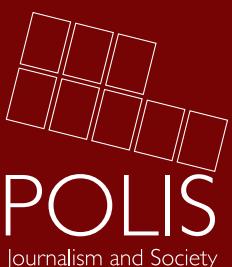# Mobile Opportunities
Exploring positive mobile media
opportunities for European children

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Contents

1. Executive Summary

In the last few years there has been a sudden boom in the availability of internet – enabled devices for children and young people, in particular smartphones and tablets that they can carry around. This has given children much greater accessibility to the mobile internet and all the opportunities that promises.

This transformation in the digital lives of children and young people was explored in the first report of this series, "Changing media, changing families"[i]. That report alerted us to the rich media lives that young people were increasingly enjoying and their desire to become more skilled and involved in the internet as they grow older.

Our findings are based on our two major European-wide research projects: the EU Kids Online, and its sister project Net Children Go Mobile. From those massive research projects involving interviews with thousands of children across the continent, we have learned that with the arrival of smartphones and tablets and the convergence of technologies, device use has become ever more intimate.

With the miniaturisation of mobile devices it becomes even more possible to view or read in even more private places. Children are more able to create their own personal connection to the internet away from public oversight or control.

This report sets out to examine the potentially positive online experiences that mobile opportunities present to children and young people aged 9-16. What can the mobile internet offer these children and young people?

Children's futures are clearly part of a digital media-rich society. The online opportunities this makes possible often worry their parents and teachers who have to manage the tensions between what is appropriate and safe for children and what they should be allowed to do to develop media literacy skills, enhance learning and have fun.

"Mobile Opportunities" uses the EU Kids Online measure for internet activities, "the ladder of online opportunities" which highlights how active children are online in terms of range and frequency of activities. As children grow with age and confidence, many of them spend more time online managing the challenges and risks they encounter through various simple strategies they develop for themselves.

Growing up in a mobile digital online world is an exciting adventure for many children and we explore their online behaviours in section 4. Children are having fun navigating their way through the multiple features of the internet, social networking services (SNS), apps and their own devices. Finding out about themselves, about relationships and about the pitfalls of operating in an online adult world are all part of growing up, as we examine in six themes:

• Being Mobile

• Being Social

• Being Educated

• Being Entertained

• Being Me

• Being Protected and Private.

In section 5 the adult perspective is examined to see how they mediate or manage children's online activities. It suggests that although parents are beginning to see children and young people in a new light, within educational settings we are still limiting their online access and the development of their digital literacy.

In the Future Generations section we explore a typology for describing children and young people:

• Children as Advisors

• Children as Problem Solvers

• Children as Explorers

• Children as Sharers

Based on the EU Kids Online analysis regarding the balance of online opportunities and risk, these four types reveal positive ways that children can develop online media literacy skills. The possibilities for future generations of children online are considered within a brief overview of future mobile opportunities.

A summary of recommendations for shaping policy is provided that addresses the positive aspects of mobile opportunities for children and young people. These include:

• Education: a collective approach to creating a ladder of online opportunities in educational settings to deliver age-related ways for children to positively explore the internet

• Costs: transparency of online charges with more (free) WiFi access out and about

• Resilience: more opportunities for self-regulation and problem solving to develop digital media literacy

• Content: the importance of providing more positive content for younger children

• Creative solutions for improving online access for children and young people

Background information about EU Kids Online and Net Children Go Mobile projects and references cited are provided at the end of the report.

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2. Introduction

"The rapidity with which children and young people are gaining access to online, convergent mobile and networked technologies is unprecedented in the history of technological innovation and diffusion. The benefits are to be found in relation to learning, participation, creativity and communication."[ii]

Children are already immersed in the online world via their smartphones, tablets, personal computers and laptops. In *"Mobile Opportunities"* we explore what this means for children who face a future that is firmly situated in a digital environment full of exciting and risky opportunities. These are accessible in seconds by chance or by choice. Understandably parents are worried – how can they help their children safely make the most of this opportunity?

EU Kids Online and its sister project Net Children Go Mobile have together surveyed and interviewed over 33,000 children in Europe between 2010 and 2014, as well as some of their parents and teachers.

These studies set out to explore the opportunities of the digital age and how the route from fixed to mobile internet access is changing children's online experiences.

The risk and harm that children might encounter as a result of online opportunities was central to these studies but their data also clearly shows just how much children are benefiting from the burgeoning digital mobile economy; going online is reaping many positive benefits.

"Mobile Opportunities" looks at these European children's experiences of positive engagement with mobile media and how they use their preferred mobile devices and for what, where and when they use the internet.

Children are the early adopters of smart technologies, particularly social network services (SNS), apps, video and new mobile devices. How they choose to use them will shape their futures and influence future generations too.

5G wireless technology is on the horizon giving us the "internet of things" and increased dependency on mobile and wireless technologies, as well as increased access to it. We can learn much from how children are taking up mobile devices, and the new practices they develop towards achieving "always on" real-time connectivity and managing an online social networked society.

The opportunities we explore in this report are eagerly sought out by children. Growing up in a world in which new technologies are constantly being introduced, overtaken by new versions or discarded altogether, has made digital literacy an imperative. Nevertheless, it is still very clear that there are children who remain digitally disadvantaged[iii] and these gaps in digital equality are recognised in this report.

European governments and their education systems are targeted with providing internet access to all, but access is by no means ubiquitous, particularly among lower socioeconomic status communities and in geographical locations beyond urban areas and major infrastructure.[iv]

Information and communication is increasingly transacted online, and it is within this framework of the digital economy in which children seek to push the (safe) boundaries of the internet to the limits of their enthusiasm, curiosity, and abilities. Mediated, and often in their view constrained, by adults; children's online access is managed under an umbrella of regulation, rules and their parent/carers and teacher's intervention.

In this report we explore some of the opportunities of our wireless and mobile digital age which are easily and readily accessible to children aged between 9 and 16 who live in Europe.

