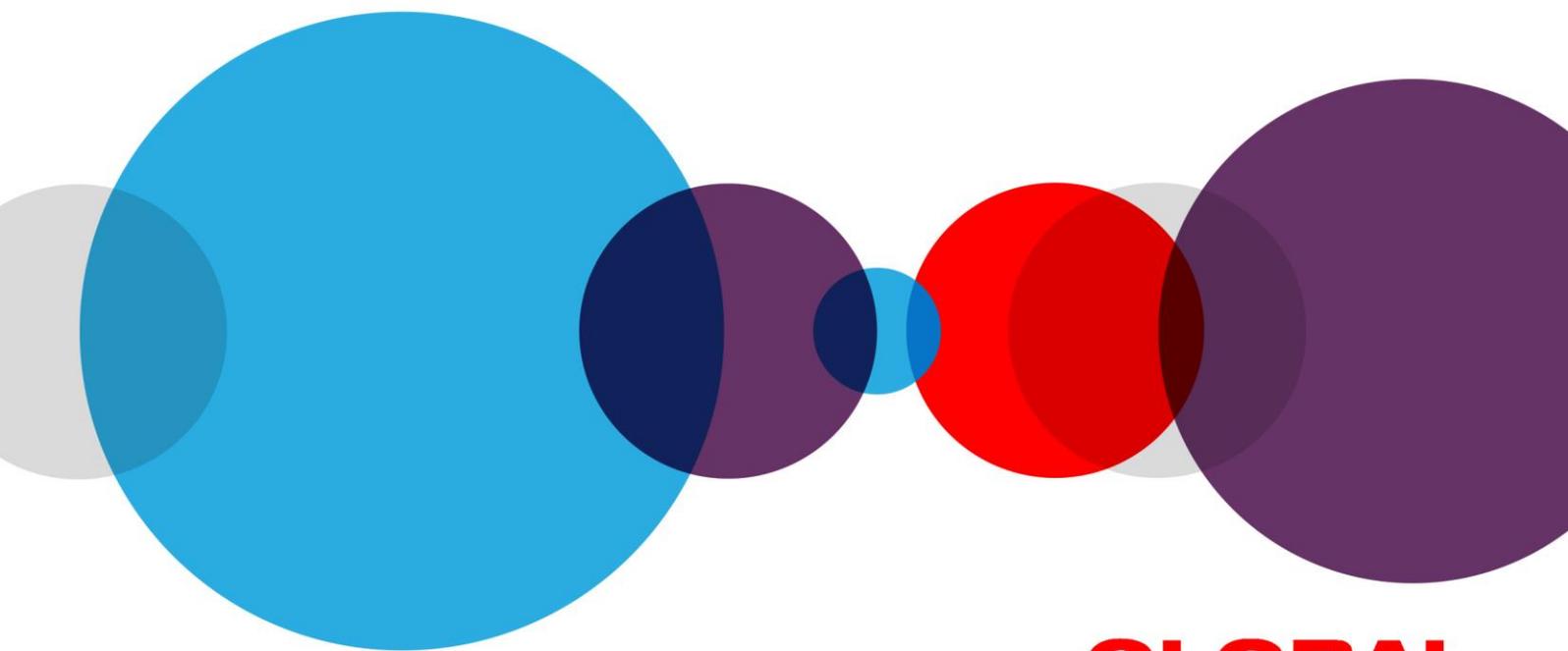


SETTING THE AGENDA FOR FUTURE RESEARCH AND ANALYSIS

**Building on the Global Kids Online comparative research
and a review of the existing evidence**



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**GLOBAL
KIDS
ONLINE**





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AIM OF THIS REPORT

In a digital age, the multiple influences on child well-being are getting ever more complex. Yet faced with the question – does it make a difference to grow up specifically in a digital age - the public debate tends to assume that internet use is either beneficial or, more often, harmful. But social science rarely finds straightforward support for single causes of significant outcomes, such as child well-being. So in answering this question, we must embrace the complexity of a multi-factor, multi-level world, and anticipate that research findings will be qualified and contextual. In short, the fact of growing up in a digital age will likely make a difference to children's well-being, but many factors also influence well-being, not all of them related to the digital world, and we need to keep them all firmly in view.

To explore the factors that influence children's well-being in a digital world, the Global Kids Online network has produced a research framework which sets out its approach, concepts, assumptions, research questions and project design (Livingstone, 2016). At the heart of this framework is a model of the key factors that influence children's well-being, and the hypothesised relations among them. This model was originally developed by the EU Kids Online network (Livingstone et al., 2018), then adapted and further developed for Global Kids Online, building on the experience of conducting research by Global Kids Online partners in 17 countries, see www.globalkidsonline.net/countries.

The model has been operationalised according to the Global Kids Online toolkit (see www.globalkidsonline.net/tools) and, using the Global Kids Online survey questionnaire, the project is generating new findings by conducting representative surveys of children aged 9-17 in different countries around the world. The model is periodically revised to reflect research and societal developments, in consultation with international experts.

We recently tested our model and hypotheses in a variety of ways by analysing survey results of 11 countries (Albania, Argentina, Bulgaria, Brazil, Chile, Ghana, Italy, Montenegro, Philippines, Uruguay and South Africa) with more than 14,000 internet-using children who were interviewed about their online experiences. The results were published in a report on [Growing up in a connected world](#) (Global Kids Online, 2019). There remain, however, many hypotheses to be examined, as the cross-national

data set can support all kinds of statistical analyses, and the full potential of the model has yet to be realised.

This report asks how the findings generated by Global Kids Online support the model so far. In other words, what have we learned, where are the gaps (or parts of the model not yet examined) and what further analyses could usefully be conducted on the dataset?

Global Kids Online is not the only project in this field, of course. In our recent efforts to revise the Global Kids Online questionnaire, partly in response to emerging developments in the digital world, we conducted a wide-ranging review of the recent evidence (www.globalkidsonline.net/evidence-review). The review identified both the latest evidence and also useful measures to help us revise the questionnaire, ready for new country surveys. Based on the review findings, we gained further insights regarding what we know and what we don't know, and what we should measure and analyse in the future.

Drawing on both Global Kids Online findings, and on our recent evidence review, this report reflects on the future research needed to understand the influences, and pathways to influence, in children's well-being in a digital world. It is organised around key areas related to children's internet use, all of them important in the Global Kids Online model: access to the internet, activities and opportunities (such as e-health and digital citizenship), digital skills, privacy, exposure to risk of harm (hurtful and bullying behaviour, cyberbystanders, cyberhate, discrimination, and violent extremism, seeing negative content, receiving or sending sexual messages, viewing sexual content), sexual activities and risks (receiving and sending sexual messages, viewing sexual content), and online sexual exploitation and abuse (sexual solicitation, sextortion, cyber-dating violence). We note that the distinction between online risks and opportunities is problematic – what is harmful for one child might be beneficial for another – and so is used here with caution.

