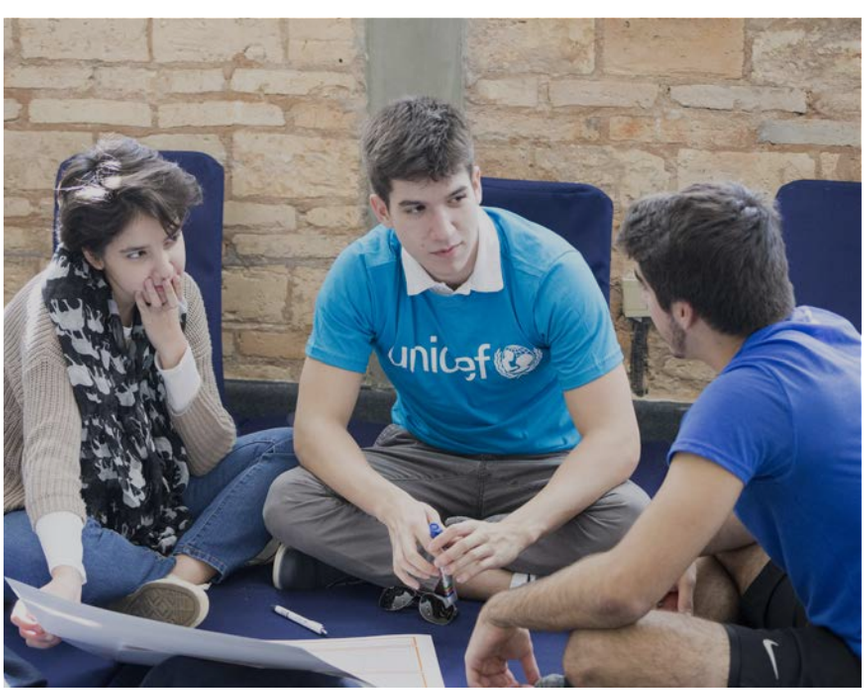
“The usage of devices are not allowed at school... [My solution is to] sneakily use it.” (Thailand, girl, 18)

Some participants felt that schools should be more open and responsive regarding students’ use of digital technology, and develop appropriate guidelines for use that consider and respect adolescents’ perspectives.

“[We need] spaces/moments in which we can use it at school” (Paraguay, girl, 14)

“[Schools should be] analyzing the reason for which a student wants to use his cell phone or computer.” (Paraguay, boy, 17)

For further discussion of digital technology in schools, see ‘Education: preparing for the future’, pp. 48–57.



Above: Paraguay. ©UNICEF Paraguay/2017/Brom

Top: Nigeria. ©UNICEF Nigeria/2017/Odetoyinbo. **Bottom:** Malaysia. ©UNICEF Malaysia/2017/Duku Photography

Above: Timor-Leste. ©UNICEF Timor-Leste/2017/Helin

Top: Burundi. ©UNICEF Burundi/2017/Nijimbere. **Bottom:** Uruguay. ©UNICEF Uruguay/2017/Lebrato

These insights remind us that rules guiding technology use in educational and other settings should ideally be developed in conjunction with children and young people, to ensure such rules for adolescents are relevant, reasonable and practicable, which in turn nurtures adolescents' buy-in and cooperation.

Family rules were also identified as presenting barriers to adolescents' online participation. For example, some families had rules about what time of day was appropriate to use digital technology; and these rules were sometimes circumvented.

"Our parents switch off the wifi at night because of negative waves." (Tunisia, girl, 16)

"I don't have permission to use the mobile phone after some determined time." (Uruguay, girl, 13)

"If I need to use a smartphone and it's late, I have to pretend to be asleep." (Burundi, girl, 16)

Other families put restrictions around the age at which their children were allowed to own devices.

"I don't have a smartphone because my family thinks I'm still [too] young." (Bangladesh, girl, 17)

Many participants noted, however, that parents need to ensure that their children are using technology appropriately, even though rules were sometimes annoying, curtailed their online activity, or caused friction between family members.

"[I can] accept why it's forbidden and think about it." (Paraguay, boy, 15)

"[I will] wait until I am in grade 7 [to get a smartphone]." (Thailand, boy, 15)

Inadequate digital literacy was noted as a barrier by some participants, expressed in terms of not always having the knowledge and skills to access digital technology in the ways they would like, with the result of feeling less enthusiastic about going online.

"Lack of knowledge. Sometimes I want to go online but there is no one to help me and show me." (Central African Republic, girl, 12)

"Not knowing how to use social media [stops me going online]." (Burundi, girl, 15)

Adolescents also say it is difficult to find the time to engage with technology to the extent they wish due to school, homework, and sporting commitments or responsibilities at home, with the latter being more often reported by girls in the study.

"Lack of time [stops me using technology]. Because we are at school and once we arrive home we should do other things first: to study, to wash dishes, etc." (Uruguay, girl, 14)

"[I have a] lot of homework [or am] busy doing home chores." (Kiribati, girl, 15)

"Most of my time I use it for study or work so I only have the night to use the internet." (Guatemala, boy, 17)

Finally, while, for some participants, the negative effects of specific barriers for their digital technology use

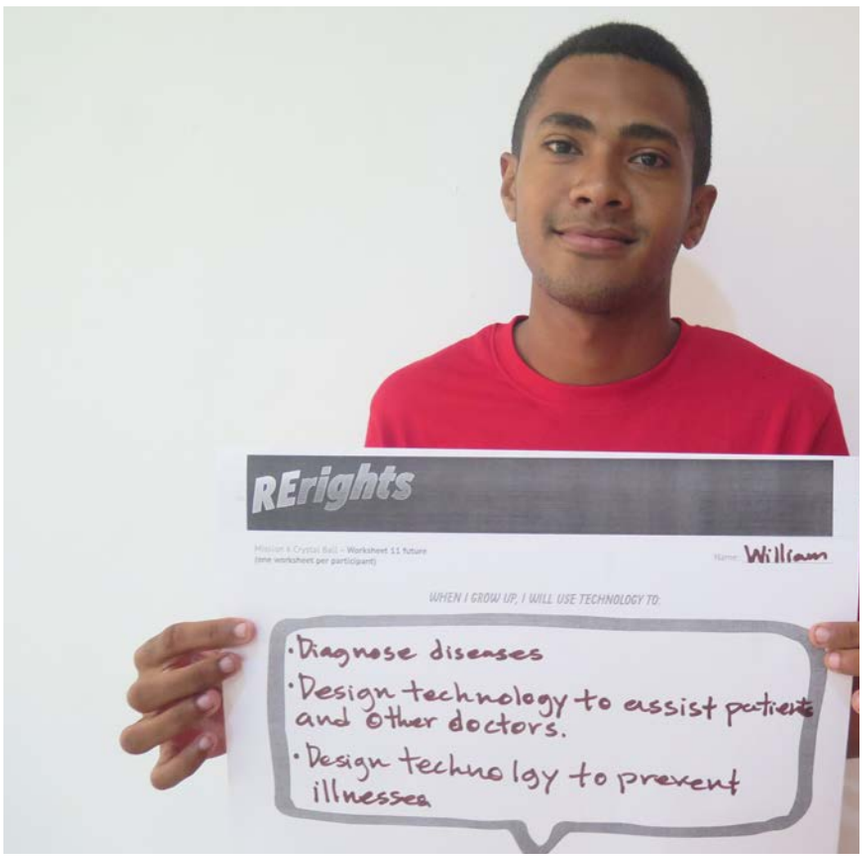
“The obstacles that I face are mainly to find someone who can lend me his phone. Secondly it is to find money to buy units. Finally, the lack of electricity.”

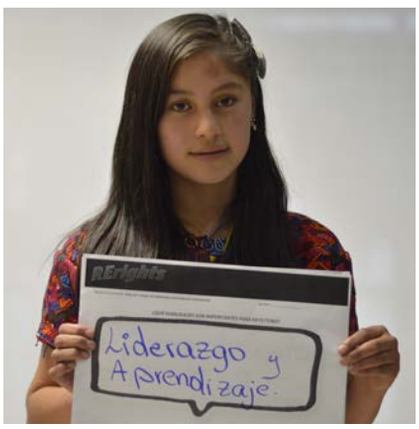
(Burundi, boy 17)

clearly outweighed others, many participants reported experiencing multiple barriers to digital technology use in parallel.

“The obstacles that I face are mainly to find someone who can lend me his phone. Secondly it is to find money to buy units. Finally, the lack of electricity (Burundi, boy, 17).

In summary, adolescents must navigate significant barriers to their online participation. For those in low-income countries, in particular, adolescents’ need for reliable, regular and quality access is acute and requires strong commitment from and action by states and other duty bearers. It is critical that children and young people who speak minority languages are able to engage with content in the language they speak and that digital content addresses the issues and people in their communities. For those with more regular and reliable access to digital technologies, it is also clear that, in the contexts of their everyday lives, adolescents navigate a complex and shifting set of structures, rules and relationships that impact how and when they can use digital technologies and go online. While the evidence we have collected shows that adolescents have developed rich inventories of tactics and skills for managing these circumstances; minimising the uncertainties; and maximising their opportunities to engage, strategies to improve access must address the complex range of factors encountered by children and young people in their everyday lives if the global community is genuinely to promote their equity of access.





Top: Fiji. ©UNICEF Fiji/2017/Hoeder
Above: Guatemala. ©UNICEF Guatemala/2017/Méndez

Above: Brazil. ©UNICEF Brazil/2017/Coe

Education: Preparing for the future

Internationally, programs and policies are being implemented to encourage children to use digital technology, safely and effectively, in formal educational and other learning settings in order to maximise the benefits of their online engagements and prepare them for their adult lives. Digital technologies can expose many children and young people to greater opportunities for learning and education, especially in remote regions and during humanitarian crises. They have the potential to create opportunities for personalized learning, supporting students to learn at their own pace (Banerjee et al. 2007; Muralidharan et al. 2016; Abdul Latif Jameel Poverty Action Lab n.d.). And digital technologies are enabling some children to participate in e-learning and to access a wide range of educational and learning content that was unavailable to previous generations of children.

The 2017 NMC/CoSN Horizon Report (K–12 Edition) outlines a range of key technology trends impacting the education sector internationally, as well as the challenges that must be overcome to realise the potential of emergent technologies and platforms for children's and young people's learning experiences (Freeman et al. 2017). Some exciting developments are underway. Robotics and coding have begun to feature in K–12 school curricula in some parts of the world. And there are moves afoot to redesign learning spaces to incorporate, for example, digital devices, mixed reality, Internet of Things and 3D printing to foster "problem-based learning, project-based learning, challenge based learning, and inquiry-based learning, which encourage creative problem-solving and actively implementing solutions" (Freeman et al. 2017, p.14). Such connected, active learning spaces aim to nurture entrepreneurship, collaboration and creativity in the next generation of students, preparing them for life and work in the 21st century and fostering their abilities to tackle complex, real-world social challenges collectively (Freeman et al. 2017, p.14).

These optimistic predictions about the impacts of the uptake of digital technologies in learning settings are tempered by the authors' observation that "technology is an enabler but does not alone compensate for gaps in student engagement and performance attributable to socioeconomic status, race, ethnicity, and gender" (Freeman et al. 2017, p.4). As suggested in the SOWC 17, technology needs to be supported by strong teachers, motivated learners and sound pedagogy.

Indeed, the evidence gathered with adolescents in our study suggests that social, cultural and economic divides profoundly shape the likelihood that participants will experience the positive impacts of technology-based innovation for their education. Indeed, many are still far from being able to reap such benefits.

What kind of role do adolescents envisage technology playing in their

Above: Paraguay. ©UNICEF Paraguay/2017/Brom

future? And how well are they being prepared to reap the benefits of the digital age?

Participants in the study generally believed that digital technology was vital to their futures in the broadest sense.

