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Cross-national comparison of risks and safety on the internet: initial analysis from the EU Kids Online survey of European children

Report

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THE LONDON SCHOOL
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POLITICAL SCIENCE

Cross-national comparison of risks and safety on the internet

Initial analysis from the *EU Kids Online* survey of European children

August 2011



Bojana Lobe, Sonia Livingstone, Kjartan Ólafsson and Hana Vodeb with members of the *EU Kids Online* network

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- Hasebrink, U., Görzig, A., Haddon, L., Kalmus, V. and Livingstone, S. (2011) *Patterns of risk and safety online. In-depth analyses from the EU Kids Online survey of 9-16 year olds and their parents in 25 countries*.
- Görzig, A. (2011) *Who bullies and who is bullied online? A study of 9-16 year old internet users in 25 European countries*.
- Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*.
- Garmendia, M., Garitaonandia, C., Martínez, G. and Casado, M.A. (2011) *Riesgos y seguridad en internet. The Spanish report*.
- Livingstone, S., Ólafsson, K. and Staksrud, E. (2011) *Social networking, age and privacy*.
- Sonck, N., Livingstone, S., Kuiper, E. and de Haan, J. (2011) *Digital literacy and safety skills*.
- Livingstone, S. and Ólafsson, K. (2011) *Risky communication online*.
- O'Neill, B., Grehan, S. and Ólafsson, K. (2011) *Risks and safety on the internet: The Ireland report*.
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All can be freely downloaded from www.eukidsonline.net See also the project book, Livingstone, S. and Haddon, L. (eds) (2009) *Kids online: Opportunities and risks for children*, Bristol: The Policy Press.

EU Kids Online II: Enhancing Knowledge Regarding European Children's Use, Risk and Safety Online

This project has been funded by the EC Safer Internet Programme, http://ec.europa.eu/information_society/activities/sip/ from 2009-2011 (contract SIP-KEP-321803). Its aim is to enhance knowledge of European children's and parents' experiences and practices regarding risky and safer use of the internet and new online technologies in order to inform the promotion among national and international stakeholders of a safer online environment for children.

Adopting an approach which is child-centred, comparative, critical and contextual, EU Kids Online II has designed and conducted a major quantitative survey of 9-16 year olds experiences of online risk in 25 European countries. The findings will be systematically compared to the perceptions and practices of their parents, and they will be disseminated through a series of reports and presentations during 2010-12. For more information, and to receive project updates, visit www.eukidsonline.net

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KEY FINDINGS

Report aims and purpose

This report examines the cross-national differences between the 25 countries included in the *EU Kids Online* project. The core of the project is a rigorous and detailed in-home, face-to-face survey with 1,000 children aged 9-16 in each country. Top-line findings for the survey are reported in:

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings.*

This report offers a further analysis of these survey findings, focused on cross-country comparisons. It asks the following key questions:

- What are the main differences in children's online use, activities, skills, risks and harm across the 25 countries surveyed?
- How far can these differences be accounted for by external country-level factors (such as broadband penetration, education, GDP, etc)?

It is paired with a parallel report, published simultaneously (August 2011), *Patterns of risk and safety online*, which examines cross-national similarities among children's experiences of the internet in Europe, focusing on individual and group-level differences (age, gender, parental education).

The intended audience for both reports is researchers and research users. The reports include primary statistical analysis in order that the basis for the project's conclusions is clearly explained and accounted for.

To address policy stakeholders more widely, both reports will be followed, in September 2011, by a report discussing the policy implications of these individual and country-level comparisons of children's experiences.

The findings of the present, cross-national comparative report are summarised in this section.

Children's use of the internet

- In countries where children have more mobile and/or private access to the internet, average time spent online is generally higher. However, in some countries, although mobile/private access is high, usage remains lower (for example, Germany, Austria, Portugal and, especially, Ireland).
- In countries where both access and use are relatively low, it may be anticipated that with increased flexibility in access (as the market develops), children's time online will rise (for example, Turkey, Spain, France).
- Indeed, the common pattern across Europe is for children to spend more time online on a typical day the more years children in that country have been online. Or, to put it differently, as children gain access to the internet at younger and younger ages, the time they spend online is rising.
- Interesting exceptions are those countries where even though internet use is relatively recent, children are already spending a lot of time online (for example, Bulgaria, Cyprus, Romania).