In each of these areas, we identify key opportunities for further research and analysis, discuss existing methodological challenges, and pinpoint the main measures used. This report is intended mainly for researchers who are using the Global Kids Online survey but it might be of interest to others studying or working in the field of children's internet use.

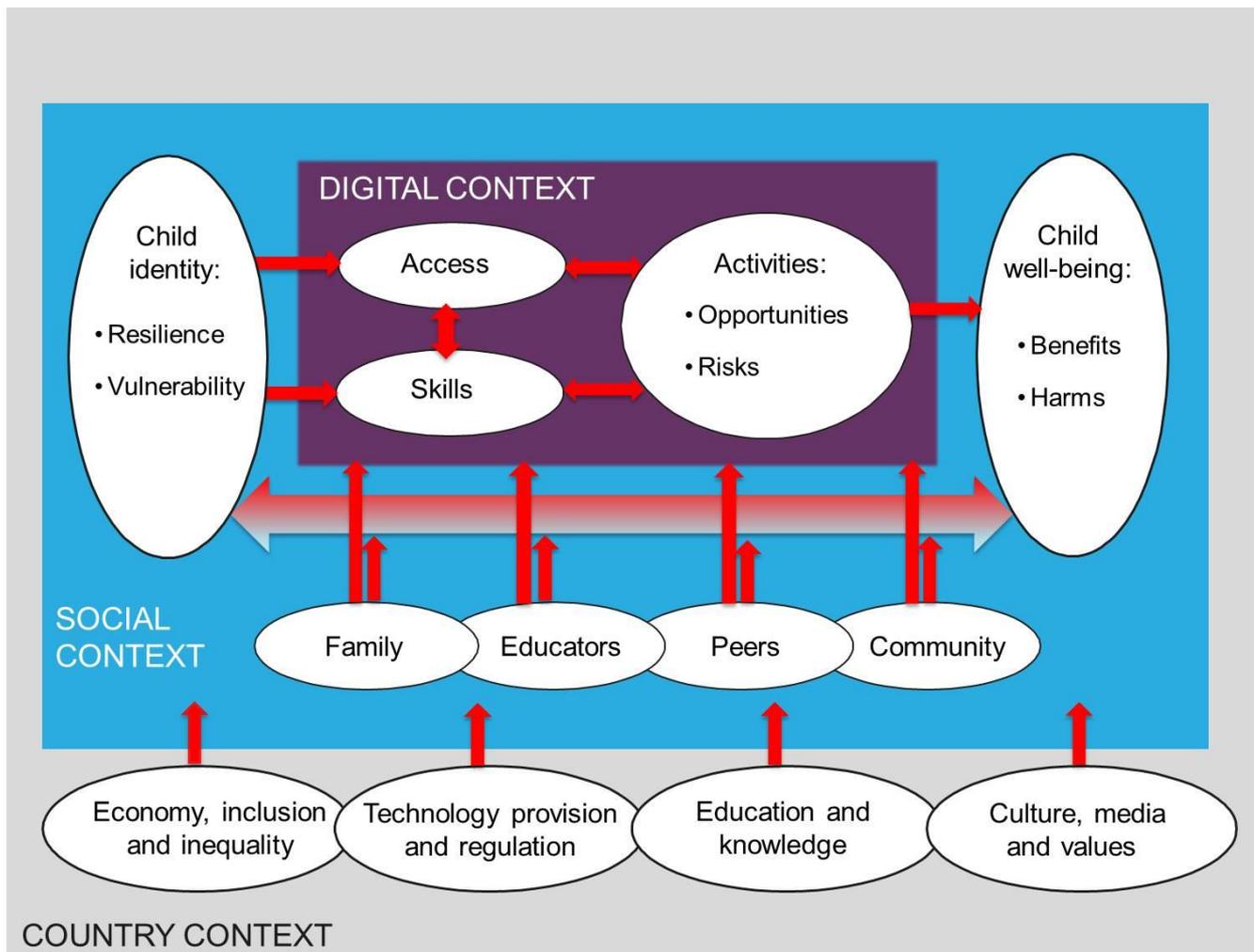
WHAT HAS GLOBAL KIDS ONLINE FOUND SO FAR?

The Global Kids Online model

The latest iteration of the model (see Figure 1) is designed to clarify (i) the factors that are considered important to children’s well-being in a digital world (the

white segments), (ii) the categories of variables that have been the focus of Global Kids Online surveys of children (in the blue/purple segments), and (iii) the hypotheses that have been or should be tested, based on previous research and on questions that policymakers and practitioners ask (the red arrows).

Figure 1: Global Kids Online model of influences on child well-being in a digital world



Given the ultimate focus on children’s well-being in a digital world, the model asserts that we need to think about three distinct but interconnected layers of influence on child well-being:

- the country context – the broadest and possibly the most influential factors;

- the social context – more immediate, and the source of considerable variation among children;
- the digital context – most immediate influence, and our main focus.



We recognise that there has always been a strong and, crucially, bi-directional (or transactional) link between child identity (their resilience and vulnerability, and all the circumstances that contribute to that) and child well-being (including the array of benefits and harms that affect them). This is what child psychology and sociology has researched for the past century, with multiple outcomes important to social policy and public health. Equally, it is well known that both country context and social context shape this bi-directional process; we call it socialisation.

But today, the digital context adds a new pathway which links child identity to child well-being, and thus a new context for processes of socialisation and the focus of social and country influences. Its consequences for well-being may or may not be substantial, though we suspect they are, and may or may not supplement, contradict or recontextualise traditional processes of socialisation, though we suspect all of this is happening.

Given all we know of how country context and social processes powerfully shape children's well-being, Global Kids Online enquires into whether their experiences within the digital context make a difference. And if so, is that for better or for worse, when and why? By locating the digital in the context of familiar socialisation processes we can try to integrate the online and offline

in our analysis, rather than conceptualising each in isolation.

As regards children's experiences in the digital context, Global Kids Online examines the conditions of children's access, the nature of the digital skills they develop, and their activities online. Each of these three elements is hypothesised to influence the other in a bidirectional manner. Each can be predicted in its own right (asking, for example, what circumstances improve children's digital skills) and each can be examined for its consequences (asking, for example, whether better digital skills are linked to more risks or opportunities, or better outcomes for well-being?). But caution is needed, for claims about direction of influence or hypothesised causes are just that – claims and hypotheses. This is because each of these elements is difficult to measure, our data are cross-sectional, not longitudinal, and our research design is correlational, not experimental.

Global Kids Online findings to date

The 11-country comparative analysis of Global Kids Online data (Global Kids Online, 2019) reached some important conclusions (see Table 1 below). However, many parts of the model remained to be examined, and many new findings emerging from the wider research literature had to be discussed in relation to the model.