"If we do not use the computer, if we do not know the computer, then we do not know anything, including... the good things for our lives." (Timor-Leste, girl, 14)

They predicted a range of ways that digital technology would feature in their everyday lives in the future, highlighting its connective, creative, communicative, informative, organisational and entertainment dimensions.

"When I grow up I will use technology to work, have fun, create, get informed, communicate, express, give my point of view." (Uruguay, girl, 14)

"When I grow up I will use technology to call or text people on the phone, do research on the internet, to listen to music, to do some presentations on the laptop, and play some games on the phone, laptop and computer." (Vanuatu, girl, 13)

"When I grow up I will use technology to widen my knowledge, to create my own technology stuff, and to help other people" (Malaysia, boy, 15)

"When I grow up I will use technology to connect with people, search for information, organise myself and get informed about what's happening in the world." (Paraguay, girl, 15)

Some saw digital technology as – among other things – playing a role in their capacity for lifelong and connected learning.

"When I grow up I will use technology to take photos, take videos, surf the net, do research, travel the world, and take online classes" (Solomon Islands, girl, 17)

"When I grow up I will use technology to manage time, communicate, research, learn, discover, connect." (Bhutan, boy, 19)

Others identified that digital technology would be critical to their working lives, with some specifying a particular role for digital technology in their future careers.

"When I grow up I will use technology to facilitate my work, use and share necessary information, tell people about my ideas, thoughts, etc." (Paraguay, girl, 15)

"When I grow up I will use technology to produce music, get clients and send work done, make jingles for companies, run a free music download site and application" (Nigeria, boy, 19)

"When I grow up I will use technology to diagnose diseases, design technology to assist patients and other doctors, design technology to prevent illnesses." (Fiji, boy, 18)

Top: Timor-Leste. ©UNICEF Timor-Leste/2017/Helin. **Bottom:** Kiribati. ©UNICEF Fiji/2017/Hoeder

Above: Bhutan. ©UNICEF Bhutan/2017/Sherpa

Socio-economic differences: aspirations

Comparative data generated with adolescents in Uruguay demonstrated that adolescents from most economically vulnerable and low-income contexts have different horizons of expectation around the role of technology in their future lives to those of their high-income counterparts. Participants from high-income backgrounds talked in aspirational terms about using digital technology to develop 'life skills', to pursue a university education, or to undertake vocational training.

"They should teach us how to handle life better as adults, the things we should do, how to choose a profession, know how University is and other things related to our life after we turn 18 years old." (Uruguay, girl, 14, high-income participant)

By contrast, those from low-income contexts were inclined to talk about how digital technology can assist them in the short term.

"Keep on studying, learning, listening to professors, and pass the year" (Uruguay, boy, 15, low-income participant)

Notably, while all high-income participants envisaged using technology in their future work, the most-economically-vulnerable adolescents did not mention this, suggesting that the Uruguayan participants have different conceptions of the role of technology and the opportunities it may present, depending on their socio-economic status.

When asked to identify the skills they deemed important for the future, a large proportion of participants singled out digital technology skills, amidst other generic skills.

"Important skills for my future are technology/IT skills, public speaking skills, writing skills, business making skills, photographing skills, and acting skills" (Solomon Islands, girl, 17)

The skills that adolescents identified as important for a future mediated by digital technology included both generic critical thinking skills and specialist technology skills.

"Critical thinking skills" (Malaysia, girl, 16)

"Making spreadsheets, website designing, photo and video editing, making presentations with powerpoint, creating software." (Bangladesh, boy, 13)

"To be able to manage pages and documents in computers to be able to practice the profession I will study." (Peru, girl, age not known)

"Coding!!! To create new programs and games!!" (Malaysia, girl, 17)

When talking about the formal IT education they are receiving at

"If we do not use the computer, if we do not know the computer, then we do not know anything, including...the good things for our lives."

(Timor-Leste, girl, 14)

school, over half the participants in the study said that they regularly attended computer or IT classes, most often on a weekly basis. However, about one in five participants had never had any IT training, and a few said that they only received training for a limited period of time.

"We start having computer lessons from the last two years at high school. The first and second years students don't study IT." (Tunisia, girl, 16)

"Computer classes are only for Form 6 and 7." (Solomon Islands, boy, 17)

"We had [IT class] in primary not in middle school." (Fiji, boy, 13)

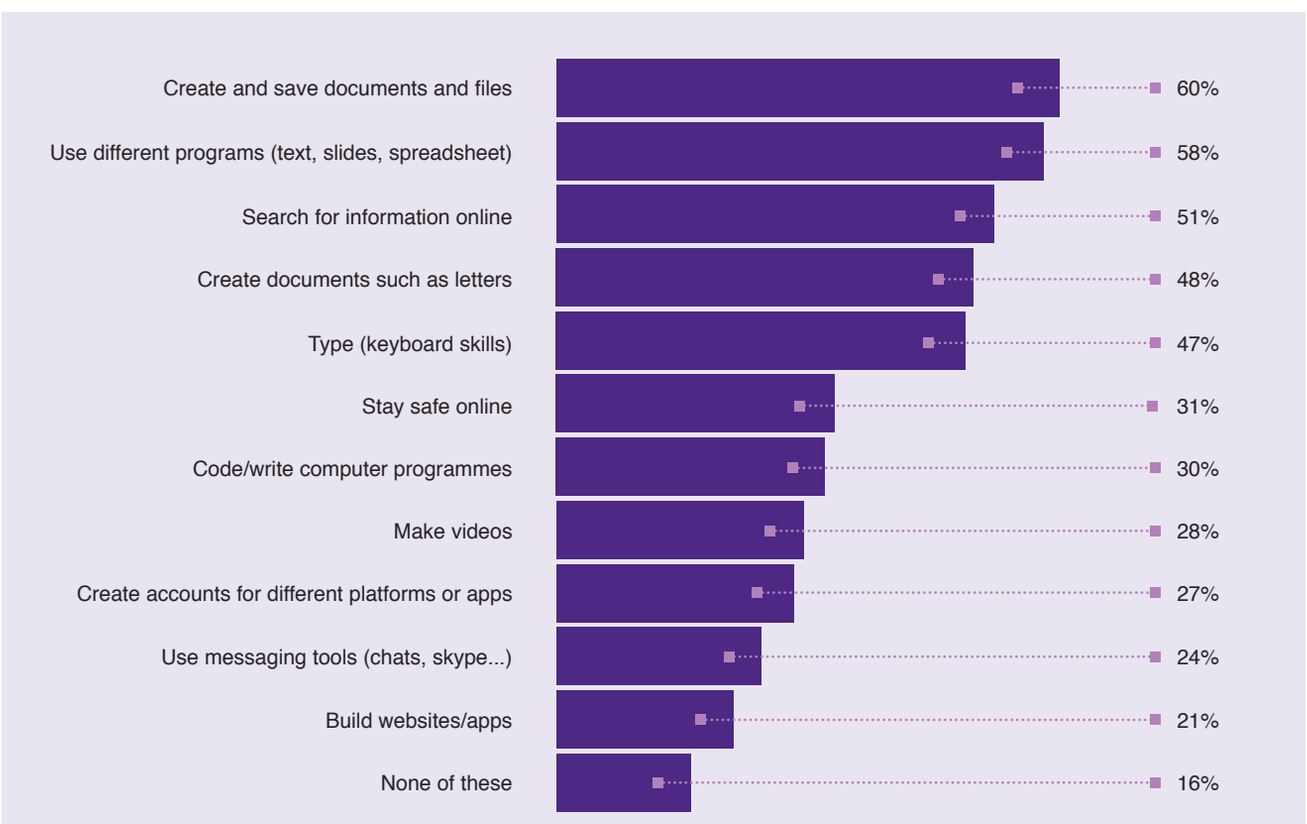
Notably, participants from different socio-economic groups report receiving IT education and digital literacy training at different points in their schooling. High-income participants reported that they engaged in this training much earlier in their school careers than their most economically vulnerable and low-income peers of the same age.

"I used to have these kinds of classes in 1st and 2nd grade, once a week" (Uruguay, girl 14, high-income participant)

Whilst this no doubt reflects teaching practices that are tailored to the contexts in which adolescents live and grow, at the same time, it illustrates the subtle ways that digital divides can play out in adolescents' everyday lives.

As Figure 3 shows, adolescents said that computer or IT education in schools taught them primarily to use a range of different software applications and create and save documents and files, followed by information search and typing skills. Reflecting current policy emphases globally, some adolescents said they were

Figure 3: What adolescents say they learn in information technology classes at school (n=438)



Top: Bangladesh. ©UNICEF Bangladesh/2017/Rahman. **Bottom:** Vanuatu. ©UNICEF Fiji/2017/Hoeder

Above: Republic of Korea. ©UNICEF Korea/2017/Kim

learning about online safety or how to code. Fewer, however, said they were being taught skills at school that enabled them to engage in more creative practices, such as building websites or apps, or making videos. This is noteworthy because research conducted in Europe has shown that more creative and participatory activities tend to expose children and young people to a broader range of opportunities and benefits online (Livingstone et al. 2014, p. 18). However, little is known about "whether the ladder [of opportunity] takes a different form in different cultural contexts" (Livingstone et al. 2014, p. 22), highlighting the need for research to better understand the drivers of diverse children's and young people's opportunities in the digital world (Livingstone & O'Neill 2014, pp. 20–38; Third 2016, p.21).

Although schools worldwide increasingly emphasise the importance of providing computer or IT education, this frequently occurs against a backdrop of limited digital technology access. Approximately one in five adolescents reported that they did not have access to digital technology at school. This was particularly the case in low-income countries.

"[There is] no technology, no devices provided. Zero technology is available to us." (Central African Republic, boy, 15)

Whilst the vast majority of participants said they could access digital technology at school, the quality of access to digital infrastructure, devices and software varied considerably. Some adolescents reported having very limited access to desktop computers.

"There is a computer, but it's located at the Principal's office." (Peru, girl, 15)

Conversely, some participants enjoyed ready access to wi-fi connectivity and a range of devices and software.

'We have an iPad for every student, projector in every classroom." (Thailand, age & gender not known)

"We have Computer Room for sketch ups, Media Room for searching online, Broadcasting Room [with] computer, mic, etc." (Republic of Korea, girl, 12)

Some schools required students to bring their own devices and provided free wi-fi, although, at times, participants noted that such connectivity was less than perfect.

"My school approves use of computers, it's mandatory and we must have them. School provides wi-fi signal, but not much more. My computer or laptop is always in my backpack." (Paraguay, girl, 15)

"We have access in the IT room (but we never use it)... [and] wi-fi for students (but it doesn't work very well)." (Brazil, girl, 16)

Some schools accept that digital technology is a feature of school life in the twenty-first century and seek to embed adolescents' use of personal devices in classroom learning activities, albeit under strict supervision and in accordance with rules that stipulate devices be used for educational purposes only. Adolescents also report that schools often block social media platforms and certain websites.

"We can bring and use but only when teachers give us

“When I grow up I will use technology to connect with people, search for information, organise myself and get informed about what’s happening in the world.”

(Paraguay, girl, 15)

permission. We must do what they ask for with laptops, and no other things. You can’t use cell phones, unless you have permission.” (Paraguay, girl, 14)

“We are not allowed to use smartphones in class for non-educational purposes. I’m allowed to bring my own laptop/datashow. I can use it whenever I need for educational purposes.” (Tunisia, girl, 15)

“We are allowed to use devices like our own personal phones, laptops and tablets in school. Restrictions like blocking social media websites etc are in place. We use our devices for submission of work and also for our school assignments and research purposes.” (Bhutan, girl, 17)

“The cellphone is often used for activities with the permission and the supervision of teachers.” (Brazil, girl, 15)

Other participants – in both low-income and high-income countries – noted that their schools prohibit or limit the use of personal devices – phones, tablets and laptops – during school hours.

“We are not allowed to bring our device to school” (Nigeria, boy, 16)

“Students must turn off their phones at school, and have them stored by the teachers every morning” (Japan, boy, 16).