The period of research covered (2010 – 2014) shows how the route to new opportunities is changing – in particular the shift from fixed internet access to mobile. By looking now at what the EU Kids Online research tells us about the children and young people we surveyed and interviewed during 2010[v], and what we learned from the complementary Net Children Go Mobile study in 2013/14[vi] we can also give a hint to what the future generations of children might encounter.

"Parents are worried- how can they help their children safely make the most of this opportunity?"

3. The Ladder of Online Opportunities

The measure for how active children actually are when online is expressed in terms of the "ladder of online opportunities"[vii]. In the 2010 survey children reported how much they used the internet, how many skills they had, how many activities they did online and how often. This shows us that children vary in skills and confidence with regard to using the internet and the various devices they use to connect.
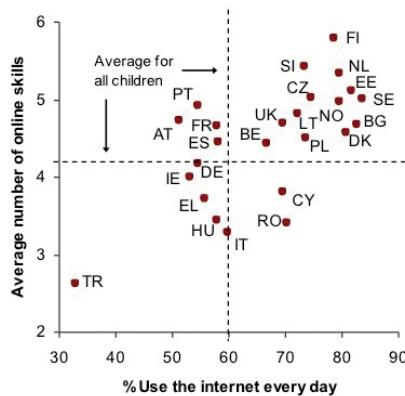

Figure 1: Children's average number of online skills by children's daily use of the internet, by country

(Source: Livingstone et al 2011 p142)

Not surprisingly, the more activities they pursued, the more skilled, confident and experienced they became when using the internet and the more they were able to engage with others, share their experiences and often teach others how they did it.

Figures 1 and 2 both show positive relationships across countries. In Figure 1, the more children in a country use the internet daily, the more online skills they tend to have (and vice versa). In Figure 2, the more children in a country go online daily, the more they are likely to do online – in other words, the higher up the ladder of online opportunities they tend to climb,
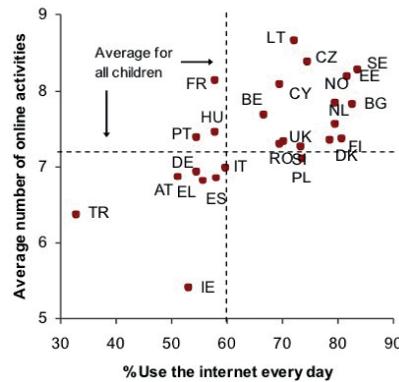

Figure 2: Children's average number of online activities by children's daily use of the internet, by country

(Source: Livingstone et al 2011 p141)

Country Key: AT Austria; BE Belgium; BG Bulgaria; CY Cyprus; CZ Czech Republic; DE Germany; DK Denmark; EE Estonia; EL Greece; ES Spain; FR France; FI Finland; HU Hungary; IE Ireland; IT Italy; LT Lithuania; NL Netherlands; NO Norway; PL Poland; PT Portugal; RO Romania; TR Turkey; SE Sweden; SL Slovenia; UK United Kingdom.

The EU Kids Online researchers also found that children's online activities can be grouped into clusters relating to the types of activities they pursued.

The more experienced social networkers are the older girls, who are among the more frequent users – more so than those, mostly older boys, who go online for gaming activities.

Some children are more adventurous and sociable with their online activities than others who are characterised by low use.

The children who spend more time online than any others are the intensive gamers but they engage in fewer activities overall[viii].

These results show how some children climb the ladder of online opportunities by gaining a greater depth of knowledge about a few activities, while others do so by broadening the range of activities they access and thus their online experience. We look again at these different groups of users later in this report (Section 6).

But Figure 3 adds in a complication, for it shows that climbing the ladder of online opportunities leads to greater exposure to potential risk – including risk of exposure to pornographic or other kinds of potentially harmful content, contact with strangers, cyber bullying from peers, and so forth.
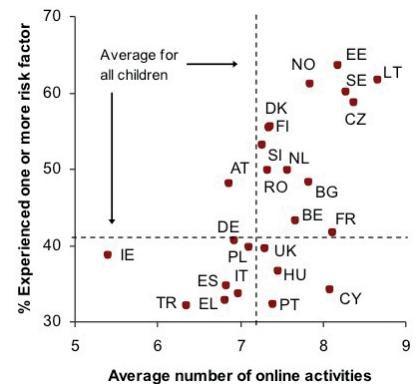

Figure 3: Children who have encountered one or more online risk factors by children's average number of online activities, by country

(Source: Livingstone et al 2011 p141)

This increased exposure to risk resulted both from increased use of the internet generally, as well as increased access to the mobile internet via smartphone and tablets, as the recent Net Children Go Mobile study showed.

It is somewhat reassuring to note that the great majority of children surveyed said that they were generally not bothered by their experiences of online risks. But a minority of children do find online risks upsetting, and this merits policy makers' attention.

Children's increase in online activities impacts on their social practices and awareness of risk with regard to the mobile internet in particular. The two studies highlight how many children are happily engaged in developing new skills associated with smartphones and tablets as their online activities and experiences, along with their skills and confidence, grow apace.[ix]

4. Growing up in a Mobile Digital Online World

How do children negotiate the twists and turns of their own lives set against the tribulations of managing new technologies and the expectations of others? How do they use mobile media to have fun, to play, and to enjoy themselves?

How are mobile devices – smartphones and tablets – changing children's media use and to what extent? How is mobile media contributing to overcoming challenges for education in which schools are slow to keep up with the expectations of their students with regard to digital engagement? What do we think will happen in the future to children's public and private behaviours?

The children we interviewed about their smartphone and tablet use showed just how much access to online content has moved on since the increased availability of these devices[x]. Now, instead of having a mobile phone for talk and text only and a desktop or laptop computer to go online to access the internet, email and instant messaging, children can now choose to do all of these and more (including watching television) on one miniaturised portable device, almost anywhere.

Sarah: *When we were younger, and we had those old phones. It was like, you could easily forget it at home, but now, where you can use the social media, now it's really important!*

(Denmark 11-13 years old 2014)

In 2010 a shared PC was the most common way of accessing the internet (58 per cent) with 31 per cent using their phone. In 2014 children are still using their PCs but now, every day 46 per cent use a laptop and 41 per cent use a smartphone to go online[xi].