Children's online skills and activities

- Children report the highest levels of digital literacy and safety skills in Finland, Slovenia and the Netherlands. Their digital skills are reportedly the lowest in Romania, Italy and, especially, Turkey.
- What do children do online? Their activities vary considerably by country both in terms of the number and the types of activities. If children are classified according to the types of activities they do, then the percentage of users in each country that can be classified as 'advanced or creative users' ranges from 14% in Romania to 50% in Sweden.
- At the other end of this 'ladder of opportunities' are children whose internet use is mostly

confined to relatively simple and very common activities (such as playing games on their own or watching video clips). This ranges from 39% of users in Turkey and Ireland to 11% of users in the Czech Republic.

- Self-reported digital literacy and safety skills are generally related to diversity of online activities. It was found that at the country level there is a positive correlation between the self-reported skills and diversity of online activities ($r=0.47$), and the correlation between skills and activities is even stronger at the individual level ($r=0.55$). In general, countries where children report a higher level of digital skills also display a wider repertoire of online activities, and vice versa.

Excessive use

- The term 'excessive internet use' describes problematic behaviour associated with use of the internet or related digital technologies. In Estonia and Portugal around half of all children report experiencing at least one form of excessive use 'very' or 'fairly often'. The lowest percentage of children reporting one or more forms of excessive use is in Italy, followed by Hungary and Germany (around or below 20%).
- Across Europe, 15% of children aged 9-16 agree that 'I have caught myself surfing when I am not really interested'. Portugal and Cyprus have the highest proportion of children that 'have gone without eating or sleeping because of the internet', followed interestingly by Ireland, despite Irish children spending on average the least time online.
- Bulgaria has the highest number of children that say 'I have felt bothered while I cannot be on internet', followed by Portugal and Estonia.
- In most countries, more time spent online (in minutes) is straightforwardly associated with higher proportions of children who report excessive use. However, in Denmark and Italy, the strongest predictor of excessive use is children's emotional problems (measured by a subscale of the Strengths and Difficulties Questionnaire, the SDQ). In Belgium, Bulgaria and Portugal, the most important predictor of children's excessive use is the risky offline activities that they engage in. In Austria and Spain, the breadth of online communication use is what accounts for children's excessive internet use.

Risk and harm

- In general, countries with high levels of internet use also have the highest percentage of children who have encountered risks on the internet.
- The highest percentage of risks experienced by children is found in North East Europe (Estonia and Lithuania), closely followed by Sweden and Norway. Countries with the lowest risk encountered online are West and South European countries, the lowest percentage being in Turkey, Portugal, Greece and Italy.
- Encountering risk does not necessarily result in an experience of harm. Nor does the country figure for the likelihood of encountering a risk as harmful necessarily reflect the country likelihood of encountering the risk (which, across Europe, is generally fairly low).
- The analysis shows that the percentage of children that have experienced any harm due to being exposed to risk varies by type of risk as well as country:
 - Among those who have seen sexual images, more children are upset by this in Turkey, Estonia and the Czech Republic, followed by Slovenia and the Netherlands.
 - Among those who have been bullied online, the percentage of children who have been upset by this is highest in Denmark, the UK, Sweden and Romania.
 - Receiving sexual messages has bothered the highest percentage of children in Turkey, Romania and Estonia, out of those who encountered sexual messages.
 - Going to a face-to-face meeting with someone met on the internet seems to be generally harmless in nearly all European countries, with a slightly increased likelihood of being upset by such an experience in Turkey.
- Interestingly, the countries in which children are more likely to talk to someone about harm they have experienced online are not the countries with the highest proportion of harmful experiences.
- Talking to someone about a harmful online experience is more common among children from France, the Netherlands, Italy, the UK and Portugal. It is least common in Sweden, Ireland, the Czech Republic, Poland and Norway. In



Nordic countries, where the proportion of harmful experiences is highest, children are less likely to talk to someone about it – this contrasts with Italy where the amount of reported harm is low and the likelihood of discussing it with someone when it does happen is high.

Seeing sexual images

- Across Europe, 14% of 9- to 16-year-olds have in the past 12 months seen images online that are 'obviously sexual – for example, showing people naked or people having sex'.¹
- Thus only a minority of children across Europe had seen any sexual images online, the greatest exposure to sexual images online is among children in Northern European countries (Norway, Denmark, Sweden, the Netherlands and Finland) and Eastern European countries (the Czech Republic, Lithuania, Estonia and Slovenia). Least exposure is in large, 'older' members of the EU – Germany, Italy, Spain, Ireland and the UK.
- In general, the higher the percentage of children in a country who have seen sexual images on websites, the lower the percentage who have been bothered by seeing such images. This suggests that exposure results in a degree of resilience. Estonia is a notable exception from this overall pattern, with not only relatively more children having seen sexual images but also relatively more of these children saying that they have been bothered by seeing these images.
- What explains exposure to the range of types of sexual images online? In the majority of countries, risky offline activities account for a greater likelihood of seeing sexual images. In other words, the more children encounter offline risks, the more likely they are to encounter sexual images online. In Belgium, Romania, Sweden and the UK, the most relevant predictor of exposure is risky online activities (such as seeking out new friends online, disclosing personal information to others, etc). In Hungary, children's level of sensation seeking (as a personality variable) is the most important predictor. The range of activities children do online is the most important predictor in the