“Devices are forbidden, if you are caught with a phone, first it is confiscated for the rest of the year and then you lose points in education.” (Burundi, boy, 16)

“You can use your phone during recess only if you have a letter from your parents and only if the reason for taking it to school should be valid for school work.” (Fiji, girl, 16)

“Students’ own devices are strictly forbidden as the school believes that it provides the necessary equipment for our learning.” (Democratic Republic of Congo, girl, 14)

Not surprisingly, some adolescents find ways to work around school rules that prohibit the use of personal devices.

“We’re not allowed to bring our cellphones, but students do it anyway.” (Peru, girl, 16)

According to participants, the majority of schools stipulate that personal devices need to be switched off during class time but allow their use in breaks or for emergencies.

“Yes we bring our phones but we don’t use them in class, only at recess.” (Central African Republic, boy, 12)

“On my school you can bring your phone but only use it in emergencies.” (Guatemala, girl, 15)

Overall, adolescents do not dispute the need for schools to impose restrictions on their use of personal devices during school hours, saying, for example that “teachers are there to make sure we do what we are meant to do.” (Fiji, boy, 18). They generally recognise that digital technology can be “very distracting and doesn’t let us pay attention during class” (Peru, girl, age not given) and that, without appropriate rules and supervision, children might do things like “spend all their time chatting with friends instead of studying.” (Democratic Republic of Congo, girl, 12). Further, some adolescents say digital technology can interrupt the classroom setting when students do not manage their devices well or fail to abide by the rules.

“A student didn’t submit phone and it rang during the class. The class got interrupted.” (Republic of Korea, girl, 12)

“Some students will use mobile phone to cheat during examination by going online.” (Solomon Island, boy, 18)

A few say that too much digital technology would affect their enthusiasm for other kinds of classroom learning.

“When students are being given access to digital technology we don’t really want to do any [other kinds of] learning activities again because it is fun and exciting.” (Nigeria, girl, 15)

However, despite the potential pitfalls of digital technology for their formal learning, many adolescents also say that digital technology supports their learning in the classroom and should be enhanced.

“Technology never got in the way of learning or caused problems at school: with technology we get information for our lessons.” (Central African Republic, girl, 12)

“Technology offers an interesting way to learn at school.” (Republic of Moldova, girl, 16)

In terms of the access to equipment provided by their schools, the vast majority of participants reported that digital technology was available to them in dedicated computer labs.

“When I grow up I will use technology to diagnose diseases, design technology to assist patients and other doctors, design technology to prevent illnesses.”

(Fiji, boy, 18)

“We have computers and computer lab. We can use it whenever we want.” (Bhutan, girl, 16)

Most often, they reported that there were enough computers for each student, but some said they had to share computers with others, while others said their schools did not have enough computers to meet student demand.

“Phones, PC etc are not allowed at school but sometimes we have to bring them because we need to do research but the computer lab is always full with lots of people.” (Democratic Republic of the Congo, girl, 16)

In some schools, limited resources mean that access is restricted to higher grades, or to those studying specific subjects.

“Computers are in the computer lab but only higher classes use them.” (Solomon Islands, girl, 16)

“There are 16 computers at the Parents Association on the second floor, which are used by students who are specializing in accounting.” (Peru, girl, 16)

While adolescents generally reported relatively good access to some form of digital technology in their schools, their comments frequently suggested that it was not used to its full potential. Further, some noted that, despite the availability of computers, irregular electricity supply seriously restricted their use.

“The school has a rather large number of computers in the computer lab but unfortunately it can be difficult for students to use them due to problems such as regular electricity shortages. So they are only used sometimes.” (Democratic Republic of the Congo, boy, 16)

Sometimes underutilisation of digital technology was seen as an effect of its poor integration into the teaching curriculum. However, adolescents also pointed to their teachers’ lack of knowledge and confidence with digital technologies as a key factor in this underutilisation.

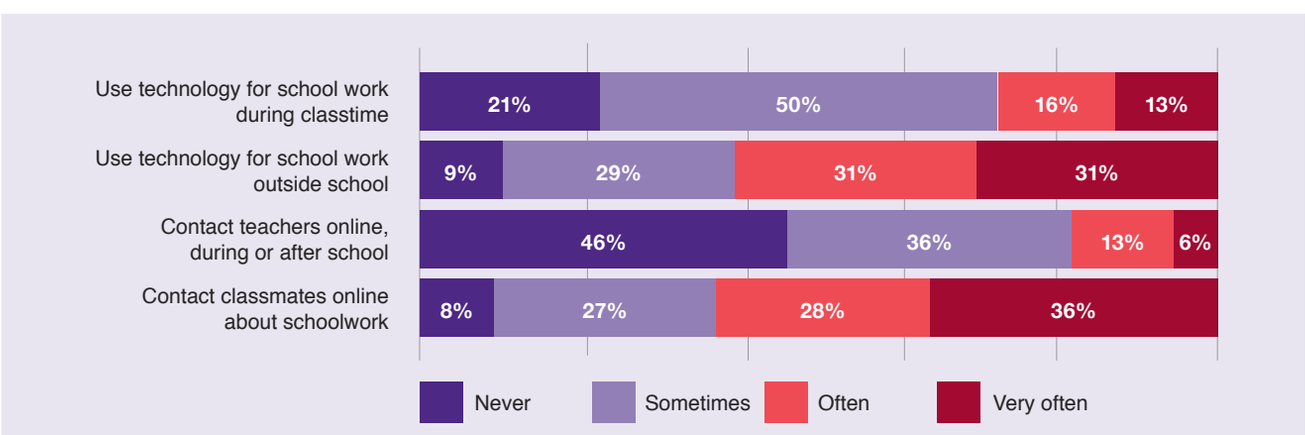
“My teacher takes good care about digital education, but other teachers in school don’t. It’s because they are not familiar with digital technology. The school can better prepare students by training the teachers with how to deal with digital technology.” (Republic of Korea, boy, 12)

“There isn’t mutual understanding with the older generation about the role of gadgets in the educational process.” (Belarus, girl, 16)

This reiterates research that has found that, to enhance learning, the use of digital technologies in education needs to be backed by training for teachers and strong pedagogy. Students “need guides, mentors, and coaches to help them navigate projects, generate meaning, and develop lifelong learning habits. School cultures must encourage, reward, and scale effective teaching practices” (Freeman et al. 2017, p.4)

Notwithstanding the continuing integration of digital technology into schools, adolescents said that technology use in schools generally lagged significantly behind their digital practices outside of school time.

Figure 4: Use of digital technology in relation to school work (n=430)



“Sometimes I get too distracted, and many times I’ve even forgotten to do my homework because I had spent all day on the cellphone.”

(Peru, girl, 16)

Only a quarter of students regularly use technology during class time, and few use it to contact their teachers outside school hours. They felt that digital technology was compartmentalised in Information Technology subjects and inadequately harnessed for their broader learning at school. By contrast, most participants were using it to help them with their school work, outside of school hours (See Figure 4).

Beyond the classroom, roughly half of participants say that digital technology supports their education by enabling them to access information for assignments and other schoolwork that is completed after school hours or to catch up on school work that they might have missed.

“Electronic devices have an important role in helping you do your homework.” (Kiribati, group reponse)

“It allows me to reinforce what I learn at school and to enrich my knowledge.” (Democratic Republic of the Congo, girl, 16)

“Technology helps me to do research for my homework and also, if I miss a class, I can contact a friend on Whatsapp to get information or work together.” (Burundi, girl, 18)

About one third of participants say that technology sometimes gets in the way of their learning or causes problems outside school hours. In particular, they highlight that it is often difficult to balance technologically-mediated leisure activities with their study commitments, and this sometimes has negative consequence for their performance at school.

“Sometimes I spend a lot of time on the telephone/ internet. After that I don’t have any time for doing homework. (Republic of Moldova, boy, 14)

“Sometimes I get too distracted, and many times I’ve even forgotten to do my homework because I had spent all day on the cellphone. (Peru, girl, 16)

However, others say that they have learned to manage their digital technology use, minimising distractions and disruptions.

“It didn’t disturb [my learning] because I manage my time correctly.” (Belarus, boy, 14)

Interestingly, half the participants in the study had attended some form of digital technology training outside school, building their skills in basic computer use (how to use a keyboard, and create and save a document), social media use, digital content creation (e.g., photos, videos, music) and staying safe online, as well as more advanced technical skills (e.g., coding and website development).

Adolescents’ reasons for undertaking technology training outside of school varied greatly, and included compensating for their lack of technology access at school by seeking out opportunities to learn skills in other settings.

“We don’t have technology class because there aren’t any computers, but we go to internet booths.” (Peru, boy, 17)

Many participants were motivated to attend extracurricular training by the need to gain skills that would help them get a job and secure a better future for themselves.

“I have attended a classes course at CEBRAC [an employment agency] where I learned to use Excel and spreadsheets. I participated because I could do it for free and I thought it would be important to have something like this in my CV.” (Brazil, girl, 16)

“I learned how to code with Visual Studio. I participated in that class because I want to be an engineer up-to-date with digital technology in the future.” (Republic of Korea, boy, 14)

Some participants wanted to expand their technical skills to support their school education.

“I attended [IT training outside school] because learning how to use computers will help me with the work I get at school.” (Peru, boy, 17)

Others wanted to develop skills in order to build their capacity for innovation and social entrepreneurship.

“I participated in the technovation challenge to build an app that solves an issue in our community, to learn coding and pitch my ideas.” (Tunisia, girl, 17)

Some attended extracurricular technology training out of a desire to explore the digital world.

“I wanted to learn new things about technology.” (Peru, boy, 17)

“I went to online media literacy camp because I want to learn more about how to be safe online and how to use it in a constructive way”. (Thailand, boy, 15)

“At the time of using internet to collect information, sometimes I am afraid to enter in some website for cyber security problems like hacking.”

(Bangladesh, boy, 16)

A small number reported attending under pressure from parents or carers.

“Honestly, I attended that class because my father forced me.” (Bhutan, girl, 16)

“My mother made me do it.” (Vanuatu, boy, 10)

Some participants also engaged in self-directed learning.

“I learnt coding through YouTube. I watched so many videos about coding and thus I have learned coding.” (Bangladesh, girl, 17)

Generally speaking, the skills and experiences participants sought through additional training tended to be more creative and relevant to developing technologies, rather than the more traditional skill set (e.g., word processing, spreadsheet and presentation packages) taught in schools.

However, overall, adolescents saw schools as having an important role to play in educating them about digital technology. But they raised questions about the adequacy of their school-based technology training for rapidly changing work environments and in regard to their employment prospects.

“The school program has got old and doesn’t correspond with the modern world (including programming languages in schools).” (Belarus, girl, 16)

“The Ministry of Education needs to reform the education system, making what we learn more related to future work” (Thailand, girl, 18).

Participants believed it was critical that they learned skills at school to prepare them for an increasingly globalised, fast-paced and technologically mediated world.

“Schools can be more focused in their teaching and help building capacities and skills that students can use for their daily life and future work.” (Thailand, girl, 18)

“They could teach us not only more thing related to ‘the typical job’ (writing and typing), but also designing and programming [and] not only from the intellectual side, but also social and personal.” (Uruguay, girl, 14)

As such, they called for more digital technology access and training at school.

“[Schools need] to teach work with multimedia equipment, to tell about online work/studying.” (Belarus, girl, 16)

“Allocating more time to computer studies like they do mathematics and English will help enable me in the 21st century global world.” (Nigeria, other, 17)

To prepare them for the future, participants called for greater emphasis on integrating digital technology education into school curricula from a younger age.

“I ask the authorities to go into every school so that children start learning computer science from primary school.” (Central African Republic, group response)

They also pushed for schools to provide software, hardware and reliable connectivity.

“Considering that we already have access to some devices at school, I would suggest that we are provided with free internet connection to allow us to complete our research and work.” (Democratic Republic of Congo, girl, 14)

Some observed the need for their countries to learn from others so that they could strengthen their individual future prospects.