Children's use of mobile internet is being transformed after having access to lap tops and convergent technologies on one miniaturised device – the smartphone (or tablet) for just a few years. An additional technological "helping hand" is the improvement in broadband capacity and the growing availability of wireless internet access, most often free to use (albeit through parents' paid-for accounts).

Children and young people do give some consideration for who pays for their online access, especially if they are paying a contribution themselves.

There are wide differences in tariffs and charges for smartphone and mobile communications use across Europe. These variations make a difference to

how much children of different ages can afford to use their mobiles, and especially to accessing internet based services when free WiFi is not available.

We identify some key themes that characterise how children are growing up in a mobile digital online world and gaining new mobile opportunities.

4.1 Being Mobile

The number of children who go online when "out and about" has doubled in most countries. Children are being mobile and going online in many locations including at their friends and in their own homes[xii].

Costs are involved in being mobile although children are often not expected to pay more than a contribution towards their smartphone. Smartphones are typically given as a Confirmation gift or when starting at High/Secondary School or are handed on by a parent or sibling who upgrades to a better phone.

Children are not encumbered by being in a public place when using a mobile phone and are comfortable making private calls or using any of the phone's other multiple functions. However, they are particularly aware of safety considerations, especially with regard to possible theft such as on a public bus, and so will not use their phone in public if the situation worries them.

No longer bounded by the physical proximity of either themselves, or of the people they are communicating with, children are able to communicate at will with friends, family and strangers who may be in any location globally.

Being mobile is thus not just to do with being out and about but includes having a portable device that can be kept in a hand or pocket and used when the need arises. This includes moving about the home, and indeed, the home is still the main place for children's internet and mobile use.

The bedroom culture that had long been the private domain of the child is sustained and reinforced: now they no longer need to leave their room to watch the television use a computer or talk to someone else in their house – all can be done from the comfort of their bed.

In 2010 one in two 9-16 year olds ever used the internet in their bedroom, now two in three go online there weekly with four fifths of 15-16 year olds going online in their bedroom weekly:

Isleen: … *I Facetime, because, like I'll call my house phone – if no-one answers [Facetime] – I'll call my house phone and make someone get up and talk to me… And then I call, I just call them to find out if they're there; I can't be bothered to get up and see.*

(UK 14-16 years old, 2014)

Isleen also commented that her mother occasionally calls her mobile within the house. To a certain extent the combination of smartphone and tablet capabilities and the ability to "be mobile" has led to some stagnation of mobility. Children find the place that suits them best to go online and stay there rather than move about to watch television in another room, or round to a friend's house to chat.

This one place can be any location, the bedroom is favoured by some, but it could be friend's bedroom or a hang out space with wifi. One UK mother of boys commented that they talk to their friends on Facetime in their homes – and at 8am on a Sunday – whilst they continued with their online gaming.

Another said that she had discovered her son had been chatting to his grandmother and other family members online, contact that he might not otherwise have had and which she had no idea about.

Children and young people are using portable devices in any particular location that a connection can be made finding new ways to be online and in the real world at the same time.

4.2 Being Social

Many children believe they are more social since having a smartphone, not least because phones are always to hand and some of the apps they use provide communication free of charge (via WiFi).

There is a downside in that their peers expect them to be always available and if they do not keep up with the notifications on WhatsApp, Twitter or Snapchat for example, they can miss out on something vital. Facebook is still the main social network used although there is more diversity of choice, such as Twitter.

Despite the official lower age for a Facebook account being 13, 39 per cent of European children (aged 9-12) were using it. In general, users are becoming more aware of privacy settings and have fewer contacts. Sometimes, as we can

see from this Italian boy, the number of friends one has is as much about the fun of collecting and deselecting them as it is about being social:

Lorenzo: *I used to enjoy clicking on "add a new friend", but then it seemed a silly thing to do. It was in first and second grade of lower secondary school. So in the last couple of years I have been deleting those I realise I haven't met for long or I have never talked to, because I don't feel the need to have them among my friends.*

Interviewer: *Could you explain this idea of a competition?*

Lorenzo: *It was fun. I had a friend for example who enjoyed having 999 friends and didn't want to reach 1,000. If he added someone, he would have deleted another one.*

(Italy 14-16 years old 2010)

The portability of mobile media as well as the device itself means that they can easily be used for "doing stuff" that overcomes the boredom, embarrassment, awkwardness and worry that children encounter in their social lives. Time in the car or sometimes on the school bus can be occupied by using their phone. If there is no WiFi, they look at photos or downloaded media. They flick from one app to the next, seeing if anything has happened, following Instagram, vlogs, YouTubers, celebrities, learning about life and exploring their identity. Friends and social life includes the people they follow but do not personally know, as well as school friends and family. Eliza talks about how she tries to keep up with all the people she follows on Twitter:

Eliza: *I follow so many people on Twitter that I can't actually physically read everything that they say, so what I do… I probably go onto my mentions because my mentions are full of the people that I want to see their tweets and I… then I just go through that and look at the people's tweets I want to see, instead of reading everyone's, so I probably just go through my Twitter but it takes so long.*

(UK 14-16 years old 2014)

As we can see from Eliza's experience it is time consuming to keep up to date, so children are developing strategies to manage the most important updates (to them). They are beginning to accept they cannot keep up with everything.

Access to their phone is an imperative and children will contrive ways and reasons to have it with them at all times, even when they are not allowed.

Cristiana: *Having it with us is only allowed from [school year] 5-8 on, but for 1-4 it's not.*

Alexa: *No, but we bring them anyway.*

Carmen: *Yes, exactly….How do they expect us to be without our phones?*

Cristiana: *So we bring them with us but we turn it off and on…*

Carmen: *Because our class master allows them only if they're off.*

Cristiana: *Or during breaks or in the bathroom.*

(Romania 9-10 years old 2010)

These girls from Romania have found ways to circumvent the school rules with the compliance of their teacher in order to keep their phones at hand at all times.

Having a smartphone is seen as a must for being social, even for some who are as young as 9 or 10.

4.3 Being Educated

Learning via mobile media is not new but the availability of smartphones and tablets does open many new doors for educational opportunities.