Table 1: Global Kids Online latest comparative findings

Area	Key findings Based on 11 countries: Albania, Argentina, Bulgaria, Brazil, Chile, Ghana, Italy, Montenegro, Philippines, Uruguay and South Africa
Access	<p>Home is the most common-place for children of all age groups to access the internet, especially the youngest.</p> <p>In most countries, fewer than 1 in 3 children aged 9-11 use the internet at school at least once a week.</p> <p>The mobile phone is the most common device children use to access the internet.</p> <p>Children spend more time online on the weekends than on weekdays.</p> <p>In some countries, children's access to the internet is fairly equal, but in other countries, boys and older children have better access.</p>
Online activities	<p>More is more when it comes to online activities: the more access and experience children have with the online environment, the more likely they are to engage in new and diverse activities.</p> <p>Children in middle-income countries are much less likely to watch videos and play games online than children in high-income countries.</p> <p>Children whose parents are less restrictive are more likely to do diverse activities online, not only entertainment but also informational and creative activities.</p> <p>Restricting some online activities may have the unintended consequence of reducing engagement in other activities as well.</p>
Digital skills	<p>Children's engagement in 'entertainment' activities online is associated with positive digital skills development.</p> <p>When parents restrict children's internet use, this has a negative effect on children's information-seeking and privacy skills.</p> <p>Supportive, non-restrictive approaches of parents to children's online activities is likely to be the most effective for positive digital skills development.</p>
Online risks	<p>In all countries except Chile, less than 1 in 3 children were exposed to something online in the past year that made them feel upset.</p> <p>Children were more likely to report being upset in the past year if they had encountered hate speech or sexual content online, been treated in a hurtful way online or offline, or met someone face-to-face that they first got to know online.</p> <p>There is no direct relationship between watching videos, playing games or engaging in social interactions online and the likelihood of children being upset. But, if the activity results in exposure to certain content or conduct, then it may lead to a child being upset (e.g., sexual content in a video or being harassed on a social networking site).</p> <p>The number of online activities children engage in, the skills they develop and the risks they encounter all increase as children get older.</p> <p>Parent's enabling approach to children's online activities slightly improves digital skills and slightly reduces exposure to online risks in all countries except Ghana and the Philippines.</p>
Family	<p>Younger children are more likely to either receive support from parents or have restrictions on internet use set by parents, compared to older children. However, in Philippines children receive more support as they get older, while in Ghana the degree of support is very low for all children.</p> <p>Parents in middle-income countries (Ghana, Philippines, South Africa) support children's internet use significantly less than parents in high-income countries.</p> <p>In countries where parents are more restrictive, the diversity of children's online activities is reduced.</p>

Consultation and a review of the evidence

With the task of revising and updating the Global Kids Online survey questionnaire, making sure it captures the areas that are most relevant to children’s internet use at present we carried out a consultation with a selected group of experts. They provided advice on the areas where the Global Kids Online model and survey needed development, as well as suggestions for relevant studies and survey questions that needed consideration.

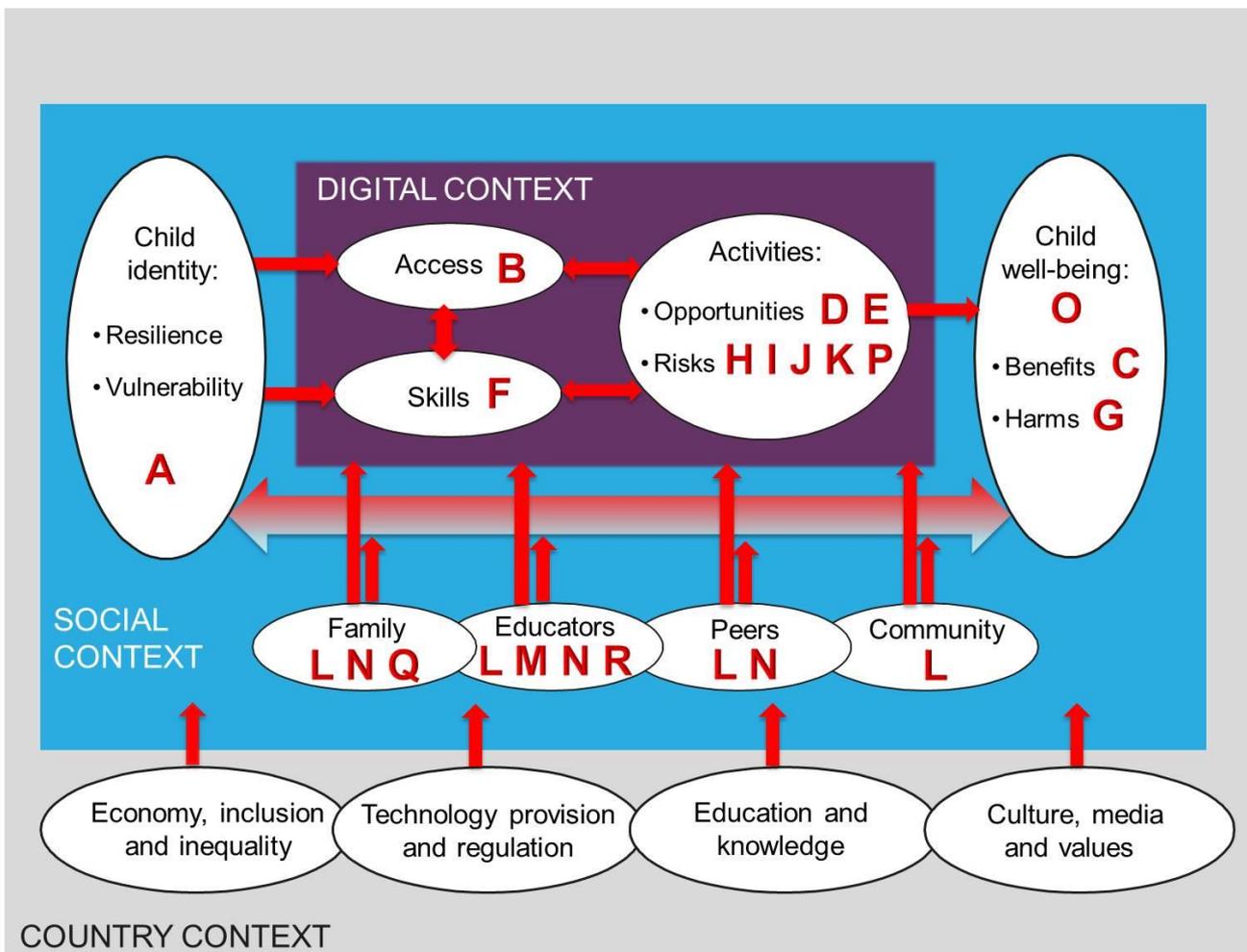
In parallel, we conducted a rapid evidence review of the existing most recent studies. The evidence review sought to assess advances in understanding and measurement of children’s online experiences for areas

relevant to Global Kids Online, identifying recent developments in the field, as well as pressing research gaps and limitations. The findings from the evidence review are available here, accompanied by a supplement with measures and this document on setting the agenda for future research and analysis.