“By teaching me more things, which other countries have already developed, and learning from them. We can put this to practice at school and become good professionals when we graduate.” (Peru, girl, 16)

A few suggested that schools needed to hire younger teachers with digital technology expertise.

“[My school should] reconsider the program of the subject “Computer science” and hire young specialists.” (Belarus, girl, 15)

Some participants believed that school could help adolescents to expand their utilisation of technology beyond the domain of leisure time and entertainment.

“I think that it’s important that the schools use these devices for work. Many times we understand or think that technology is used for entertainment, but we also think that it can help us doing some work. That’s why I think that technology implementation in education is important. Society… develops through it.” (Paraguay, girl, 17)

Where participants already had reasonable access to digital technology and possessed basic digital literacy,

“I participated in the technovation challenge to build an app that solves an issue in our community, to learn coding and pitch my ideas.”

(Tunisia, girl, 17)

Above: Tunisia. ©UNICEF Tunisia/2017/Chebbi

they emphasised wanting to learn more about the positives and negatives of technology and how to use it appropriately.

“Nowadays, a person who doesn’t have knowledge of technology, regardless of what they study, is not considered as an intellectual, which is why the role of school is to teach students about technology so that they can be useful to society in the future. However, school educators should make time for children to better understand and therefore make better use of technology, to know the advantages and the disadvantages.” (Democratic Republic of the Congo, boy, 16)

“School should help me know the bad and good effects of technology, the impacts.” (Fiji, girl, 12)

“Schools should guide the students in terms of positive and negative impacts of digital technology.” (Bhutan, girl, 18)

“Teachers should teach classes that help us use digital technology appropriately.” (Japan, girl, 17)

Taking a wider view of digital technology within their education, some participants called for more emphasis on learning the skills that digital technology could not replace or help with.

“I am sure that digital technology will develop in the future. Of course, it is important to do activities using people’s brains. However, schools should try to find different ways of increasing arts and physical education classes, which digital devices can’t replace.” (Republic of Korea, girl, 13)

The evidence gathered here paints a deeply uneven picture of the role of technology in participants’ education. Nonetheless, it is clear that adolescents view digital technology as central to achieving their goals for their futures. It is thus vital that educational settings seek further ways to support children to develop a wide range of digital skills and literacies in order that every child can grow and thrive. In doing so, we must aspire for children’s learning to “go beyond gaining isolated technology skills toward generating a deep understanding of digital environments, enabling intuitive adaptation to new contexts and co-creation of content with others” (Freeman et al. 2017, p.4). In doing so, educators and other duty bearers can best prepare children and young people to maximise the benefits of digital technology for their futures.

Digital technology and social change

As already foreshadowed in this report, greater online connectivity potentially opens up new avenues for children's and young people's civic engagement, social inclusion and other opportunities (Collin, 2015; Third, 2016; Harris, 2008). Digital technologies allow children to access information on issues that affect their lives. They also offer them tools to help solve problems in their communities and can connect them to peer and intergenerational communities for change.

Digital technology is potentially a game changer for disadvantaged children and young people, with some research suggesting that it can contribute to breaking cycles of poverty and disadvantage (Kleine et al. 2013, p.19). Evidence shows that, without the appropriate protections in place, engaging online can exacerbate the vulnerabilities of some children and young people (Livingstone & Bulger 2013). However, other evidence shows that, under the right circumstances, disadvantaged groups stand to benefit substantially from engaging online (see for example Robinson et al. 2014). If harnessed appropriately, then, digital technologies could be transformative for the world's most disadvantaged and vulnerable children – especially children on the move, children living with disabilities and children who experience exclusion and marginalization because of their ethnicity or sexual identity – supporting them to learn, grow and fulfil their rights and their potential.

How are adolescents thinking about the role of digital technology in processes of social change?

A previous RErights.org study found that some children had high aspirations for a future facilitated by digital media.

> They lauded the potential for digital media to connect cultures globally... Some saw technology as… promoting a spirit of understanding, peace, tolerance, equality and friendship among all peoples. And others noted that digital media had an important role to play in the development of nations (Third et al. 2014, p.29).

So too, in this study, participants saw learning to use digital technology, alongside other knowledge, as vital to their development and their capacity to contribute to the world.

> "Curriculum on Digital [computer] Education, Art, Music and Physical Education should be enhanced, so that the students can dream, find talents on various fields." (Republic of Korea, group response)

In stark contrast to claims that adolescents are disengaged, apathetic or apolitical (see for example Pirie and Worchester 2000), participants in the study were concerned about many issues in their communities, ranging from the need to reduce violence to tackling climate change; from promoting health to addressing discrimination and social exclusion on the basis of gender, sexuality, disability, homelessness and so on.

Above: Belarus. ©UNICEF Belarus/2017/ Yanutsevich

In general, they believed that digital technology had an important role to play in meeting these challenges. This was their perception even in communities where smartphones were the primary point of access to the internet and where participants shared devices with others or communicated 'on the run'.

"When I grow up I will use technology to spread advocacy on climate change and ending violence, and help others in need." (Fiji, girl, 15)

"When I grow up I will use technology to research ways to develop third world countries and implement changes that would decrease poverty levels in the world." (Kiribati, girl, 15)

"I will use technology to advocate to people about health issues." (Nigeria, girl, 15)

"When I grow up I will use technology to improve journalism and better research." (Malaysia, girl, 16)

"When I grow up I will use technology to change the world; use it to design better stuff, create new things, make education more interesting through technology." (Fiji, boy, 17)

In the context of tackling the social, economic, environmental and political issues their communities faced, participants viewed digital technology as a means to search for existing information, gather new data (e.g., by creating surveys) and share knowledge about the issues at hand.

"[We would] make a survey, find out the organisations which work on it and spread awareness online through a website" (Bangladesh, group response).

"[We would] raise online awareness: advertise youth programs, produce educational clips, participate in online forums on ways of addressing the issues." (Solomon Islands, group response)

They also saw digital technology as critical to fostering their own capacity to contribute as informed citizens, now and in the future.

[I will use it to] inform myself and other people about what's happening in my country and in other places of the world." (Paraguay, girl, 15)

Participants also saw the potential for digital technology in raising awareness of community issues and supporting communities to move forward and transform.

"[Digital technology can change] the attitude of society to the people in need." (Republic of Republic of Moldova, group response)

Above: Kiribati. ©UNICEF Fiji/2017/Hoeder

"[Digital technology can help us] to abandon the old ways of thinking & break the stereotypes." (Republic of Korea, group response)

Adolescents were quick to note that digital technology can build and sustain the public support and commitment that is necessary for social change. They noted that taking action on an issue could be supported by technology-based activities such as creating websites, petitions or sharing information and resources via social media.

"I will write in social media to make the people of our society aware [about the need] for reducing illiteracy." (Bangladesh, boy, 16)

"I could raise a petition, collect signatures and submit to the Ministry of Education asking for a change to happen." (Thailand, girl, 16)

Whilst the majority of participants valued digital technology for gathering information and raising awareness, fewer identified how digital technology could be used in more inventive or creative ways to intervene in complex social challenges. For example, it is notable that only a few participants highlighted the transformative possibilities of digital creative content production and sharing.

"We can make videos, groups to make the people aware [about] child labour through internet." (Bangladesh, girl, 15)

"[To help solve delinquency] we can create a platform where young people can know and show their skills and talents so they can have more opportunities in which they can invest their time." (Guatemala, group response)

This indicates there is much scope to encourage adolescents to think more expansively about how digital technology might be mobilised for the purposes of social change.

Nevertheless, participants highlighted digital technology's connective potential in tackling social change, with some suggesting that digital technology could enable them to reach out to sponsors and potential funders of social change programs.

"I would search for sponsors in order to tackle the problem of children with special needs through the internet." (Belarus, group response)

Some also suggested that digital technology – and social media in particular – provided a way to reach out to vulnerable groups and facilitate their access to information and help.

"[We could] contact with the parents [of autistic children] through social media to help them." (Bangladesh, boy, 13)

Indeed, some of the adolescents in the study posited a critical role for digital technology in solving complex social issues, through the development of technology-based platforms, products or initiatives; including those that could connect people in need to relevant services.

"[We would] develop an app for drug addicts so that they can avail of counselling services." (Bhutan, group response)

“When I grow up I will use technology to research ways to develop third world countries and implement changes that would decrease poverty levels in the world.”

(Kiribati, girl, 15)

“I want to use social media to spread information on disabled child and link them to organisations who work [with] disabled children.” (Bangladesh, girl, 15)

“[We would] create toll free numbers so that girls can access organisations that can help and support them.” (Senegal, group response)

“[We would] make an online database [of abandoned children] which can be accessed by parents who want to adopt these children” (Bangladesh, group response)

Some participants recognised that the impact of digital technology on social change could be enhanced by working in conjunction with the mainstream mass media, demonstrating a sophisticated understanding of the complex communications ecologies in which digital technologies operate.

“[We can create a] collaboration with mass media [and] online web portals, to spread information about this problem.” (Belarus, group response)

Others felt digital technology could enable the right of freedom of expression for marginalised or vulnerable groups.

“[We can] create discussion forums for girls to express themselves.” (Senegal, group response)

Participants noted that digital technology, by facilitating their connections with others and giving them a platform from which to speak, amplified their ability to participate in the debates and decision-making processes that impact their lives, giving substance to Article 12 of the UNCRC.

“[We can] do a campaign to have impact, and to make us understand that we have voices and votes.” (Guatemala, group response)

For some, digital technology was viewed as facilitating their direct engagement with authorities. This was seen as a key factor in solving the problems of their communities.

“[It helps] communication with society, with the representatives of the community, with influential people.” (Belarus, group response)

At the same time, participants also pointed to other, non-technological mechanisms for engaging with

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Bottom: Malaysia. ©UNICEF Malaysia/2017/ Duku Photography

Above: Jordan. ©UNICEF Jordan/2017/Dot Media

Above: Malaysia. ©UNICEF Malaysia/2017/Duku Photography

Top and bottom: Republic of Moldova. ©UNICEF Republic of Moldova/2017/Golea

government and civil society, for the purposes of social change, indicating that they see digital practices as just one part of a broader ecology of social change.

"[We would] create an association in partnership with NGOs and the Government to raise awareness among the population." (Senegal, group response)

Although digital technology was upheld by many participants as key to their civic and political participation, many also noted that "technical backwardness" (Republic of Republic of Moldova, group response) and "lack of access to technology in rural areas" (Tunisia, group response) were issues that needed to be addressed in their communities. Although they raised issues of access to the hardware, software and infrastructure necessary to support online participation, they were primarily concerned about digital literacy.

"We should create a technological centre, a sort of cyber centre, open to everyone and located in every province to give internet access to all of those who do not currently have access (young people, children, old people) with staff ready to help everyone who comes in." (Burundi, group response)

"The solution is to teach computer skills from a young age so that in the future we will be able to defend ourselves." (Central African Republic, boy, age)

Notwithstanding the challenges to reliable digital technology access in some countries, some adolescents saw a role for technology in reducing forms of violence or social inequalities.

"People who have disabilities face challenges living in today's society. [We can make] movies to publicise cases where people with disabilities are bullied or verbally abused" (Japan, group response)

"Child abuse needs to be stopped and children's rights respected by using social media sites like facebook, YouTube... to disseminate information and spread our message" (Senegal, group response)

"The problem is that children with special needs can't study on equal terms with other children. It is important to introduce inclusiveness in schools of the country. [We can design] online actions/info campaigns" (Belarus, group response)

Adolescents saw schools as having a key role to play in facilitating their engagement and participation in their communities, in order to enable them to contribute to solving social challenges.

"School teaches me how to get more involved in the community and solve problems that I can encounter." (Tunisia, girl, 17)

"Schools can offer lectures about issues that are covered by the press and encourage the students to be interested in debating and be brave to show their ideals." (Brazil, girl, 19)

For some adolescents, then, it was logical that schools should support them to deploy digital technology in order to speak up, share their ideas and collaborate with others to achieve social change.