Having a smartphone with access to the internet provides the opportunity to find answers to questions in real time, although some children say they prefer a larger screen for this when it comes to homework. While there is some criticism that children are losing the ability to think for themselves, instead solving problems by instantly looking up the answer online, they are well aware of the vagaries of the information they might access:

Marco: *Yes [I use Wikipedia] though I don't know how much I can trust it, because, being an open encyclopaedia, there might be incorrect information. So, yes, I make searches on Wikipedia, but for things I am pretty sure they cannot give any misleading information, then I search also on other things, even books*

(Italy 14-16 years old 2010)

Using mobile opportunities to be educated can be both within and outside of educational establishments. As well as the quick search to find the answer, that can take place almost anywhere children also use mobile media to read newspapers and books. Some children are reading the

"Having a smartphone is seen as a must for being social, even for some who are as young as 9 or 10."

> "The diversity of internet use and the flexibility of tablets and smartphones in an educational setting have yet to be fully exploited by School Heads."

news online, which suggests an increased use of the internet for civic interests. Digital subscriptions to newspapers are now readily available with tablet and smartphone apps enabling ready access for all family members. Some mothers say their children read the news on the way the school in the car and in the Net Children Go Mobile focus groups with parents, some said they had bought these subscriptions for their children as they were required for their school work.

Parental intervention with regard to using tablets for education in the home was also highlighted with mothers using them to access science experiments to help with homework; one mother says her children are more receptive to homework via the tablet and she enjoyed the learning experience too.

There is a great deal of online access in schools but it is usually controlled to avoid misuse resulting in personal smartphones being banned from use, or banned from some schools all together. Among the recommendations from the EU Kids Online and Net Children Go Mobile studies is one that encourages children and young people "to maximise the benefits that the internet affords through diverse activities that expand their digital skills to more participative and creative uses"[xiii].

The possibilities are numerous and not necessarily all fulfilled but the diversity of internet use and the flexibility of tablets and smartphones in an educational setting have yet to be fully exploited by School Heads.

At home the mobile is used such as to share homework problem solving, for language translation and to look things up. Limitations to these mobile opportunities are mostly technological and educational: the ability to access and use devices (and power points to charge them), and the children's digital literacy.

A substantial minority of children still lack digital skills and the improvement of these skills is slow[xiv]. Given the amount of investment in efforts of industry and educators to improve digital literacy this is disappointing.

Self-directed learning means children are acquiring new mobile skills and becoming more digitally media literate which in turn is an aid to safely gaining future benefits from mobile opportunities.

4.4 Being Entertained

Mobile opportunities for being entertained online are extensive and this has the potential to be quite a problematic area.

Insufficient stimulating and imaginative content for children online is also one of the areas that POSCON[1] explored[xv] as being inadequately supported by internet content providers.

Being entertained for many children is achieved by playing online computer games. Gamers can be the most intensive online users but they do so at the expense of learning more about a variety of mobile opportunities. Nevertheless the world of gaming is a huge part of many children's lives and in addition to their games console they may simultaneously use other devices to talk to friends to plan strategies, or just to catch up with other things while they are online.

Some of the children rue the loss of free games on their old mobiles; smartphones have few free games and many children have been caught out on the hidden charges for extra coins or downloads they did not realise they had committed to buy until they lost money, or a parent ran up a large bill.

However, from the little games that do come with the phone to the mobile downloads for the big online games, such as Call of Duty or Minecraft, the smartphone or tablet plays an integral role whenever and wherever children play games. To kill time, to spend time alone, a game can fill a void. Smartphones, tablets, lap tops, portable games devices all provide a chance for mobile game playing.

One of the constant challenges for children seeking entertainment online is the amount of unsuitable material they can easily, and often unwittingly access.

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[1] The POSCON Network aims to promote and highlight the positive online content and services that enable children to achieve the most from using online services. Their guideline document is framed by the EU Kids Online finding that not enough children felt there were sufficient good things for children online. It provides best practice examples and a checklist aimed at the industry organisations involved in delivering online content and services for children aged 4-12 in particular.

Pushing at the boundaries of permissible behaviours is to be expected of children and young people and, not surprisingly, this sometimes leads to confrontation and difficulties in their relationship with siblings and parents such as when Joseph's sister got him into trouble for searching for forbidden websites. His parents looked at his mobile phone:

Joseph: *It showed them that I'd been on different websites on the internet... which I hadn't ...which she went on... she kept going on different websites... and I got into massive trouble...I was so annoyed with her...*

Interviewer: *Why, were these websites that were not appropriate for you?*

Joseph: *yeah, stuff to buy...like X-Box games like Call of Duty, Black Ops...*

Interviewer: *These are video games that are too old for you.*

Joseph: *Yeah. Like Assassins' Creed.*

(UK 9-10 years old 2010)

Children also use their smartphones and tablets to be entertained such as by listening to music downloads, following the daily vlogs of famous YouTubers, watching television catch-up, downloaded films and podcasts etc.

Entertainment is an area of internet use that exposes children to the risk of seeing over-age films or advertisements that precede a download which may not be suitable for their age.

The scope for finding entertainment online is huge and children and young people will encounter many mobile opportunities – some risky ones – in the process.

4.5 Being Me

Children are using their mobile phones and online experiences to explore their identity. Taking "selfies" is just one way they find out how others see them and find out what "being me" means.

Having your own personal smartphone or tablet from a young age means that children are able to personalise the device to suit their own unique needs Although children might share the device or show it to others, without their password and intimate knowledge of what is on the phone it would not be the same device if used by another person.

To some extent the mobile phone becomes an extended part of their self,[xvi] with an emotional attachment reinforced by the role the smartphone plays in their day to day life. They have come to rely on it for "emergencies" such as when they need to contact a parent to collect them from school or they have left their gym kit at home. While children might be accused of becoming too reliant on the mobile phone, it can be a great help in moments of anxiety when a helping hand by way of a text or phone call can alleviate a crisis.