The findings from the Evidence Review are available at www.globalkidsonline.net/evidence-review/

Drawing on the outcomes of all the activities described above, we reorganised and updated the survey modules as shown in the appendix. These modules address the different areas of the Global Kids Online model, as shown in Figure 2.

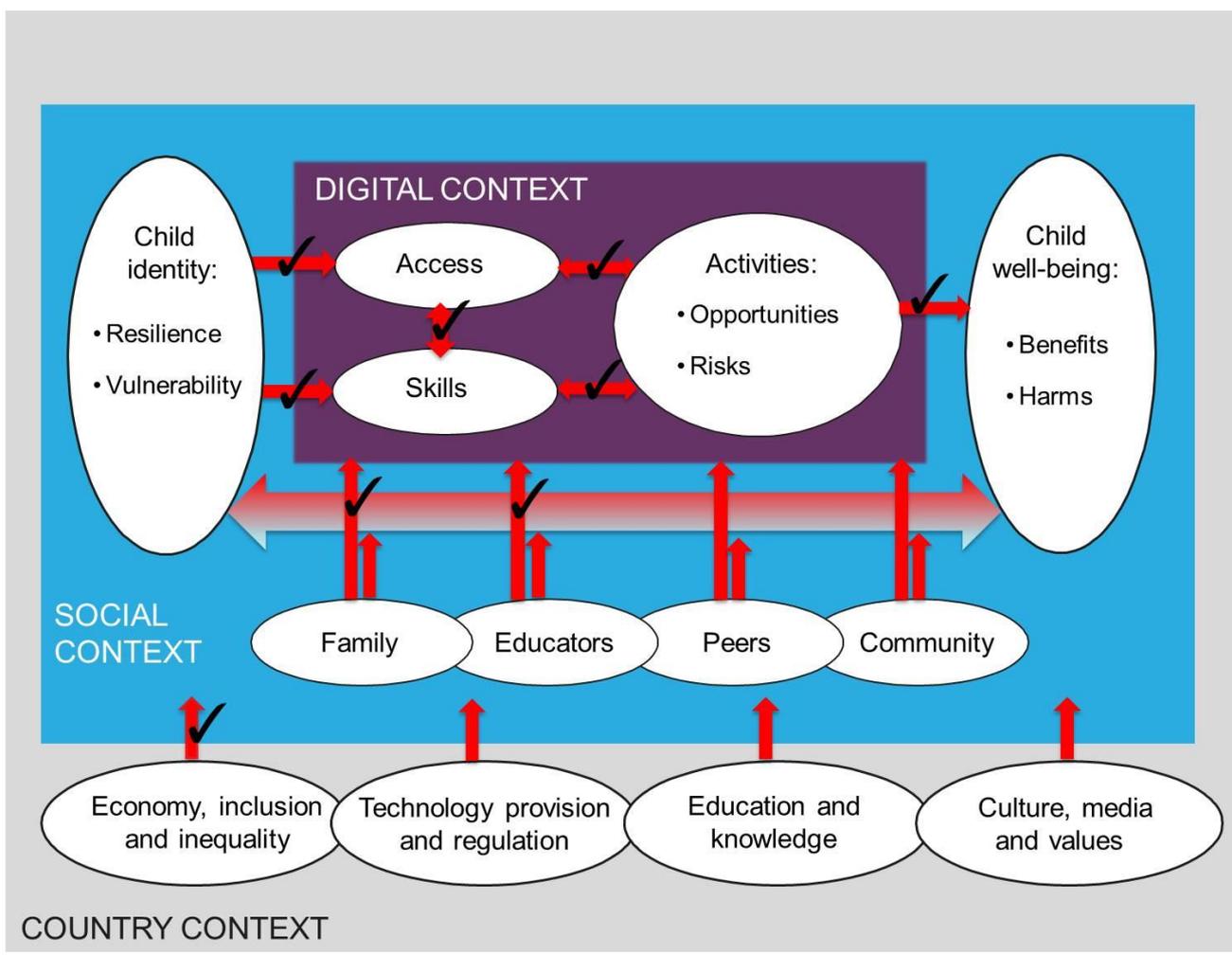
Figure 2: Global Kids Online survey modules mapped to the model



As already noted, Global Kids Online has generated data for the main types of social context variables (white shapes) included in the model (Figure 1, in the survey questionnaire groupings of variables shown in Figure 2). The country context level – largely obtained through secondary sources – adds a layer of data and analysis to contextualise the findings obtained in any particular country and to enable the interpretation of observed cross-national differences (Livingstone, 2016).

The summary of Global Kids Online findings provided above also begins to examine the relationships among the variables, filling out the model (the red arrows). In one way or another, we can even say that most of the links have been evidenced to some degree (as shown by the ticks in Figure 3).

Figure 3: Global Kids Online model mapped to the Global Kids Online evidence



Nonetheless, very many evidence gaps remain once we examine (i) specific relations among specific variables within each group of variables and (ii) the more complex pathways hypothesised to link the groups of variables

across the whole model. In what follows, we focus on the areas which need further research, measurement and analysis.

SETTING THE AGENDA FOR FUTURE RESEARCH AND ANALYSIS

This section offers recommendations for research and analysis. These emerge from our Evidence Review of recent studies, the recommendations received from the experts consulted, and from the areas that the Global Kids Online evidence base has not covered substantially thus far.

The material is organised by key areas covered by Global Kids Online. For each of these sections, you can find a summary of the existing evidence in the Evidence Review (www.globalkidsonline.net/evidence-review/).

For measures used in the Global Kids Online survey, see www.globalkidsonline.net/survey

For additional measures used in other studies see the supplement to the Evidence Review www.globalkidsonline.net/evidence-review/