“Society is changing rapidly with developing information and communication technology. Schools should provide the education for students to speak up about their rights as democratic citizens.”

(Republic of Korea, girl, 15)

“I think school is the first and safest place to create a social platform. As a small community, it prepares us to better have relationships with others including communications skills. Maybe we can have more smart access to technology devices to facilitate our involvement and engagement in community.” (Tunisia, girl, 19)

Some believe schools in democratic countries should take the lead to support children and adolescents to achieve their rights.

“Society is changing rapidly with developing information and communication technology. Schools should provide the education for students to speak up about their rights as democratic citizens.” (Republic of Korea, girl, 15)

A recent report claims that the embrace of technology by children and young people is leading to opportunities for them to “design… their own solutions to real-world challenges” (Freeman et al. 2017, p.4). However, a key component of digital literacy is understanding the opportunities afforded by the digital (Collier 2012). Without adequate access, children and adolescents in many places are unable to envisage how digital technology might help to solve the world’s challenges. As such, while the evidence gathered for this report suggests there is much scope to enhance children’s understandings of the potential of digital technology to create social change, this is dependent on resolving access and digital literacy issues.

Top: Senegal. ©UNICEF Senegal/2017/Tidiane Ba. **Bottom left and bottom right:** Solomon Islands. ©UNICEF Fiji/2017/Hoeder

Adolescents' concerns

Above: Brazil. ©UNICEF Brazil/2017/Coe

Globally, online safety remains an outstanding concern for parents, educators, policy makers and those who work with vulnerable adolescents, and it is a key focus of programs and interventions targeting adolescents' digital practices. Mainstream debates, research, policy and practice tend to focus in on a specific set of concerns associated with children's and young people's digital engagement. EU Kids Online has developed a useful taxonomy, which groups these concerns into content, contact and conduct risks. Content risks are those in which the child or young person is configured as the recipient of mass-distributed content; contact risks are those in which the child or young person is a participant in an interactive situation predominantly driven by adults; and peer-to-peer risks are those in which the child or young person is an actor in an interaction in which s/he may be the initiator (Livingstone & Haddon 2009, p.10).

While it is critical that policy makers and other duty bearers protect children and young people from potential harms, research has shown that, given the opportunity, children and young people do not necessarily identify the same risks that are commonly the subject of mainstream media reports, parenting advice, and online safety education and campaigns (Livingstone et al.2013; Third et al. 2014). Moreover, some research has shown that, due to the success of online safety initiatives, in many parts of the world, children and young people tend to talk "about risks in the very same terms that characterise cybersafety campaigns. The risks they identif[y] are not necessarily ones of which they had either direct or indirect experience (e.g. through a friend)... and they often talk about the risks and potential harms in hypothetical terms, as risks that other people encounter" (Third et al. 2014, p.41). In other words, children's and young people's ways of thinking and talking about the risks and potential harms associated with their digital practices are often dominated by adult-centred definitions and vocabularies.

In an effort to make space for adolescents to talk about what most bothers them when using digital technologies, this study asked participants to reflect on their concerns, rather than the risks they face online. They were also asked to identify the issues they believe their parents worry about.

Participants reported a range of concerns regarding their engagement with digital technologies. These included some commonly discussed online safety concerns – such as such as fears of interacting with strangers online, accessing inappropriate content, or being exposed to malware or viruses – while others relate to the reliability of their access to technology; parental intrusion into their 'private' lives online; and their digital literacy skills. In general, adolescents have a strong understanding of and practical strategies for dealing with a wide range of risks they may encounter online.

Overall, participants report being most concerned – and careful – about their online privacy. Privacy concerns centre primarily on the possibility of strangers accessing their personal information, or digital content that they only want to share with selected people.

"I am careful to avoid privacy invasion." (Brazil, girl, 17)

"I'm worried about my safety on the internet because my information can be viral anywhere." (Bangladesh, girl, 17)

"Social media has negative aspects because people can use my profile to create others, which is absolutely wrong." (Portugal, girl, 15)

They cite a wide range of strategies for protecting privacy, across a variety of platforms and devices.

"I am… careful not to disclose personal information, especially when chatting." (Democratic Republic of the Congo, girl, 16)

"I lock my Twitter account and make it a rule to not follow people I do not know in real life. I stop and think twice before uploading pictures of faces or locations." (Japan, girl, 17)

Nonetheless, despite taking steps to protect their privacy, participants report concerns about losing control of their personal information, and are concerned that privacy breaches may lead to further issues such as identity theft, financial fraud and misuse or exploitation of their images.

"I am concerned about leakage of my personal information – because this means leakage of my money and personal information." (Republic of Korea, boy, 14)

"I don't upload certain pics with which bad people can make dirty videos of us." (Bhutan, girl, 16)

This suggests that efforts to raise adolescents' awareness of privacy and data security risks have

Top: Brazil. ©UNICEF Brazil/2017/Coe
Bottom: Vanuatu. ©UNICEF Fiji/2017/Hoeder

Above: Belarus. ©UNICEF Belarus/2017/Yanutsevich

been effective. However, notably, some adolescents, particularly those from low-income contexts, jumped to extreme scenarios when describing the impacts of the privacy and other risks they might face online.

"You can be killed or raped if others know your address" (Uruguay, group response).

Responses like this one suggest that adolescents might be better supported to understand the spectrum of potential negative outcomes and to evaluate the likelihood of certain risks manifesting.

A few participants also report concerns that their parents might view what they post online. For some, this regulates what, how and when they shared information online, signalling the sophisticated ways some adolescents think about online 'audiences'.

"I think, would my parents read my messages?" (Burundi, girl, 15)

Alongside common online safety concerns, participants also have more everyday concerns about the reliability or consistency of their access to digital technology; and in particular, the possibility of running out of credit. This appears to be a low-level but constant source of worry for many.

"I feel worried when my brothers or friends send me many messages. I feel worried because I have run out of credit." (Timor-Leste, boy, 16)

Some also report that unstable networks caused them concern, pointing to the challenges that adolescents face when they do not have quality, reliable access.

"I am most concerned about problems of network, credit and minutes. For example when I was at school and I had a fever, I wanted to call my dad to tell him and the phone cut out so it's an obstacle." (Central African Republic, girl, 10)

Participants say they worry about having unpleasant or negative encounters online, or accessing websites that they feel are suspicious or inappropriate.

"Getting text from bad strangers, weird and nasty people [is a concern]." (Malaysia, girl, 15)

"I try to be careful with the content of websites both for the issue of viruses and [the information of mine] the website tries to transmit to the internet." (Brazil, girl, 16)

"The fact that sexual photos or obnoxious advertisements are being uploaded (= obnoxious environment) leads me to avoid using Facebook." (Republic of Korea, boy, 14)

At the same time, many say that they take care to protect themselves from such risks, and had learned to exercise caution in their online interactions.

"As I am a keen user of social media, I am especially careful about who I talk to and which forums I register for in order to avoid psychopaths." (Democratic Republic of the Congo, girl, 16)

Some participants report that their concerns about specific online risks prevent them from, or make them hesitant about, using digital technology: for example, cyberbullying.

"Cyberbulling is the most worrying issue." (Bhutan, girl, 18)

“I am personally most worried about attitudes such as cyberbullying, other harassment and online discrimination, and every time I see it, I try to stop it.”

(Uruguay, girl, 14)

“I am personally most worried about attitudes such as cyberbullying, other harassment and online discrimination, and every time I see it, I try to stop it.” (Uruguay, girl, 14)

“I’ve been cyberbullied by my friends. They blame me because I have weird interests like anime etc. and they keep mocking me until now.” (Malaysia, girl, 17)

However, they are particularly concerned about the possibility of being exposed to hacking, viruses and malware.

“I worry that one might publish bad things in my name if my account is hacked.” (Burundi, girl, 16)

I am careful about the ads on the sites that can affect my PC. I worry about the viruses that can affect my PC. (Republic of Republic of Moldova, girl, 16)

Participants also note that the possibility of encountering annoying or disturbing content – such as violence, persistent pop-ups, and other forms of unsolicited advertising – sometimes makes them hesitate to go online.

“Sometimes, when we use Google or social media on the laptop then there was like a popup of a porn website.” (Malaysia, girl, 16)

“Being exposed to violent content (videos, spam).” (Tunisia, girl, 18)

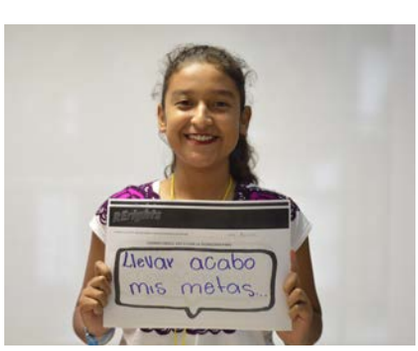
In a stark reminder of the interconnectedness of digital and non-digital environments, some are concerned that using digital technology in public places might expose them to offline risks, making them reluctant to engage.

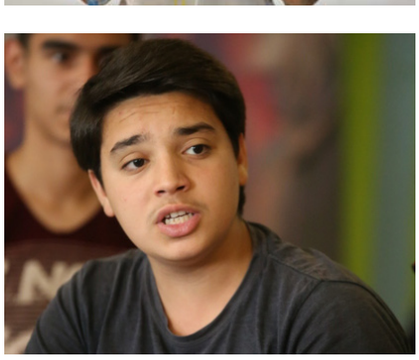
“[I worry when I am] on the street, because I am afraid to get robbed” (Paraguay, boy, 14)

When asked what they believed parents, carers and other significant adults were concerned about regarding adolescents’ use of digital technology, participants noted concerns that sometimes differed from their own. Both boys and girls generally perceived their worries about technology were different to the things adults worried about (See Table 2). However, girls’ worries tended to overlap with adults slightly more than boys.

To participants, adults appear to be primarily worried about the bad influence the internet might have

Above: Central African Republic. ©UNICEF Central African Republic/2017/Bamoy





Top: Guatemala. ©UNICEF Guatemala/2017/Méndez. **Bottom:** Jordan. © UNICEF Jordan/2017/Dot Media

“[Parents worry] that you stay connected for long periods of time, for the health problems that it can cost.”

(Uruguay, boy, 15)

on their children; including the possibility that they would develop inappropriate contacts and friendship networks, potentially corrupting them.

“They worry I might befriend the wrong people who might drag me into unpleasant situations.” (Burundi, girl, 14)

“My parents worry that I might learn bad things online like smoking, taking alcohol.” (Malaysia, boy, 17)

In a telling example of how digital technology is sometimes framed as a root cause of radicalisation in popular debates, some participants believe that their parents and carers are concerned their online engagements might lead to serious consequences.

“Adults worry about us getting into bad relationships: those bad relationships might incite boys to become gangsters.” (Central African Republic, boy, 13)

“I think that adults worry for our own good because it is also through the internet that many young people join terrorist groups, because the internet helps but on the other hand it destroys.” (Central African Republic, boy, 15)

A few participants report the feeling of not being trusted by parents and carers to behave appropriately online. This is a source of frustration for these adolescents.

“They are worried not so much about whether people are speaking ill of me as whether I am speaking ill of others.” (Japan, girl, 16)

“They are worried about me going online and doing something bad.” (Thailand, girl, 20)

Not surprisingly, participants also believe that parents and carers are concerned that they might access – intentionally or otherwise – inappropriate content, especially sexual content.

Socio-economic differences: concerns

When combining the concerns that adolescents identify with those concerns they believe their parents are most worried about, some interesting differences between countries of different socio-economic status emerged. The most commonly reported concerns of participants in low-income contexts related to access; cost of access, network connectivity, unstable infrastructure. Those from lower-middle income countries most commonly identified bullying, overuse of digital technologies and reputational risks. Participants from upper-middle income countries most frequently identified the challenges of balancing their digital practices with their schoolwork commitments, while those from high-income countries foregrounded health issues such as impacts on their eyesight or not undertaking enough physical exercise as a result of overusing digital technology.