Owning your first smartphone or tablet is a significant moment in a child's life. A child's life stages are various and short-lived as they move into new educational, social and civic domains, such as new school years, sports and youth clubs, religious communities and friendship groups. They will also be affected by the life changes occurring in their adult carers' worlds such as the arrival of a new baby or their parents separating.

Running as a common strand throughout most children's lives as they grow up and then beyond into adulthood, is the ubiquitous presence of their mobile or smartphone and the mobile media they use to communicate with each other, their friends, families, and their schools.

For many children this becomes the linchpin for their social well-being as they explore and understand their identity. This interaction with their phone on a daily basis results in the device being imbued with emotion and personal content.

4.6 Being Protected and Private

Developing social relationships, friendships, meeting new people, talking to "good" strangers online are all experiences that the children encounter when using their smartphones and tablets.

They are aware of the need to build up resilience and an understanding of the risks that they might encounter in exploring everyday life.

Children are a little less likely now than in 2010 to see the internet as an opportunity for private self-disclosure although about a third do use it to talk about things they would not face to face.

One of the findings from the comparative study of EU Kids Online and Net Children Go Mobile is that "it is not inevitable that

"For many children... this interaction with their phone on a daily basis results in the device being imbued with emotion and personal content."

increasing opportunities means increasing risk"[xvii] because there are some countries in which the level of risk online has declined.

These are the countries[2] that have been particularly successful in engaging governments and organisations in the debate regarding the safe use of the internet by children and where policy and regulations that set out to protect children are having a positive effect[xviii].

When children do encounter unexpected and inappropriate material they are sometimes shocked and disappointed that it has to be there at all[xix].

Many children do not know some of the people they meet online and for their parents especially this can be a worry. Apps or computer software that enable parents to find out where their child has been online are available but keeping track of this in real time, or who they are talking to is much more difficult. But parents can track their children when they are out and about. Location tracking via geolocation services is used by some parents so they can find out where their children are at all times such as in this example in from the UK.

Erica: *I don't keep [my phone] switched off because my parents have "Find My Friends" on there so that can track where I am so they're never afraid of me getting kidnapped or getting lost anywhere.*

(UK, 13 years, 2014)

It is questionable whether knowing a child's location at all times is a potential violation of privacy or protection but it would seem that some children are happy to know they are safe and if they come to harm a parent should be able to find them.

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[2] Includes Belgium Ireland, Italy, Portugal and UK.

5. Adult Mediation

"Two thirds of parents have suggested ways for their child to use the internet safely… Indeed, parents prefer far more to talk about internet safety than use parental controls"[xx]

Parents are worried. How can they negotiate supervision online when they have no idea what their child is doing? How can they raise their digital competences or should they just leave it to the teachers to sort things out? How can they guide and protect their children without intruding on their privacy and alienating them?

It is clear that some parents are very involved in the supervision of children while others have much less interest, or are (or believe they are) technically ill-equipped to supervise their children. Parents should be careful about restricting children too much as making rules can limit their skills. However, a complete lack of rules and controls can lead to the same anxieties about not knowing where your child is when they leave the house for a night out – where are they online? Are they safe?

Children will always push at the boundaries imposed by parents and schools and will seek to explore the internet without the intervention of adults. Children should be permitted to have their own privacy, and this includes online, but this does create tensions with parents regarding how far they can safely explore on their own.

Children are more willing and able to moderate their privacy settings online in 2014: more than half of 11-13 year olds (55 per cent) say they can change their settings (it was 43 per cent in 2010); among 14-16 year olds it is now 79 per cent[xxi].

The growing appreciation and understanding of what online privacy settings are for is helpful in both mediating safe use but also in giving children confidence to explore.

Parents are particularly influential in their children's choice of device and how much they are permitted to use it. Older children believe they should be trusted and in any case believe they know more about the internet than their parents. Yet digital self-confidence has decreased among 9-10 year olds of which only 10 per cent now believe they are more skilled than their parents – because their parents have become more skilled.

Adults need to be digitally literate too. Throughout Europe the proportion of children who think they know more

about the internet than their parents is decreasing and this is likely to continue as new generations of digitally literate young people become parents themselves.

Some of the children felt that their parents bought them devices that were more technologically advanced than they had a use for. Peer pressure between parents wanting their children to have the "latest thing" might influence their choice.

The transition from fixed to mobile online access has often been enabled by the purchase of a family tablet that is shared within the household but put away before bedtime. After a while many children will get their own tablet or smartphone and the shared family device turns to single use.

Teachers also have a significant role in promoting and supporting positive, safe and effective use of the internet in educational settings. Educators are being encouraged to develop whole school policies that incorporate the positive uses of technology whilst also providing training and awareness of risks and safety.

The limits of what is acceptable content and usage can be determined within an educational setting, perhaps more actively than in social or family settings where emotions can intervene.

As they become more aware of online opportunities adults are also beginning to see children and young people's use of the internet in a new light. At home parents possibly have more opportunity to know more about their child's online activities than teachers. Nevertheless it is important that adults' basic policy should be to embrace the internet and scaffold a learning pathway for children and young people rather than allowing concerns and moral panic to dominate.

6. Future Generations

Children have at least three generations of school life before they become adult – pre-school; primary school and high/ secondary school. With each school year they encounter new experiences and life events so that by the age of 16 they have also encountered many stepping stones and rites of passage in their lives.

While they learn to manage life from the experience and teaching of those older than themselves they also create new approaches to the newness of things they encounter unsullied by personal legacy and social conventions.

Future generations of children are perhaps only a few years apart and with commercial mobile media lifecycles on a similar, if not shorter, timeframe it is hardly surprising that children have become the early adopters and testers of new products and services.

While these meet their particular needs for entertainment, learning, and everyday life, most were not originally designed with their needs in mind (eg, Facebook, YouTube, Snapchat; WhatsApp; Ask-fm; Call of Duty). Furthermore, while the actual devices may be hand-me-downs or not always the latest model, it is the content they deliver that offers access to the latest and newest online functionality.

Children are now much more familiar with using smartphones and tablets and in particular how to integrate the devices so they can be used simultaneously to good effect.