Child identity and well-being

- **More research is needed on the long-term outcomes of internet use for children, such as well-being, mental health or resilience.** While it is important to study how children's online experiences may link to predictive factors in their life circumstances, it is also crucial to follow up on the consequences of children's internet use, to document either benefits or harms.
- **The most common measures used to differentiate among children are gender and age—these may be used descriptively or predictively.** Generally, as proxies for vulnerability, although it is not always the case that girls or younger children are more vulnerable to harm.
- **Psychological or contextual dimensions of child identity can also be tested for association with experiences of risk.** Personality and psychological factors might include emotional intelligence, extraversion, agreeableness and conscientiousness, excitement-seeking, self-esteem, depressive symptoms, or aggressive tendencies. Contextual dimensions such as children's school environment, experiences in the community they live in, their relationships with parents, characteristics of the household, or past experiences with offline risks, may all impact on their online risks as well. Analyses might include the full range of online risks (such as cyberbullying, "sexting", online sexual solicitation).
- **We need to know more about the role of protective factors, such as children's level of social support, enabling parental mediation, quality of friendships** and how these might shield children from the risk of harm.
- **Predictive factors do not act independently, their interrelations should be examined,** whether in terms of identifying typologies of potential or actual victims or pathways to harm. This might include exploring concomitant behaviours online or offline, correlated with online experiences of harm, aiming to identify possible clusters of behaviours or even risky subcultures, as well as tracing longer-term pathways to harm.
- **When testing the link between mental health and internet use, it is important to control for covariates related to offline factors** (Kardefelt-Winther, 2017). These can be children's family structure, socioeconomic status, gender, parental and peer support and academic performance. Non-internet models of children's well-being also point to the importance of child-related factors, such as age, gender, home context, family relationships, peer relationships, school context, teacher relationships, neighbourhood quality (Newland et al., 2019), health and safety, and risk behaviours (e.g. obesity, substance abuse, violence, and sexual risk-taking) (UNICEF Innocenti, 2007), as well as country-level factors, such as gross domestic product and income inequality (even though these are less prominent than child-related factors).
- **It is important to include measures which show the full complexity of children's well-being, including positive dimensions.** This includes their

subjective life-satisfaction, self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery and autonomy, experiences of depression and self-harm. This can be used alongside child-identity factors such as self-esteem and self-efficacy.

- **Considering the time children spend on different activities and social media platforms is important, but not on its own.** Total time spent online is often insufficient to explain well-being outcomes. Mediating variables can be included in the analysis of well-being consequences, for example, sleep loss as a mediating variable or the quality of experiences they encounter online (e.g., disclosing personal problems to friends online, real-self representation vs. cyberbullying experiences). Existing research from Global Kids Online suggests that children's online experiences are better predictors of harm than time spent online (Global Kids Online, 2019).

Access

- **The relationship between the number of devices and activities should be explored in more detail to establish if a diversity of devices results in better outcomes for children.** Currently, there is mixed evidence on how the number of used devices affects how children use the internet, with some studies saying more devices means more skills and diverse activities, while others suggest that more devices mean more entertainment and communication activities only (Camerini et al., 2018).
- **Socio-economic background affects children's internet use in many ways and looking only at access can mark important inequalities.** In some contexts, access to the internet is a sufficient indicator, but in others, it is necessary to consider also the number of devices used or the types of activities performed. For example, the lower socio-economic background might be linked to using the internet more often as a form of communication and entertainment, rather than for learning or creativity (Stoilova et al., forthcoming). The availability of social support to make the most of online access should also be considered.
- **Connectivity should be explored in addition to device ownership/availability as another possible area of inequality.** The quality, price and availability

of connectivity can be an important factor in terms of how children use the internet and should be included in the analysis of (barriers to) access.

- **Does going online later than children of the same age produce disadvantages and are they short-lived or long-term? To answer this, we need to explore the effect of age of first internet use on the number of devices used, online activities, and skills.** There is some evidence that children who start to use the internet later than average are less likely to own a smartphone which can create gaps in activities and skills (Mascheroni and Ólafsson, 2016). Exploring these effects further can help us understand better the longer-term consequences from starting to use the internet at an older age.
- **Explore the correlation between child and parental device ownership to understand better the role of the family environment.** Children whose parents do not use a smartphone to go online are also more likely not to own a device themselves (Mascheroni and Ólafsson, 2016). This might also affect parental ability to offer online support.

Activities and opportunities

1. Activities and opportunities

- **What children do online is related to their experiences offline and to understand their online activities we need to explore a range of offline factors.** The types of activities children engage in is linked to their socio-demographic characteristics, so look for relationships with gender, socio-economic status, cross-country or regional differences. The Global Kids Online toolkit contains a range of contextual variables to enable this analysis.
- **Children's online activities are also dependent on what else is happening online - explore how children's digital ecology is related to their online experiences.** Devices children use to access the internet, the type and number of online platforms they access, the number of hours they spend online daily, and their age when they first started using the internet can affect children's online activities. Possible relationship with online risk factors should also be explored.

- **The relationship between different types of parental mediation (restrictive vs enabling) and opportunities needs to be explored in relation to different country contexts to understand better how cultural context shape child outcomes.** For example, is enabling parental mediation increasing opportunities in the same way in countries with low internet penetration as it is in high-penetration contexts? Similarly, is restrictive mediation limiting opportunities in the same way and does it have similar effects on risk? Children's overall relationship with parents should also be explored in relation to its effect on opportunities.
- **We need to know more about how online activities affect child outcomes to understand how the internet can be beneficial in children's lives.** Areas with child outcomes to explore include school performance, learning, quality of children's offline friendships, emotional support they receive from friends, developing empathy and identity development (e.g. in safe and anonymous online platforms), mental health support, finding jobs and services.

2. E-health

- **The evidence around actual positive outcomes on children's health is limited.** More needs to be known about the actual benefits for children and if e-health interventions are suitable for different health conditions, particularly for more severe cases.
- **More information is needed on online help-seeking motivations and behaviours in relation to e-health.** For example, is the availability of and easy access to online information valuable for hard to reach children who might struggle to discuss sensitive issues, such as their mental health?
- **Children's use of E-health solutions needs to be understood in relation to their help-seeking offline and children's general ability to rely on online and offline support networks.** Does having offline support, larger online friend networks, and confiding in online friends regarding personal problems result in (mental) health benefits for children?
- **Explore the relationship between youth health behaviours/ outcomes and factors related to the individual, family, community, and health care**

system levels.

- **Equally, it is important to understand the relationship between digital skills and internet use for health purposes.** Are children who have better digital skills more likely to use the internet for health information and what skills lead to better health outcomes?
- **We need to know more about the effects of the quality of e-health information on how children engage and benefit from it.** Not all children are able to access health information online, nor necessarily understand and use it (Kardefelt-Winther et al., 2020). Investigate the mediating effect of the clarity and comprehensiveness of e-health information, its usefulness and reliability, in relation to how well children can understand and use it.

3. Digital citizenship

- **More evidence is needed to explore the relationship between offline and online engagement and the difference between proactive and spontaneous participation.** It is often argued that the internet affords children new opportunities for participation, but it is not clear if it is making a difference for marginalised children or it is mostly befitting those who are already engaged and pro-active.
- Civic development is also affected by other factors, for example, the social environment and the overall context, which, besides their own direct effect, can shape the effect of participation on civic development. **Future studies should include these factors to better understand youth civic development.**
- **We need more information on digital citizenship of the youngest children.** The existing studies tend to focus on children aged 11+, younger children are under-researched.
- **Measures of political self-efficacy should reflect adolescents' actual civic behaviours (e.g., self-efficacy regarding voluntary work).** Measurement of political self-efficacy should not be narrowly focused only on some types of civic activities, such as organising a demonstration or negotiating with politicians.