Table 1: Most commonly mentioned concerns by country income status

Country income status	Most commonly reported concern/s	Example
Low	Access	“When you connect there is the network issue and it cuts out and when you are connected the battery runs out and there is the problem of credit” (Central African Republic, boy, 14)
Lower-middle	Bullying, overuse, reputation	“I am worried about the certain things which my friends, family, myself or anyone hasn’t experienced yet, but it is happening in and around the world. It’s cyberbullying. This worries me the most” (Bhutan, girl, 16)
Upper-middle	Distraction from schoolwork	“Spending too much time online could affect my school performance” (Thailand, boy, 17)
Upper	Health	“I am worried about deteriorated eyesight when I look at smartphone on the bed at night.” (Republic of Korea, girl, 14)

“They obviously worry about these things because they care and love us. They don’t want us to get involved in some problems.”

(Bhutan, girl, 16)

Above: Timor-Leste. ©UNICEF Timor-Leste/2017/Helin

Top: Burundi. ©UNICEF Burundi/2017/Nijimbere. **Bottom:** Guatemala. ©UNICEF Guatemala/2017/Méndez

“Parents might worry that I look at certain websites, that I watch things that are not for my age.” (Burundi, girl, 16)

“We worry because our parents might think that we are using internet to see pornography.” (Timor-Leste, boy, 13)

Participants tend to agree with what they perceived to be adults’ concerns about the extent to which their digital practices might distract them or displace other important activities; especially schoolwork and studies.

“The most worrying thing is when we have to do our homework and we also the same time want to be on Facebook.” (Timor-Leste, girl, 15)

“I am afraid of my school performance being worse.” (Thailand, girl, 16)

“My teacher was scared that I am not going to do homework that she gave me and then I am going to waste time on online.” (Malaysia, boy, 17)

High-income country participants also tended to share their parents’ everyday concerns about overusing digital technology at the expense of participating in other activities, and the associated health risks:

“[Parents worry] that you stay connected for long periods of time, for the health problems that it can cost.” (Uruguay, boy, 15)

“My father is worried that using the mobile phone so much may harm my sight.” (Uruguay, boy, 15)

Participants reported that they take steps to manage their time carefully in order to balance their digital practices with other tasks.

“I put away my phone when it’s time to study. I make a daily routine for phone (adjust time for phone and studies).” (Bhutan, girl, 16)

“[I] try to organise well my activities and the things I have to do.” (Tunisia, girl, 11)

“Adults worry about those things because they see the child as a fragile person, easily fooled and who can get involved in bad stories and be kidnapped.”

(Burundi, boy, 17)

Nonetheless, some participants felt that adults underestimate their knowledge of the risks and their capacity to act responsibly.

“[Adults worry] that you talk to strangers. They think we don’t realize the risk of that.” (Uruguay, girl, 14)

Whilst participants report occasional frustration at parents’ and carers’ concerns, nonetheless, they are generally sympathetic to adults’ views in this regard, noting that these concerns arise from love and care.

“They obviously worry about these things because they care and love us. They don’t want us to get involved in some problems.” (Bhutan, girl, 16)

“[They worry] because they want the best for us, because they want a better future for us.” (Guatemala, girl, 16)

“It is completely normal, although it is sometime frustrating, that they are worried about that [the type of information we upload and the people we chat with].” (Uruguay, girl, 14)

Some note that adults worry due to their responsibility to ensure their children use digital technology in ways that support their development.

“Adults worry because we are not old enough to go online yet and it can lead us down the wrong path.” (Central African Republic, girl, 10)

Others highlight that adults believe children and young people are malleable, and therefore require adult protection.

“Adults worry about those things because they see the child as a fragile person, easily fooled and who can get involved in bad stories and be kidnapped.” (Burundi, boy, 17)

And some worry about the ways that mainstream media representations of young people and digital technology fuel both their own concerns and those of their parents, pointing to the need for media institutions to promote more balanced coverage and informed debate about young people’s digital practices.

“We are constantly informed in the media about crimes and offences that occurred with the technology.” (Uruguay, girl, 14)

These insights indicate that adolescents have real concerns about the place of digital technology in their everyday lives; and are attuned to the tensions that must be navigated between their desire to engage online, their need to protect themselves, their responsibilities to themselves and others, and the responsibilities of the adults in their lives to ensure they can live and grow well in the digital age.

I worry about

“photos of people naked” and “people who could hack my account”
“oversharing information about me” and “buying things online to avoid credit card cloning”
“friend requests from strangers” and “clicking ads accidentally, that may install viruses on my device”
“problems of network, credit and minutes
“Not using all my internet [data]”, “wasting my time” and “that my Mom sees me online”
“swearing too much and getting reported”, “piracy”, and “hacking of personal information”
“personal information leaked, hackers, fake prize giving websites” and “websites that lead to viruses”
“run[ning] out of internet package” and “that nobody will respond/comment on my post/chat”

“We are constantly informed in the media about crimes and offences that occurred with the technology.”

(Uruguay, girl, 14)

Table 2: Some examples of participants’ key concerns compared to the concerns they believe their parents have

My parents worry about	Participant
“[spending] all my time on the internet” and “[befriending] the wrong people who might drag me into unpleasant situations”	(Burundi, girl, 14)
“other internet users pretending to be who they aren’t” and “games that encourage self-mutilation or even suicide”	(Brazil, boy, 14)
“lack of sleep”	(Bhutan, girl, 18)
“us being fooled” and “getting into bad relationships”	(Central African Republic, boy, 13)
“that someone might hurt me”, “with whom I talk”, and “because they read things (chain mail)”	(Guatemala, girl, 13)
“I’m doing something weird, meeting weird people, being sworn at”	(Republic of Korea, girl, 13)
“pornography websites” and “that I would waste time”	(Malaysia, boy, 16)
“me being exposed to pornography” and “about me being ill-behaved”	(Thailand, boy, 15)

Even though adolescents believe their primary concerns about digital technology often differ from those of their parents, the ways adolescents talk about their concerns often echoed mainstream media discourses about young people’s digital practices and the adult-centric concerns of online safety initiatives (Third et al. forthcoming 2018), demonstrating the strong interdependence of adult and adolescent ‘ways of knowing’. This was most evident in relation to adolescents’ worries about ‘wasting time’, ‘being addicted to technology’ or ‘not being physically active enough’ due to time spent online. This underscores the need for those with an investment in supporting the provision, protection and participation rights of children and young people to enlarge the spaces for adolescents to develop their own ways of thinking about their digital practices.

Family dynamics

Above: Brazil. ©UNICEF Brazil/2017/Coe

Mainstream media representations of the role of digital technologies in family life tend to centre around the idea of a divisive 'generation gap' between children and young people on the one hand, and parents and grandparents on the other. However, the lived experience of using digital technologies within the family unit is often much more complex than this narrative would suggest. Some early research identified key differences between the ways adult family members and children think about and use technology, which resulted in misunderstandings (see for example Valentine & Holloway 2001). However, more recent research has suggested that, now that digital technology is becoming a more accepted part of everyday family life in many places around the world, it can play a key role in facilitating intra-familial communication and strengthening family ties (Haunstrup Christensen 2009; Licoppe 2004; Wei and Lo 2006). It appears this is particularly the case in families who are geographically separated (Haunstrup Christensen 2009, p.446). Even so, Mandianou and Miller (2011, p.467) argue that celebratory narratives about the affirmative value of digital technology for family life need to be tempered by close attention to the ways that digital technologies reproduce power differentials and shape family relationships.

Whilst cognisant of potential harms they might encounter when using digital technology, participants in this study were overwhelmingly positive about the role that it could play in their lives. In particular, they identified connection, communication and sharing as the key benefits of engaging with digital technology. They saw these benefits as powerfully supporting their relationships with immediate and extended family and friends. At the same time, they noted that digital technology sometimes raised challenges for their families.

The image that often dominates popular debates is that of the technologically connected but socially disconnected adolescent. However, participants described how they watched and played together with other family members; and spoke with enthusiasm about the important role digital technology played in spending time as a family.

"When we watch movies that make us laugh, what makes us happy is to stay in harmony." (Portugal, girl, 10)

"Playing games together on the desktop computer makes my sister and I feel happy." (Nigeria, girl, 17)

Interestingly, while both boys and girls identified using digital technology to engage in watching films and television series online and playing games with family members, girls noted watching more commonly than boys, while boys mentioned playing more frequently than girls. Further, participants from low-income countries tended to focus less on playing

and watching and more on using digital technology to contact, share, and bond with family members.

Whilst many participants shared online time with siblings, they also highlighted how digital technology played a role in intergenerational bonding within the family.

"I sometimes show funny videos to my grandparents on YouTube." (Peru, boy, 17)

"Sometimes we sit together in the living room and we listen to music with the speaker, we sing and dance. When we travel or go out we always use our smartphones to take pictures or shoot videos of the shared moments." (Paraguay, girl, 14)

"My family enjoys sharing photos and videos that are entertaining and funny. It makes me happy to find new sites to benefit from and increase my knowledge and share information and knowledge." (Jordan, boy, 16)

"Together with my parents we are reading, watching movies, taking different courses." (Belarus, girl, 16)

"By playing family games using digital devices, we became closer as a family. We can share our thoughts while playing games through group chat." (Republic of Korea, boy, 15)

Some participants reported that their online engagements inspired other forms of important offline family interaction.

"Every weekend I search for recipes and I cook for my family." (Paraguay, girl, 14)

"Each time we find something interesting on social media it brings up a conversation." (Tunisia, girl, 16)

For many participants, digital technology supported them to overcome physical distance and stay in contact with relatives who lived far away or were travelling.

"My father is in Syria and I am in Jordan, I can communicate through social media and talk to him." (Jordan, girl, 16)

"My sister made a video call from Spain and filled my family with joy." (Peru, boy, 16)

In particular, social media was cited as enabling family members separated by large distances to feel connected and involved in each other's everyday lives, and facilitating the sharing of special occasions such as birthdays.

"My mom… moved to Spain when I was a kid… I can share with her each moment that she or I live every day. The same happens with the family members that moved away making it difficult to visit them, now we share most of the things through social media." (Paraguay, girl, 17)

"My aunt lives in Mauritania and one day we made contact on facebook. It was hard to believe because I hadn't seen her or talked to her for 8 years but with

Above: Japan. ©UNICEF Japan/2017/Nakai

Top: Timor-Leste. ©UNICEF Timor-Leste/2017/Helin. **Bottom:** Jordan. © UNICEF Jordan/2017/Dot Media

technology we get her news." (Senegal, girl, 14)

"We use the phone to celebrate birthdays, even just say happy birthday through a call." (Timor-Leste, girl, 14)

Similarly, video conferencing was reported as enabling meaningful interactions and a sense of closeness that would not otherwise be possible.

"My brother lives abroad and the internet has helped us keep our close relationship. We talk all the time through Skype and I never felt that he left home." (Tunisia, girl, 16)

"One of the happiest moments in my life was when I met my grandmother... and my uncles on the internet. My family was very happy, especially my mother...who is [her] daughter, because she was seeing this on real time." (Peru, girl, 16)

Instant messaging applications enabled affordable and effective communication with distant family members.

"Now Whatsapp allows me to talk to my mother who is abroad without any problems. Before we had to buy credit but now with 100F [approx. USD0.20] I can connect and chat with her and see her photos. Technology really makes our lives easier." (Senegal, girl, 14)

Adolescents also reported how digital technology helped in case of emergency, or when they needed to contact other members of their families.

"My little sister was sick so I used my phone to call my mother and take her to hospital." (Vanuatu, girl, 17)

"You can check the weather and be updated to severe threatening situation, keeping your family safe has never been easier." (Tunisia, girl, 16)

"When my mum sent me to the side of the road to buy sugar and milk, and I had forgotten what she wanted so I asked an uncle for his phone and called mum, then it was all good." (Central African Republic, boy, 11)

Digital technology was also seen to be useful for supporting family members, both for specific reasons and in general terms.