Many children experience these devices and mobile media at a younger age than ownership figures indicate but mostly because they use their parent's smartphones to access limited features. As younger children grow up in households that have multiple digital devices they will be expected to quickly be the digital experts for their chosen device. Note that at this point the digital divide from the digitally disadvantaged will likely become even more acute.

Children take on particular roles within their peer groups that are also reflected in the ladder of online opportunities. Although the children's digital behaviours are not mutually exclusive it is clear that high users, are more adventurous, or more skilled and adept at using the technologies. These are the older and less risk-averse children. Given their propensity to enquire and seek new experiences, these groups of children could be the innovators and leaders for future generations of online users.

We can see there are groups of digitally literate children who have transferable skills. Some are willing to support and advise others on how to get the best from their phone; others like to show off their expertise, and some like to share and grow their skills and confidence jointly with others.

Although these children are inevitably at higher risk due to their high internet use, it is precisely because they explore beyond the boundaries of their knowledge that they represent the most active and experienced users.

In the four sections below we explore the ways some of these children could develop and progress mobile opportunities in ways that may benefit future generations.

6.1 Children as Advisors

Many children become interested in getting smartphones and tablets as a result of using other people's devices and seeking their advice on what is best for them.

These are the relatives and peers who provide help and information about using the internet, problem solving and generally overcoming difficulties others encounter on their digital excursions.

Children find out how to do things with their smartphones and tablets by asking someone they think knows how to do it. Sometimes it is a parent or carer but most often it will be another child. These advisors have a good knowledge of how things work and act as the mentors and advisors to other family members and children.

This group of boys talking about managing webcam hackers highlights both their knowledge and how they have come up with different solutions to the worry of having their webcam hacked:

Adrian: *Some hackers get into someone else's webcam, and they can see everything they are doing.*

Interviewer: *So there are possibilities, although you have it switched off, that…*

Alex: *That's right, that they can get into your system and switch it on, and they switch your computer on! For example I have an application on my mobile that if I have my computer connected to my mobile, I can have the computer desktop on the mobile so I can know what is going on even though I am somewhere else. If someone steals my*

computer I can know what is happening on the computer, and send it commands so that it switches off or whatever.

(Spain 14-16 years old 2010)

As an advisor, a child certainly needs to demonstrate digital literacy which means "not only the ability to understand digital information but also the ability to use digital information in a critical way and for personal benefit as well as to participate and contribute to the digital society".[xxii]

It is thus not a simple matter of knowing how it works and what to do. Provision of services in the national language of choice, especially for smaller language communities, will make digital media literacy skills more equitable throughout Europe.

In the future we can expect children to have the digital competencies to advise anyone who needs help or guidance to problem solve or learn new ways of doing things with the latest technologies.

6.2 Children as Explorers

Children who are explorers should be particularly strong at climbing the ladder of online opportunities and do not really mind too much if they encounter some hazards along the way. It is part of the fun.

These children probably like taking risks although they are likely to be well aware of the implications of going too far.

Children will push the digital boundaries of their devices. They also "pull" on digital capabilities from multiple sources using them to shape the way they digitally interact with each other. Some children use multiple devices talking, doing stuff, and listening on different devices simultaneously.

Exploring and pushing boundaries is not all about being on the edge of acceptable behaviours. One Italian boy looks at art websites for inspiration for his drawings, and another uses YouTube to look for tutorials to help him learn to play the drums. He says they are more than tutorials, they are proper music classes.

Another Italian boy appreciates the possibility of speaking in other languages when he is gaming online. Some of the other gamers do not speak Italian but it does not stop him playing "*anyway,*

even if you don't speak Italian, it is also easier to learn another language"

(Alessandro, Italy 14-16 years old 2010)

Zayn, from the UK, explains about how he meets people online by playing online games. He is not perturbed by the fact these are random strangers:

Zayn: *Yes, I play online on the computer, the way you can just chat to people and hear their conversations when they're talking to other players, and you can join in the conversation.*

Interviewer: *Does this tend to be with other people you know from school or just anybody.*

Zayn: *Just random people from all over the world.*

Interviewer: *And you find that interesting?*

Zayn: *Yes, because you get to meet new people and then just make new friends.*

(UK 14-16 years old 2010)

In Belgium, Caro, who is 11 years old, talks about what it is like to be a girl playing Call of Duty, a violent adult rated game. She seems to relish her successes and responds assertively to rude online criticism.

Interviewer: *So, what do you like about this game [Call of Duty]?*

Caro: *Killing people [laughs]. Well, you can have new weapons, and that's funny. I'm a young girl and the other players are all boys. And when I kill them they become very mad about that.*

Interviewer: *And did they say rude things to you?*

Caro: *Yes, one time, a Dutch guy told me "girl, you suck very much"*

Interviewer: *Oh, and what did you say then?*

Caro: *Well, I had more points than him, so I thought like "OK", and I told him he should first look at himself and see if he really can play the game.*

(Belgium 11 year old 2010)

Children who are explorers take risks, particularly in accepting friends they do not know and meeting up with people they meet online. Fabio, a 14-16 Italian boy explains:

Fabio: *Yes I met new friends, whom later I met face to face. then... well, yes, on the chat sometimes it pops up a message "people you might know"*

and there I see if I am interested in someone and I add this person

Interviewer: *But how did you get in touch with these people you had never met before? Have they sent you a request of friendship?*

Fabio: *Yes, sometimes it works like that, they add me, then it depends. If we have too many friends in common then I accept*

Interviewer: *so this is the criterion, if you share many friends with them?*

Fabio: *well, yes then it depends from personal taste, if someone... if you know someone is too old for you, if someone older, with a few contacts in common adds you, I don't think you should accept. For example yesterday I have been sent a request from someone whose name was The Stupid and we shared 9 friends. It could have been someone I met before, but for safety reasons I didn't add him.*

(Italy 14-16 years old 2010)

The challenge for children and adults alike is that what is hurtful and harmful for one child is exciting and fun for another.

It is clear that the risk of harm as children explore mobile opportunities can be damaging and finding a way to mitigate this is important if their investigative and enquiring approach is not to be stifled.