Skills

- **There are substantial gaps in our understanding of how skills might create resilience to online harms.** It is likely that offline factors come into play (offline learning skills, academic performance, social skills in face-to-face situations, social and educational support) but we still need to understand when and why digital skills might play a role.
- **There is a gap in understanding the antecedents and consequences of digital skills – both which factors predict/explain skills, and how skills predict child outcomes such as well-being.** There are also gaps in relation to what learning environments are most beneficial to children in relation to efficient acquisition and application of skills and how these might vary based on children's age and abilities.
- **A better understanding of the full spectrum of digital skills can help identify how to support children to climb the ladder of online opportunities.** While most children manage to master a range of basic skills that help them navigate the online environment, some more complex skills related to content creation or critical awareness remain inaccessible for many. It is important to be able to distinguish between the different dimensions of digital skills in order to develop approaches to learning that help all children develop the full range of skills they need not only at present but to succeed later in life.
- **We need to learn more about the intergenerational transmission of skills in cases when parents learn from children as this will help identify better the support children (and parents) might need.** In countries with low internet and device penetration, parents with lower digital skills may rely on their children for support. It has possible implications for support available to children and helps us understand how children can adopt a mediating role.
- **We need to explore better the accuracy of self-assessment of digital skills via practical tests to have more reliable knowledge on who needs more support and where the main gaps in children's skills are.** Children tend to overestimate their critical skills (fact-checking, searching information online, distinguishing advertising from

information), and when objective tests are done they tend to perform worse than they thought. Finding a good way to assess the actual skills children have would be beneficial, especially as some children tend to overestimate their skills more than others – e.g. boys tend to say they have better skills.

Online risk exposure

1. Risk of harm

This section focuses on non-sexual risks, while sexual ones are reviewed in more depth in the following sections.

- **We lack evidence on the best approaches to support children online - - what is the most beneficial combination of different types of mediation; how do different types of mediation supplement each other; and do they result in different types of protection and learning?** Based on the other areas of research, it can be expected that more diverse support (e.g. a combination of parental, teacher and peer mediation; bigger networks both offline and online) will yield most positive child outcomes, but the evidence is insufficient. It is not clear, however, how the different mediators relate to each other – are their mediation effects reinforced or counterpoised, what are the most beneficial mediation combinations and how do these vary based on children's needs (skills, activities, age, risks)? What are the differences based on enabling and restrictive mediation?
- Online and offline risks are interrelated and some children are disproportionately exposed to cultures of risk (Kardefelt-Winther & Maternowska, 2019). **A better understanding of how offline and online risks are interrelated will help identify vulnerability and resilience factors and ways to better protect children.** A particular gap relates to our knowledge of the effects of enabling vs restrictive parental mediation and what is most beneficial for children of different ages and skills Our recent report [Growing up in a connected world](#) touches on some of these questions, but more can be done..

2. Hurtful and bullying behaviour online

- **Explore the interplay different roles and experiences of cyberbullying to help identify**

which children are at a higher risk of harm and how to support those who need it most. Future research should look at the interplay between different roles and experiences of cyberbullying and how these experiences may determine how witnesses may react to cyberbullying. For example, whether (and how) the experience of previously being bullied online affects a child's reaction to witnessing cyberbullying. The analysis should also test for multiple roles i.e. perpetrator only, victim-perpetrator and the victim only, as well as, multiple exposures i.e. online-only, online-offline, and in-person only.

- **Study the commonalities and differences between victimisation and perpetration to enable more efficient prevention strategies and ways to break the 'cycle' of hurtful behaviour.**

Cyberbullying perpetration and victimisation are interrelated and overlapping which is demonstrated by a number of common predictors of both, including being more active on social networking sites, having strong ties with an online community, having weaker offline social ties and social support from friends and family, loneliness, lower social likeability at school, lower psychological well-being, peer influence, and having an impulsive personality (e.g. lack of self-control). At the same time certain behaviours and traits are associated with perpetration only: lower self-efficacy and empathy, self-perceived popularity, need for popularity and perception of high violence in the neighbourhood. **Distinguishing between perpetration and victimisation despite their substantial overlaps can offer important insights for prevention.**

- **Children are affected differently by cyberbullying and more evidence is needed on what predicts vulnerability, in order to develop targeted support programmes.** For example, higher social loneliness and lower perceived social efficacy decrease the perception of subjective well-being, leading to a higher likelihood of cyber-victimisation. Longer time spent online also mediates the association between negative psychological or emotional outcomes and cyberbullying (being a victim or a perpetrator).
- **More can be learned about prevention by exploring the factors associated with a higher risk of cyberbullying and testing if they can, in reverse, act as protective factors.** For example,

the role of parental mediation in preventing cyberbullying is mixed – it does not always reduce cyberbullying and the positive effect of parental control is in fact mediated by less time spent online and decreased engagement in internet risky behaviours. Still, lack of social support from parents and friends increases the likelihood of cyberbullying perpetration and victimisation and children's overall relationship with their parents and general monitoring of their activities offline and online is a positive factor. Hence, exploring protective factors needs to look at both individual and social levels as well as the offline and online environments.

3. Cyberhate, discrimination, and violent extremism

- There is a relationship between exposure to cyberhate, discrimination and online extremism material and life satisfaction which is likely to work in both directions – exposure to such material reduces life satisfaction but lower life satisfaction is also associated with higher risk of exposure to cyberhate. **It is important to understand the relationship between the factors which can protect children from exposure to cyberhate, discrimination, and violent extremism on the one hand, and the factors which can minimise the negative effects from such exposure on the other. This can be expanded by looking at a wider range of wellbeing-related indicators.**
- **We can learn more about children's exposure to cyberhate, discrimination, and violent extremism by exploring in more detail children's personal circumstances and the context they live in.** For example, there is some indication that distrust in the government is associated with exposure to cyberhate, discrimination, and violent extremism. . This suggests that distrust can be explored in relation to other areas – school authorities (headteacher, teachers, governing body), parental figures, friendship networks, local community, and police.

Sexual activities and risks

- **We need research that captures the full spectrum of online sexual experiences – both wanted and unwanted – to fully understand children's agency and victimisation** (e.g. sexting, cybersex, synchronous sexual acts online, sexual solicitations,

seeing sexual content, etc.). This will allow a better understanding of the differences between risk and harm and why some children are more vulnerable or affected than others.