"There was a time when a cousin who lives in South Africa had to have surgery, and afterwards she couldn't go out, see people. So, with my sister and other cousins who live in different places around the world, we created a group, just to tell each other funny stories and distract her from her illness." (Democratic Republic of the Congo, girl, 14)

"My grandmother needs some medications that [are not available] in our country. So I used my PC to find them and order." (Republic of Republic of Moldova, boy, 15)

"I manage to instill caring traits through digital technology. As someone who lives in a boarding school, I always ask about family members wellbeing when I am away through Whatsapp." (Malaysia, boy, 17)

"If someone is sick in the family, we can use the internet to match symptoms to the sickness and determine its severity." (Bhutan, girl, 18)

Interestingly, adolescents noted that digital technology often underpinned their academic achievements and learning opportunities; and that, because this

“Sometimes we sit together in the living room and we listen to music with the speaker, we sing and dance. When we travel or go out we always use our smartphones to take pictures or shoot videos of the shared moments.”

(Paraguay, girl, 14)

guaranteed a better future, it made other family members happy.

“I use it for my education, which has contributed to my success in school and my family’s happiness.” (Jordan, boy, 15)

“Digital technology allows me to search and learn anything I am interested in and use it for my academic work (the better the academic performance, the merrier the family members, especially parents).” (Thailand, gender and age not known)

It appears, too, that families help each other out when access is difficult.

“When I was playing with my big brother and my phone ran out of battery, I asked my sister to lend me her battery and she did.” (Central African Republic, girl, 10)

“[We] share connection at times when I don’t have credit.” (Burundi, boy, 17)

Households also engage in intergenerational teaching and learning. Participants identified a range of ways in which they had supported other family members – parents, grandparents and siblings – to learn about and use digital technology, noting that this was an enjoyable experience. Adolescents also reported learning from the adults in their families.

“My stepmother bought a new mobile phone and I taught her to use Snapchat and we have fun together.” (Uruguay, girl, 13)

“When I was playing Play with my brother and my mother became curious, we taught her to play and it was fun.” (Peru, boy, 18)

“With the help of digital technology I could help my siblings with their assignments and projects” (Bhutan, girl, 18)

“I taught my grandparents to use Whatsapp” (Malaysia, boy, 13)

“My father taught me to programme using his laptop.” (Uruguay, boy, 14)

Whilst digital technology was reported to have many positive impacts for families, participants also cited examples of negative impacts. These included fighting over devices, which were often shared within families. This was a common challenge, noted by adolescents from a variety of different settings.

“When I was a small girl my elder sister sat at the computer for a long time. She didn’t want to share it with me.” (Belarus, girl, 12)

“Me and my siblings sometimes fight over my mother’s computer to watch movies.” (Vanuatu, girl, 17)

“Most of the time me and my sister argued over the smartphone because I want to play game and she wants to chat.” (Nigeria, girl, 16)

“I quarreled with my brother, because he didn’t allow me to stay and use PC and because of this we didn’t speak for a week.” (Republic of Republic of Moldova, girl, 15)

“The only thing I dislike is how sometimes I get angry at my sisters, all because of a cellphone. That’s all, but what happens is that there’s moments when neither one of us wants to let go of the cellphone. That’s it.” (Peru, girl, 16)

Where device sharing became difficult, some participants attempted to resolve this by creating a schedule, enabling them to anticipate when they would have time on a device or online.

“[The solution is] to do a schedule which outlines hours of use.” (Republic of Republic of Moldova, girl, 14)

Some also reported trying to convince the members of the household responsible for family finances to purchase a device specifically for them to use, sometimes creating tension within the family.

“The devices are too expensive, my parents think that it’s not necessary for me [so I] try to convince my parents by telling them why it’s necessary for me.” (Thailand, gender and age not known)

“In order to save enough money to buy the device I want, I have to ask my parents for an increase in my allowance.” (Thailand, boy, 17)

Participants were not always optimistic, however, that such requests would or could be met by their families.

“I am trying to convince my father but I think that my father will not be convinced” (Bangladesh, boy, 14).

Some adolescents cited arguments with parents or carers about appropriate use of, and limits on, their digital technology use.

“We have conflict because of videogames: violence in games.” (Belarus, boy, 13)

“Each time we find something interesting on social media it brings up a conversation.”

(Tunisia, girl, 16)

A common challenge was parents’ views that their children spent too much time using digital technology, to the detriment of schoolwork or home responsibilities.

“I got on bad terms with my mom for spending too much time with digital devices and not spending enough time on school studies.” (Republic of Korea, girl, 13)

“In my case I have argued with my family because I didn’t fulfill my responsibilities due to my distraction with the laptop. “(Uruguay, girl, 14)

“The PS4 my brother owns makes him lazy to do his schoolwork and chores.” (Vanuatu, girl, 17)

“Me and my dad fight about being anti-social during family events because I am listening to music. My dad always limits our time on tech, which turns into arguments.” (Fiji, boy, 13)

Others experienced friction with parents or carers when they exceeded agreed limits – for example, not being allowed to use digital technology after bedtime – or because they had not been considerate of other family members when using digital technology.

“Mother being mad at me because I passed my bed time because I was messaging my friends.” (Jordan, girl, 16)

“I disturbed my father while on the mobile when it was prayer time.” (Jordan, boy, 16)

In general, participants from low-income countries tended to identify fewer arguments about rules and devices than other income groups.

Interestingly, although participants believed digital technology strengthened their relationships with other family members, some also said that digital technology use at home resulted in less face-to-face interaction between family members, with negative consequences. Girls tended to observe this more frequently than boys.

“[It] doesn’t facilitate family cohesion.” (Democratic Republic of the Congo, boy, 16)

“Sometimes, we don’t speak during meals because of mobile phones” (Portugal, girl, 16)

Indeed, many adolescents cited instances where family members – including parents – were more absorbed in online activities than connecting with those around them, to the detriment of others present.

“It separated the family, like each member of the family interested in a device.” (Tunisia, boy, 17)

“When we all went dining outside, my mom got her feelings hurt because my dad and I only looked at our smartphones.” (Republic of Korea, girl, 14)

“When mum switches her computer on to work at home, she has no time to talk to us.” (Burundi, girl, 18)

Some participants mentioned instances in which digital communication substituted for face-to-face interaction within family members who were co-present.

“Texting one of your family members instead of talking to him or her while in the same room.” (Tunisia, girl, 17)

Others reflected on one of the paradoxes of digital technology: namely, that, whilst it facilitates connections across distances, it can sometimes undermine relationships with those who are proximal.

“I think that the internet brought us closer to those who are far away and pulled us away from those who are close by. Within my family, there are times where we can all be in the same room without saying a single word because each of us is glued to the screen of their smartphone.” (Democratic Republic of the Congo, girl, 16)

“Once I wanted to chat with my sister but she was so engrossed in her phone that she was not paying attention to me at all. Digital technology becomes negative when it takes all of your time, or even a lot of it. People prefer the virtual over the reality.” (Democratic Republic of the Congo, girl, 16)

Misunderstandings between adolescents and their parents or carers could arise, according to some participants, when parental monitoring of their online activity led to adolescents’ digital traces being taken out of context.

“My family tends to spy on my private life through social media. In consequences, we fight over misunderstandings.” (Tunisia, girl, 16)

“[It causes] misunderstandings because porn sites appear as pop-ups and my parents think we search for them.” (Guatemala, girl, 16)

It was also noted that generational differences in digital literacy and modes of communication sometimes led to tensions or arguments within families.

“Digital technology allows me to search and learn anything I am interested in and use it for my academic work (the better the academic performance, the merrier the family members, especially parents).”

(Thailand, gender and age not known)

“Sometimes I get mad at my mom because she has a hard time using technology.” (Guatemala, boy, 15)

“My mother’s use of emoji online does not reflect her feelings in reality. Therefore, I find it difficult to understand how my mother feels.” (Japan, girl, 17)

Participants also reported that online safety issues sometimes created concern within families.

“When my dad’s account was hacked and everyone in my family was concerned.” (Peru, boy, 16)

“Exposure to violent contents makes my family worry.” (Thailand, age and gender not known)

Some noted that adults’ concerns about online safety issues could sometimes lead to arguments between parents or carers as they worked out how to support their children online.

“Once when, without noticing, I shared on Facebook something that my mom thought was inappropriate, and she and my dad had a strong argument about that.” (Paraguay, girl, 15)

Importantly, some participants drew attention to the fact that it was not just their own use of digital technology that created tensions within families. At times, adolescents took umbrage with the way parents or carers used digital technology.

“I get upset when my mom posts a photo of mine without my permission.” (Paraguay, girl, 15)

“[It’s wrong] when parents neglect their children while concentrating on their devices.” (Fiji, boy, 16)

“My parents play games too much so when they tell me, “you are playing games too much,” it is not convincing.” (Japan, boy, 15)

Overall, then, digital technology use was reported as impacting on family dynamics in both positive and negative ways; it facilitates and strengthens family interactions and also causes intra-family tensions. Interestingly, adolescents from across different national and cultural settings report strikingly similar observations about the impacts of digital technology on family life, indicating that there is scope for countries to collaborate in driving solutions to support effective technology practices in families.

Top: Malaysia. ©UNICEF Malaysia/2017/Duku Photography
Bottom: Portugal. ©UNICEF Portugal/2017/Magano

Health and wellbeing

Above: Malaysia. ©UNICEF Malaysia/2017/ Duku Photography

There is rising interest in the potential for recent developments in health tracking applications and other biomedical technologies to support health and wellbeing outcomes. However, there is limited evidence about the impacts of digital technologies on children's and young people's health and happiness, and where such evidence exists, it is not always conclusive.

Research is underway to evaluate the health and wellbeing impacts of biometric devices and physical and mental health apps (Hides et al. 2014). An emerging evidence base suggests that digital technologies, under the right circumstances, can support children and young people to develop healthy eating, sleep and exercise habits (Cummings 2013). Other research suggests that digital technologies can powerfully support children's and young people's mental health (See Young and Well CRC). In particular, social media and online communities provide vital points of social connection that enable disadvantaged or vulnerable children and young people to respond to adversity with resilience (Robinson et al. 2014, p.31; Humphry 2014, p.25; Third & Richardson 2009, p.2; Hopkins et al. 2014; Sprod et al. 2014, p.1). Digital technologies can provide timely access to quality health information (Christensen 2014; Evers et al. 2013).

At the same time, other evidence points to the ways that children's and young people's social media practices might make them 'soft targets' for food industry advertising that undermines their right to a healthy life (Jones et al. 2010). Further, given that disadvantaged children and young people are often at higher risk of health issues, have lower levels of health literacy, and may experience challenges in accessing digital technologies (Swist et al. 2015, p.29), online health and wellbeing initiatives may exacerbate inequities in health outcomes (O'Mara et al. 2010; Pascoe 2011; Swist et al. 2015).

So, what do adolescents say about the impacts of digital technology on their health and happiness?

When asked to identify the positive and negative impacts of digital technology on their health and happiness, a few participants stated that digital technology did not necessarily affect their health.

"What makes you happy or unhappy does not necessarily have to do with digital technology." (Nigeria, group response)

"Health is a state of wellbeing body-wise and mind-wise. Happiness is a state of excitement and being at peace with oneself." (Nigeria, group response)

However, in general, participants talked about a broad range of individual and society-level effects on both mental and physical health, both positive and negative.

On the positive side, participants stated that digital technology was playing a key role in advancing medical knowledge and the availability of cures.

"Digital technology allows improving medical practices." (Democratic Republic of the Congo, group response).

They also noted that digital technology supported positive health outcomes and/or management of health conditions; highlighting technology-based innovations in surgery, artificial limbs and lenses, as well as assistive technologies that enable people living with disabilities to participate more fully in everyday activities.