6.3 Children as Problem Solvers

Some of the intensive online users like to push the limits of their comfort zone and find solutions to the problems they encounter along the way.

While it is in part a thrilling and exciting experience, the children are well aware of the risks they are taking and they pull back from the interaction once it becomes potentially harmful. Indeed, with social networks in particular, they face daily challenges of determining what is real and what is fake, what is for fun and what is potentially harmful.[xxiii] They make decisions based on what they already know and what their friends know and they reflect positively upon these new experiences. While puzzling about the situations in which they find themselves they build resilience, and develop coping skills.

Application of these online skills enables them to grow and develop improved media literacy, as well as in confidence and the more confident they become the more resilient they become. Children with proactive online behaviours are also the most resilient.[xxiv]

They are motivated to fix problems when they have experiences online that upset them such as bullying or sexting. Mostly they block senders and delete messages or remove them as friends from social networks. Here some younger girls in Spain

talk about how they handled someone posting insulting messages about them:

Paula: *My mother told me the [SNS] was dangerous because if you send a joke to someone he/she may take it seriously, and you can get into trouble. Some girl sent me an insult in an emoticon. Then she said it was a joke and kept insulting us. After, she said that it was not her, it was a boy who had stolen her mobile.*

Interviewer: *And how did you feel when you got those things?*

Paula: *Well there were some girls who felt bad, who took it badly and who removed this girl from the group, although she said it hadn't been her.*

Natacha: *It must have been her, because what girl would lend their phone to another boy!*

Paula: *She said he had taken the mobile!*

Interviewer: *And you don't know whether to believe her or not…*

Natacha: *I don't believe that someone took the phone away from that girl and was talking to her friends, writing to them, I don't believe it. Also, she must have lent it, because if not she would have called the police, if they had taken her mobile.*

(Spain 9-10 years old 2010)

Children and young people who are problem solvers tend to be the more self confident online users and are enthusiastic explorers. They will develop strategies for coping with problems according to the risk at stake, which is important as more and more children will be talking and interacting with strangers online, as well as making decisions about what is, and what is not, appropriate content for them:

Interviewer: *So, you connect using your mobile… and alone, no? Because with your mobile nobody can see what you are doing, you connect and you can see what you want…*

Max: *If my mother wants to look at my mobile, I give it to her so that she can see whatever she wants, because I have nothing to hide.*

Interviewer: *Does she ask for it?*

Max: *No, I tell her "do you want to see my mobile?". And she doesn't need to see it. I offer her it and she knows that I am not doing anything wrong.*

Interviewer: *Anything wrong? So you think there can be bad things on the Internet…*

Max: *Of course, some people have bad stuff posted on the Internet; material that people can use to do bad things, you know? … Some people have photos of drugs. I don't know any, but people may have them. Not my friends, eh, because I don't hang around with that kind of people. I spend time with people who are ok.*

(Spain 14 year old 2010)

Pushing the limits of online activities is fun and as children mature in online experience and age, their media literacy skills are shaped and improved by their ability to navigate and mitigate potentially harmful encounters.

6.4 Children as Sharers

Children as sharers are not only lending or borrowing mobile devices, but also sharing the information they contain such as photos, apps and music.

We know that children become aware of mobile opportunities at a younger age than when they acquire their first device and so sharing portable devices and their contents are learned at an early age.

When children obtain their own smartphone or tablet they sometimes let other family members use it, or they may borrow more powerful or advanced models. They will also share a device such as when a friend has their phone confiscated, has run out of money or battery. Most commonly, however, they share content via a variety of apps or messaging modes or by simply handing over the phone or leaning in together to look at something.

The social networks and apps children use are based on sharing such as photos used in Snapchat or posted on Facebook. Sharing allows the children to have a similar experience and something in common with each other such as via class groups set up on Twitter, Whatsapp or Facebook that allow homework, news, and updates on activities to be communicated to all:

Matteo: *My class, we created a group on Facebook and we discuss about everything, or, also, when someone misses class we communicate the list of assignments*

(Italy 14-16 years old 2010)

In Italy while Facebook was the preferred group SNS in 2010 WhatsApp has replaced it[xxv]; the need for group communication persists but the media used changes with time, technology, fashion and affiliations.

Keeping contact with each other is maintained by taking photos such as of meals or places they visit and posting them on Instagram or other social media:

Hugo: *it's funny… for instance, we went to a very nice restaurant… the food was nice, well, you can take [a photo] since you are going to Mac[Donald's] everyday*

Gil: *that is more for Instagram, Instagram is like your daily life'*

(Portugal 14-16 year old 2014)

The use of Instagram is typical of the phatic communications that pass between children and young people enabling a continual sociability without being explicit about it. The updates of meals and places visited become an expected part of their relationships.

Photos taken and stored on smartphones and tablets are also used as an aide memoir when catching up with friends. Two 16 year old UK girls are close friends but are at different schools. They maintain their friendship with texts and social networks and when they see each other they scroll through all the photos they have taken since they were last together so they do not forget anything that has happened. They lean over their phones looking at the images which they share as form of ritual exchange.

Sharing in these ways is a form of gift giving. Teens' "phone mediated activities can be understood in terms of the obligations of exchange: to give, accept and reciprocate"[xxvi]. Taking the initiative to share devices and content is just the beginning of a reciprocal, and mutually consensual arrangement that sustains friendships and other relationships.

Children as sharers and "problem solvers" are exemplary of the online communities that have been growing since the inception of the World Wide Web. As well as their own social groups children participate in the broader online communities to play games such as Minecraft or Call of Duty, to read news media or to search for information such as on Wikipedia (see in section 4.4.).

Some of the children have a healthy scepticism about the accuracy of all the content on Wikipedia which shows their engagement in this successful worldwide online community. Some people who participate in Wikipedia take it seriously because they recognise their role in making it work through a sense of obligation and shared expectations[xxvii]. These are values shared by many of the children and young people that we met in our research.

Sharing in collaborative online space and being part of civic communities is a positive example of online engagement and one in which many children are already getting involved.

6.5 Future Mobile Opportunities

The future mobile digital world promises even more technological change as products become accessible to younger age groups.