- **We need to know more about children's motivations for participation in different types of online sexual activities to understand better who is at risk.** This includes understanding children's subjective evaluations of these experiences. Including frequencies of different sexual activities (not just dichotomous measures) will also help to determine potential risk. Distinguishing between sending and receiving sexual content as predictors for sexual risk is also valuable to understand how children's motivations may determine some outcomes.
- **Distinguish between wanted and unwanted sexual experiences.** There is inconsistency in how the current evidence captures the difference between wanted and unwanted sexual experiences and how one of these groups might transform into the other. It is important to ask children about both experiences, to capture their online encounters and understand how some might start as wanted, with children's initial consent, but then turn into negative experiences. This is important for exchanging and viewing sexual content, as well as for experiences of sexual exploitation and abuse.
- **It is important to understand the context of sexual activities to understand more about children's reasons to engage.** For example, in what context does a child send sexual messages: as an exchange with a partner in a romantic relationship or with an unknown person, as an online self-representation influenced by peer culture, or as part of generally high consumption of sexual content? What is the role of trust (in networks, platforms) as a factor that might influence such decisions?
- **More needs to be understood about the relationship between children's motivations and outcomes of sending and viewing sexual content to understand better pathways to resilience and harm,** particularly distinguishing between wanted and unwanted exposure, which existing studies do not do very well. Generally, the existing studies on sexting and viewing sexual content focus mostly on engagement and risk factors but do not look into

child outcomes and harm.

- **Currently, we know very little of the protective factors for unwanted online sexual experiences and more evidence is needed to help us identify how to protect children from harm.** A potential factor worth exploring is parental mediation, as some forms can protect children against potential negative outcomes from online sexual activities. Thus it is important to ask about different ways of mediation rather than parental mediation generally. There is some indicative evidence that having parental discussions about online privacy might help children understand better the possible risks associated with sexting. Parental use of internet filtering might reduce the likelihood of unwanted encountering online sexual content and parental support might act as a buffer against the negative effect of viewing internet pornography on sexually aggressive behaviour. More robust evidence and further analysis are needed to verify these relationships and establish which protective factors minimise exposure to risk of harm.

Online sexual exploitation and abuse

- Children's exposure to child sexual exploitation and abuse is likely to be predicted by a combination of factors in three areas - digital, child-related and social. **Exploring the relationship between these three groups of factors can help create a more comprehensive understanding of vulnerability and pathways to harm.** Still, more information is needed about the platforms on which sexual perpetration happens and what functionalities facilitate such interactions. Child-related factors might include gender, age, sexuality, having foreign nationality, mental health (depressive symptoms), having a history of online harassment and aggression perpetration. The social environment factors might include not having social support, living in a single-parent household, and being exposed to other forms of violence, abuse, or trauma including online and offline. **How these factors interact and when they create resilience is not clear.**
- **Help-seeking is a crucial factor both in terms of protection and coping and needs to be explored in depth**— when and what kinds of social support can be preventative and when is help effective in

creating long-term coping mechanisms. We need to establish if children who have stronger social support from parents and friends are more likely to show protective behaviour and seek help after experiencing online sexual exploitation and abuse. Are children who have a history of problems (intoxication, illicit drug use, absenteeism from school or having problems with teachers) and a previous experience of seeking support more likely to seek help with a new problem? Can children who are vulnerable or in difficult situations develop resilience and learn to lean on a support network following experiences of hardship?

- **We need more evidence that helps us identify similar risk triggers and protective factors for groups of children** – children are exposed to different risks and are affected by them differently. Some of the evidence suggests that children’s risky behaviours can be ‘profiled’ to identify similar risk triggers and protective factors for groups of children. This profiling needs to acknowledge not only children’s broader internet use but the risks in their online and offline environments.
- **We need more information that helps us to profile perpetrators** – the evidence does not always differentiate clearly between relationships with peers (known and unknown), adult strangers, and adults familiar to the child. The evidence needs to establish the age and gender of the perpetrators and their relationship with the child. For example, asking about the age and gender of the child’s perpetrator or their sexting/cybersex partners and their relationship with the child would differentiate between relationships with peers and adults and known and unknown perpetrators.
- **We need rigorous evaluations of existing mechanisms to prevent online sexual exploitation and abuse on digital platforms**, to be able to strengthen this aspect of national child protection systems.

Conclusions

Looking across the many recommendations provided here, our suggestion is to prioritise the following key gaps in further research and analysis:

The connection between online and offline is under-researched. Future research and analysis need to capture better the complexity of children’s online experiences and recognise how benefits and vulnerabilities ‘travel’ online from their offline environment. The sources of benefit and vulnerability differ between children and county contexts – hence comprehensive measures of children’s individual circumstances, their online behaviour, and experiences of harm both online and offline are needed.

Long-term outcomes of internet use on children’s well-being, mental health or resilience are rarely explored. Most research describes children’s online experiences and may link these to predictive factors in their life circumstances, but rarely do studies follow up on the consequences of children’s internet use, to document either benefits or harms over time.

To understand how and when risk leads to harm, we need to understand better children’s vulnerabilities and protective factors – both online and offline. An overall finding across the different areas that we reviewed is that children’s experiences of online harm relate in complex ways to their online behaviour (aspects such as privacy, online communication, exposure to other risks) on the one hand, as well as to existing vulnerabilities (offline and online) on the other – here experiences of other hurtful behaviour, help-seeking, social support, ability to recognise violence play an important role. To understand children’s experiences of online harm, sexual exploitation and abuse, we need to have a better and more comprehensive knowledge of how children engage with the internet, what abilities they have to protect themselves from harm (offline and online) and to respond to hurtful situations, and how their environment (again in its digital and non-digital aspects) affords support and protection or amplifies risks and harm. See Kardefelt-Winther & Maternowska (2019) for a proposal on how this can be done by situating the online harms agenda within in the broader research field concerned with violence against children.

Appendix: Revisions to the Global Kids Online survey, by module

Module	Description	Module changes compared to the previous version of the survey (C indicates core, O indicates optional)
A. Child identity	Includes questions on children's demographics (age, gender, etc.) and socio-economic background, some psychological characteristics, health and able-bodiedness, and further measures of children's capacities, experiences or vulnerabilities.	<ul style="list-style-type: none"> - Changed: Measurement of socio-economic status, culture or ethnic group; Education, family, school, and disability from C to O. - Added: Urban/rural location (C), migration (O), religion (O), physical activity (O). - Removed: Strengths and difficulties (O), education outside of school (O).
B. Access	Age of first internet use, the intensity of internet use, places of use, devices used, and barriers to access.	<ul style="list-style-type: none"> - Changed: Options for barriers to internet access (C). - Added: Apps and smart devices used (O). - Removed: Does somebody help you connect to the internet (O).
C. Well-being (benefits)	The overall benefit of internet use (having a good time online, whether good things for children to do).	<ul style="list-style-type: none"> - Changed: None.¹ - Added: Most important benefits to internet use (O). - Removed: None.
D. Activities (opportunities)	Online practices related to learning, community and civic participation, creativity, social relationships and online communication, entertainment, personal and commercial use, risky opportunities and e-health.	<ul style="list-style-type: none"> - Changed: Additional options for entertainment and personal activities (O). - Added: E-health (O). - Removed: None.
E. Communication	Issues related to children's use of websites or apps, their approach to online communication, behaviour and safety on social networking sites.	<ul style="list-style-type: none"> - Changed: Who you communicate with, social media accounts and privacy settings from O to C. - Added: None. - Removed: None.
F. Skills	Digital skills, literacies and competencies, including operational skills, informational/browsing skills, social skills, creative skills and skills related to mobile devices, and digital confidence.	<ul style="list-style-type: none"> - Changed: Response options for social/privacy skills (O); digital confidence from O to C. - Added: None. - Removed: What you know how to do on a smartphone or tablet (O).
G. Well-being (harms)	Internet content that is upsetting or bothersome, experiencing hurtful situations online and response to these, excessive internet use.	<ul style="list-style-type: none"> - Changed: Excessive internet use and coping behaviour from upsetting events from O to C. - Added: None. - Removed: None.
H. Activities (risks)	Meeting new people online, exposure to sexual content (voluntary and involuntary), potentially negative user-generated content and other negative experiences (personal information being used, losing money, etc.).	<ul style="list-style-type: none"> - Changed: Negative user-generated content from O to C. - Added: Questions on feelings, who you told and coping behaviour in response to: in-person meetings, seeing sexual images, and negative user-generated content (mostly O). - Removed: Contact with someone haven't met in person (now in Module E).