"Digital technology helps people in need: lenses, artificial limbs, special computers for people who can't speak or move." (Republic of Republic of Moldova, group response)

"New digital technologies for communication will help children with special needs to feel at ease with their classmates." (Belarus, group response)

Participants also pointed to the role that digital technology had played in alerting them to the latest medical and/or health innovations.

"[Digital tech] helps people to know about the latest evolution in the world." (Democratic Republic of the Congo, group response).

Some suggested that digital technology could enhance health care relationships.

"Development of apps has brought about closeness between doctors and patients." (Nigeria, group response)

Participants specifically highlighted the important role digital technology played in enabling them to access information about particular health issues and find treatment.

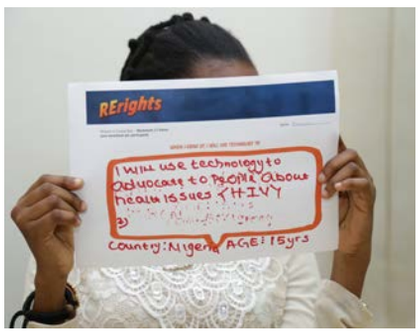
"You can find an information that describes your health condition, so it's really useful for our health and happiness." (Republic of Republic of Moldova, group response)

They also talked about how digital technology supported them to undertake physical exercise.

"Technology aids physical exercise by listening to music while working out." (Nigeria, group response)

Interestingly, participants cited a range of indirect benefits of using digital technology; in particular, for their mental health. They highlighted how technology promoted social connection and access to entertainment, both of which they explicitly connected with positive mental health outcomes.

Above: Malaysia. ©UNICEF Malaysia/2017/Duku Photography



Top: Nigeria. ©UNICEF Nigeria/2017/Odetoyinbo. **Bottom:** Peru. ©UNICEF Peru/2017/Lopez

"It is good for our health, because watching funny videos distracts us. It also helps us de-stress a little." (Peru, group response)

On the negative side, participants argued that digital technology could exacerbate risks to health and wellbeing. They noted that overuse of digital technology could impair their hearing and vision.

"It can also destroy your eyes by the brightness of your phone or computer" (Kiribati, boy, 17)

Participants also highlighted that using digital technology could distract from other activities such as exercise, thereby increasing the incidence of obesity.

"We do less sport. We walk less." (Nigeria, girl, 17)

Further, they were sceptical about the capacity for biometric devices to support positive physical health outcomes.

"App to track your health doesn't really work." (Nigeria, group response)

They were also concerned about health misinformation.

"Some health ideas and tips online are wrong." (Nigeria, group response)

Participants highlighted, in particular, the negative impacts of digital technology for their mental health and wellbeing. Prominent concerns centred around discriminatory or hurtful exchanges and content shared online, both of which could prompt powerful negative effects.

"I had an argument with a friend on facebook. I experienced dreadful moments on facebook. I saw miserable/regrettable posts. I received embarrassing comments." (Senegal, boy, 14)

"It is very distressing when you publish something [online] and suddenly others attack you with no reason, without knowing you." (Uruguay, girl, 14)

"I had posted a photo on facebook and I received a comment that threw me into a panic." (Senegal, boy, 14)

Interestingly, some children noted that they were affected – sometimes deeply – by the negative online experiences of their friends.

"One of my friends posted a photo and one of her enemies made a bad comment and that really affected me because she's one of my best friends." (Senegal, girl, 16)

Others were very aware that their own online engagements might impact others.

"We can destroy other people's happiness with what we publish" (Democratic Republic of the Congo, group response)

They also noted that engaging with digital technology could be frustrating, which could lead to increased anxiety or anger.

"It creates stress because it's very slow." (Peru, group response)

Some participants said that online platforms were not amenable to communicating feelings in ways that made them feel understood.

“The only thing I dislike is how sometimes I get angry at my sisters, all because of a cellphone. That’s all, but what happens is that there’s moments when neither one of us wants to let go of the cellphone. That’s it.”

(Peru, girl, 16)

“We talk less often (because parents, siblings or I play games or spend time on SNS: My parents are not able to grasp my state (such as mental health or problems at school).” (Japan, boy, 15)

Children in some countries expressed concern about excessive use of digital technologies.

“Addiction to technology – a thing that spoils the relationship with relatives.” (Republic of Republic of Moldova, boy, 14)

“There have been so many devices around since childhood and it is so easy to get addicted.” (Japan, boy, 15)

Other participants suggested that digital technology could cause depression, anxiety, and loss of contact with reality; noting, for example, that laptops, smartphones and computers can produce “social isolation... by creating a virtual part-real world” (Republic of Republic of Moldova, boy, 16).

“Digital technology also causes moral anxiety. If digital technology causes moral anxiety, how will it now aid health and happiness?” (Nigeria, group response)

The displacement by digital technology of other activities, meant, for some, that “[people] forget the little things that [cause] happiness” (Nigeria, group response).

Despite their concerns about the potential negative impacts of digital technology on their health and happiness, when weighing the impacts, the vast majority of participants stated either that technology’s effects were positive, or were a balance of positives and negatives. Even so, more evidence is needed about the impacts of digital technologies for children’s and young people’s health and wellbeing to enable targeted health interventions and to ensure that technology-based health initiatives do not inadvertently reinscribe existing inequities. And once this evidence has been generated, it will be important to foster “collaborations between children and young people, researchers, health professionals and other relevant stakeholders… in order to develop and evaluate relevant, safe and effective initiatives that manage social media in ways that enhance existing health services” (Swist et al. 2015, p.30).

Top: Tunisia. ©UNICEF Tunisia/2017/Chebbi.
Bottom: Belarus. ©UNICEF Belarus/2017/Yanutsevich

Conclusion

The evidence collated in this report demonstrates that children are thinking in nuanced and sophisticated ways about both the positive and negative potentialities of digital technology; not just for their own immediate experiences but also those of their communities and the world at large, not just now but into the future.

Children tell us that they view digital technology as vital to their futures. They have a keen sense of the potential harms of their everyday online and networked practices and, in general, have developed effective ways of managing them. They have a deep appreciation of the connective, creative, communicative, informative, organisational and entertainment dimensions of their digital practices and the possibilities these afford them for living healthy and happy lives. They negotiate – often moment to moment – the delicate balance between their digital technology practices and the other demands of their everyday lives. They speak in nuanced ways about how their digital practices collide with the needs and desires of significant others, and they talk intelligently about the creative solutions they have developed to the challenges they face in accessing and maximising the benefits of the digital age. They are thinking about how the power of digital technology can be harnessed for positive social change and how to shape better futures for themselves and others less fortunate. Indeed, when given the opportunity to reflect, they are outward-looking and optimistic about the role of digital technology in their lives.

However, some very real challenges shape the experiences of many of the participants in this study. Many do not yet have the quality and consistency of access that is necessary to open up their opportunities in a digital world. Many live in environments that cannot support their safe online participation. And many do not have adequate opportunities – at school and beyone – to develop the necessary skills and literacies for the digital age.

In particular, there is a need to hear more from and develop strategies that can leverage the possibilities of the digital world to support our most disadvantaged and vulnerable children. Not just about access to digital technology and connectivity but about the inadequacies of their environments to deliver on the promise of digital technology and all that it has to offer. Too often, technological devices, platforms and services are designed for the mainstream, and the needs of disadvantaged children are an afterthought. This places enormous pressure on those children and the organisations that serve them. It is thus vital that the diverse needs of children everywhere are embedded at the centre of digital design.

As the global community marshals its energies for the enormous task of meeting the Sustainable Development Goals, it is critical that the full range of children's rights and their aspirations for the digital future are firmly centred in the agenda for action. But this is not an easy task.

As Livingstone and Third note:

> It is one thing to claim the unprecedented possibilities of digital practices to support children's rights, when the children in question have their basic needs met and access to the protections and guarantees of state institutions. But it is another thing entirely to claim that the digital might be able to play a role in promoting the rights of children whose lives are overdetermined by, for example, statelessness, military violence, poverty, starvation or a history of genocide (Livingstone & Third 2017, p.667).

This is precisely the magnitude of the task that confronts the global community today: how can we harness the potential of digital technologies to support children everywhere to realise their full range of rights?

To do so, we must act quickly, and in collaboration with children of all walks of life. We must abandon both technophobic and techno-utopian orientations and acknowledge that the digital world is here to stay. We must centre, and seek to balance, children's provision, protection and participation rights in a world that often elides the needs and aspirations of children. We must marshal our collective resources and remain steadfast in our commitments to children in all of their diversity. And, above all, we must enact the necessary transformations to enable the broadest possible number of children around the world to participate in an ongoing way in the decision making processes that shape their daily lives.

It is with this in mind that we reiterate our belief that:

> United, with a commitment to participatory methods, and with an unfaltering belief that children should be the authors of their futures, we can seize the opportunities, and mitigate the risks, that digital media offer children to conceptualise and enact their rights – both individually and collectively – into the future" (Third et al. 2014, p.75).

The process of generating the data for this project depended on a highly collaborative effort across national borders, institutional boundaries and diverse communities, and is testament to the commitment of Country Offices, National Committees, and UNICEF broadly to coordinated efforts to enhance the visibility and influence of children's contributions to key debates. It is precisely this kind of spirit of collaboration that must drive ongoing efforts to grapple with the meanings and implications of digital technology and develop the necessary responses. Together – notwithstanding the differences that shape our belief systems, our resources, and the contexts in which we live and work for better futures for children – anything is possible.

Key considerations

Around the world, digital technologies are fast becoming a feature of many children's everyday lives. Digital technologies have the potential to support the realisation of the full range of children's rights. However, for a variety of reasons, large numbers of children are not yet able to benefit from all that digital technology offers, and digital technology can reinscribe existing inequalities. As the global community strives to meet the Sustainable Development Goals, it is critical that states and other duty bearers collaborate closely with children to improve children's access to and use of digital media in ways that are responsive to the cultural, political, economic and social contexts that shape their everyday lives; recognizing that appropriate access may look radically different from one setting to another and that mere access does not equate to equality of opportunity.

In order to meet the challenges and maximise the opportunities of digital technology, this report recommends:

01

States and other duty bearers must seek to balance children's provision, protection, and participation rights in the design and implementation of policy and interventions targeting children's digital practices, and to assert children's rights in policy and decision making processes relating to the digital more broadly.

02

Wherever circumstances permit, decision makers and other duty bearers must seek ways not only to listen periodically to children, and not only to respond to their insights and suggestions, but to embed a radical openness to children's participation and a commitment to ongoing intergenerational dialogue at the heart of the organisations and institutions that work with and for children. This may require that adult-centred decision making processes transform.

03

To enable children to embrace the expansive possibilities afforded by digital technology, states and duty bearers must enlarge the spaces and develop the means for children to imagine and articulate, in their own terms, how to engage safely and maximise the benefits of their digital practices.

04

Children's need for reliable, regular and quality access is acute – particularly in low-income countries – and requires strong commitment from and action by states and other duty bearers to close the gaps.

05

Not all children have the same opportunities to use digital technology to live well and efforts must focus more intently on how to support disadvantaged children to connect and to participate meaningfully. The design of technologies, platforms, services, education, and policy must centre the needs of diverse children in order that digital technology can support the growth and development of every child, no matter where they live or what their circumstances are.

06

Given children from different countries report strikingly similar observations about the positive impacts of digital technology on family life, there is scope for countries to collaborate in developing intergenerational digital literacy initiatives that build on family relationships to enhance the opportunities of the digital world for adults and children alike.

07

In order that every child's education can support them to reach their full potential, states and other duty bearers must build educators' digital capacities; invest in the development of sound, locally relevant pedagogy; and prioritise children's access to digital technology and digital literacy training in schools.

08

States and other duty bearers should explore how to use technology to support the health and wellbeing of children while ensuring that technology-based health initiatives do not inadvertently reinscribe existing health inequities.

09

Policies and programs must be directly informed by more, high quality research, generated in partnership with a diversity of children, particularly in the global South, where robust evidence is not already available.

Image: Jordan. ©UNICEF Jordan/2017/Dot Media

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