These kinds of future opportunities vary widely delivering a range of uses such as:

• Oculos Rift[3] used for 3D gaming;

• real time connectivity via wearable devices based on what you are seeing or feeling;

• 3D Printers producing edible as well as complex technological artifacts;

• education or health checks via humanoid Social Robots[4];

• geotracking bands to keep an eye on children as well as for emergencies;

• 5D[5] and 5G[6] technologies that provide immersive virtual reality via the "internet of things".

These future opportunities also reflect a use of past technologies that combine, often in ways for which they were not originally designed.

At the turn of the 21st century "Smart Homes" were all the rage; electronic devices that remotely turned on and off lights, drew curtains, managed security; informed you when your fridge was empty; the opportunities were endless to help manage everyday life while away and when at home.

What appears to have happened, however, is that although there are a few Smart Homes, the real "Smart" technology impact has been on the occupants of those homes and how they are able to use it to control much more than just pulling the curtains in their daily lives.

Beyond the home we have also seen the development of "smart cities" and plans towards "smart nations" as technologies are embedded in seemingly every facet of everyday life.

What might be the opportunities for future 9-16 year olds following the inevitable introduction and convergence of more new technologies that aim to help manage and balance the demands of everyday school and home-life, and contribute to managing the needs of older citizens?

All these future plans and ideas provide children and young people with multiple opportunities to augment their mobile digital skills now and into the future.

"Sharing in collaborative online space and being part of civic communities is a positive example of online engagement and one in which many children are already getting involved."

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[3] Oculos Rift – www.oculus.com/ 3D gaming headsets.
[4] Social Robots – machines that interact with humans to assist with day to day activities
[5] 5D – immersive virtual reality experience involving all the senses
[6] 5G – next generation wireless technology, includes "internet of things" connecting machines with machines as well as humans.

7. Recommendations for Shaping Policy

So far the mobile internet has been largely self-regulated. But it is still possible to have positive ideas about shaping policy without suggesting rigid controls.

There are a large number of specific and detailed policy recommendations[xxviii] contained within both the EU Kids Online and the Net Children Go Mobile studies. These can be found in the numerous reports available from the projects' websites: **www.eukidsonline.net** and **www.netchildrengomobile.eu**. Summary recommendations appear in "Children's Online Risks and Opportunities Report, Comparative findings from EU Kids Online and Net Children Go Mobile" (Livingstone et al 2014) under the headings:

• Parents

• Children and Young People

• Educators

• Awareness Raisers and Media

• Governments

• Industry

These emphasise the importance of encouraging positive uses of the internet, maximising the benefits that the internet affords; ensuring skills training; increasing awareness of opportunities and risks; coordinating industry and regulatory efforts, and providing greater standardisation and improved commercial content.

This section adds to these positive policy outcomes with recommendations for shaping policy to encourage further positive policy actions. These recommendations address mostly deficiencies or restrictions in opportunities that have been expressed by the children and adults:

• **Education: a collective approach to scaffolding opportunities in educational settings that delivers age-related ways for children to make the most of the internet.** These should be used to respond to and shape the school curriculum, social development and civic engagement and are needed to allow children to positively and safely explore the internet.

• **Costs: transparency of online charges with more (free) WiFi access out and about.** Clear understandable costs for the user and the bill payer are essential for all chargeable online services and especially those delivered out and about where costs may not be obvious such as when using free WiFi.

• **Resilience: more opportunities for self-regulation and problem solving to develop media literacy.** The more online problems children encounter the more they can gain from the experience of using the internet, social networks and finding solutions to problems

• **Content: the importance of ensuring more positive content for younger age children.** This should include content that does not require them to navigate through material that is unsuitable for their age or of the younger children with whom they may be sharing their online experiences.

• **Deliver creative solutions for improving online access for children and young people to overcome inequalities.**

"The more online problems children encounter, the more they can gain from the experience of using the internet, social networks and finding solutions to problems."

Creative solutions to support these recommendations have been highlighted by some of the children and young people we met in our studies:

• **Enable creative individualised spaces to allow children's online experience to grow with their devices,** perhaps earning the next level with skills measures similar to gaming. At the same time, skills about safe use of the device can also be introduced in such a way that children can be expected to take responsibility for their actions. Young children especially are sharing family tablet devices and this shared use would benefit from a more flexible access approach that allows all members of one family to have their own access code, for example, that unlocks the right privileges on a shared device.

• **Delivery of the content in the language of choice** would unleash creative talents of European children who do not read English, especially those within smaller language communities by delivering content targeted at early age upwards. More skills and improved digital literacy from younger ages means the demands of online content are in constant flux and currently children are less satisfied with what is available for them in languages other than English.

The mobile internet has already had a positive effect in opening new doors to children in encouraging them to explore positive online opportunities and develop skills as well as taking personal responsibility for their safety online. Future policy should not limit these endeavours.

8. Background and Sources

EU Kids Online is a thematic network of 33 countries that aims to enhance knowledge of European children's online opportunities, risks and safety. From 2009-2011 it conducted a 25-country survey of children and parents across Europe, examining their online activities, skills, risks and safety. It has also developed a European Evidence Database of 1,500+ studies, a Research Toolkit for researchers, and a body of qualitative research to inform and interpret the survey findings.

Countries included: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia Finland, France, Germany, Greece, Hungary, Italy, Ireland, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Turkey, UK.

Website: **www.eukidsonline.net**

Technical Report on Survey: **http://eprints.lse.ac.uk/45270/**

Net Children Go Mobile is a project across 9 countries (Belgium, Denmark, Germany, Ireland, Italy, Portugal, Romania, Spain and the UK) that aims to investigate the changing conditions of internet access and use as smartphones, tablets and other mobile devices become more widespread. It asks how these affect children's online safety whether negative and positively. In 2013-2014 it conducted a survey and qualitative research focusing on children's uses of mobile technologies.

Website: **www.netchildrengomobile.eu**

Both projects are funded by the European Commission's Better Internet for Kids Programme.

Polis is the international media and society think-tank in the Department of Media and Communications at the London School of Economics and Political Science.

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