¹ Does not include minor changes to question wording, response options or response scales.

I. Communication (sexual)	Witnessing, receiving and sending sexual messages, motivation for sending sexual images, and feelings and coping behaviour about those experiences.	<ul style="list-style-type: none"> - Changed: Feelings in response to receiving sexual images from O to C; new response options on sharing sexual images (O). - Added: Witnessing others receiving sexual messages (C and O); Feeling and who you told about receiving sexual images (O); Sharing sexual images (O). - Removed: None.
J. Sexual exploitation and abuse	Unwanted exposure and harm to self or others.	<ul style="list-style-type: none"> - Changed: None. - Added: Witnessing others' online sexual experiences (O), types of unwanted sexual experiences (O), unwanted sexual comments online (O), location when unwanted sexual exposure or request happened (O), coping behaviour (O); witnessing, experiencing or perpetrating sexual solicitation or extortion (O). - Removed: None.
K. Hurtful and bullying behaviour	Witnessing, being treated or treating others in a hurtful way, and feelings and coping behaviour about those experiences.	<ul style="list-style-type: none"> - Changed: None. - Added: Witnessing others treated in a hurtful or nasty way (C), feelings about being treated that way (O), type of treatment (O), coping behaviour (O), who you told (O), perceived reasons for treatment (O), type of nasty behaviour towards others (O). - Removed: None.
L. Social support	Seeking help, support from and belonging to family, peers, school and community.	<ul style="list-style-type: none"> - Changed: Support at school, and who you talk to when you are upset from O to C. - Added: Leadership position at school (O). - Removed: None.
M. Education	Using technology for learning at school and at home.	<ul style="list-style-type: none"> - Changed: None. - Added: None. - Removed: None.
N. Internet mediation	Parental mediation, peer mediation, teacher mediation, privacy risks from others' actions.	<ul style="list-style-type: none"> - Changed: Rules about internet use from O to C. - Added: Privacy risks linked to others' actions (e.g. parents/friends publishing information without asking,(C). - Removed: Benefit of parental mediation (O), do parents limit what you can do on the internet (O), do parents do anything different after you were bothered by something on the internet (O).
O. Well-being	The module focuses on life satisfaction. Throughout the survey, we also assess other factors: economic factors (socioeconomic status, availability of basic necessities, noting that these vary across countries), emotional (happiness, self-efficacy) and social elements (support from family, peers, educators and the community).	<ul style="list-style-type: none"> - Changed: Reduced number of options in social problems scale and emotional problems scale (O). - Added: Depression (C), self-harm (C and O), negative in-person events (C). - Removed: None.
P. Privacy	Perceived vulnerability to and harm from privacy risks, privacy-protection strategies.	<ul style="list-style-type: none"> - Changed: N/A - Added: The whole module. - Removed: N/A

Q. Parent module

Identity, internet use, digital skills, mediation and monitoring, sources of information for how to help children and keep them safe, worries, wellbeing and household demographics.

- **Changed:** Same as corresponding questions in child modules.
- **Added:** Relationship to child (O), perception of risk (O), own wellbeing (O).
- **Removed:** educated somewhere other than school (O).

R. Teacher module

Internet use, use of technology for teaching, digital skills, mediation and monitoring of students, sources of information for how to help children and keep them safe online.

- **Changed:** N/A
- **Added:** The whole module.
- **Removed:** N/A

Bibliography

Camerini AL, Schulz PJ and Jeannet AM (2018) The social inequalities of Internet access, its use, and the impact on children's academic performance: Evidence from a longitudinal study in Switzerland. *New Media & Society* 20(7): 2489-2508.

Global Kids Online (2019) Growing up in a connected world. Global Kids Online. Available at: <http://globalkidsonline.net/synthesis-report-2019/>

Kardefelt-Winther, D. (2017) How does the time children spend using digital technology impact their mental well-being, social relationships and physical activity? An evidence-focused literature review. Innocenti Discussion Paper 2017-02, UNICEF Office of Research – Innocenti, Florence

Kardefelt-Winther, D. and Maternowska, C. (2020) Addressing violence against children online and offline. *Nature Human Behaviour* 4, 227–230, <https://doi.org/10.1038/s41562-019-0791-3>

Kardefelt-Winther, D., Twesigye, R., Zlámál, R, Saeed, M., Smahel, D., Stoilova, M. and Livingstone, S. (2020) Digital Connectivity during COVID-19: Access to vital information for every child. Florence: UNICEF Office of Research – Innocenti. Available at: <https://www.unicef-irc.org/publications/1099-digital-connectivity-during-covid-19-access-to-vital-information-for-every-child.html>

Livingstone S (2016) A framework for researching Global Kids Online: Understanding children's well-being and rights in the digital age. Global Kids Online. Available from: www.globalkidsonline.net/framework

Livingstone S, Mascheroni G and Staksrud E (2018)

European research on children's internet use: Assessing the past and anticipating the future. *New Media & Society* 20(3): 1103-1122.

Mascheroni G and Ólafsson K (2016) The mobile Internet: Access, use, opportunities and divides among European children. *New Media & Society* 18(8): 1657-1679.

Newland LA, Giger JT, Lawler MJ, et al. (2019) Multilevel Analysis of Child and Adolescent Subjective Well-Being Across 14 Countries: Child- and Country-Level Predictors. *Child Development* 90(2): 395-413.

Stoilova, M, Khazbak, R and Livingstone, S (forthcoming) Pathways to harm and resilience: a rapid review of the evidence on children's internet use and outcomes. Florence: UNICEF Office of Resreach Innocenti

UNICEF Innocenti (2007) Child poverty in perspective: An overview of child well-being in rich countries. UNICEF Innocenti. Available at <https://www.unicef-irc.org/publications/445-child-poverty-in-perspective-an-overview-of-child-well-being-in-rich-countries.html>