Netherlands and Portugal, where the higher number of online activities leads to a higher risk of exposure to sexual images online. The child's gender is the most important predictor in Greece, where girls encounter fewer sexual images online than boys.

Bullying

- In relation to online bullying, 6% of 9- to 16-year-olds have been sent nasty or hurtful messages online, and 3% have sent such messages to others. Over half of those who received bullying messages were 'fairly' or 'very upset'.²
- In general, the European average is low, meaning that few children across Europe had experienced any kind of online bullying. The majority of countries are below that average, Portugal and Italy having the lowest level. The highest level of bullying is experienced in Estonia and Romania, followed by Denmark and Sweden.
- In most countries, between 70 and 90 percent of children who have encountered bullying on the internet say that they have been a bit, fairly or very upset by this experience. Finland and Bulgaria are noteworthy exceptions as they are not only below average in terms of children who have encountered bullying but also below average in terms of the extent to which those who experienced it found it upsetting.
- What explains more or less bullying online? In the majority of countries, having acted as a perpetrator by either bullying or sending sexual messages to other children is the factor that explains more encounters with bullying online. Specifically, children in Austria, Belgium, Cyprus, the Czech Republic, France, Ireland, Lithuania, Norway and Romania are significantly more likely to experience bullying because they have themselves bullied or sent sexual messages to someone. In Bulgaria, Denmark, Poland, Portugal and Sweden, the most relevant predictor is risky online activities (i.e. those who take do more risky activities online are more likely to be bullied online). In Spain, Finland and Lithuania, the child's gender is the

¹ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

² Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

most relevant factor predicting bullying, with girls being more likely to encounter online bullying than boys. In Greece, Hungary, Italy and Slovenia, the most important predictor is usage – insofar as children in these countries spend more time on the internet, they are more likely to encounter bullying.

‘Sexting’

- Fifteen per cent of 11- to 16-year-olds have received peer-to-peer ‘sexual messages or images [meaning] talk about having sex or images of people naked or having sex’, and 3% say they have sent or posted such messages.³
- In half of the countries across Europe, the risk of receiving sexual messages is below average, with Italy having the lowest level. The highest risk of sexting is encountered in Romania, the Czech Republic and Norway, followed by France, Estonia and Lithuania. The findings suggest that the majority of children across countries have not encountered sexting.
- In general, for countries where more children have seen or received sexual messages, a smaller proportion of those who have say that they have been bothered by these messages. As with seeing sexual images, this suggests that exposure results in some resilience. Turkey, Romania and Estonia are an exception as the proportion who are bothered is considerably above the average in these countries.
- What explains receiving sexual messages? In the majority of countries, the children who experience risky offline activities are also more likely to receive sexual messages. In Belgium, Bulgaria, Greece, Romania, Slovenia, Spain and the UK, the most relevant predictor is risky online activities, followed by the number of online activities they engage with.

Meeting online contacts offline

- Thirty per cent of European children aged 9-16 who use the internet have communicated in the past with someone they have not met face-to-face before, but only 9% of children have met

an online contact offline in the past year. One per cent of all children (or one in nine of those who went to a meeting) were bothered or upset by such a meeting.⁴

- Children are most likely to have gone to an offline meeting with a contact first made online in some of the Baltic countries (25% in Estonia and 23% in Lithuania). Such offline meetings are least common in Turkey (3%), followed by Italy and Ireland (each 4%).
- Estonia and Lithuania have the highest percentage of children who made a contact first online and have then gone to an offline meeting with them. In Norway, Sweden, Finland, Denmark, Germany, Austria and the Czech Republic, children tend to keep some of the online contacts only online and have not gone on to meet them face-to-face. Countries with a relatively low percentage of children who first meet someone online and then meet them face-to-face are Turkey, Italy, Ireland, the Netherlands and the UK.
- In general, the more children meet online contacts offline, the more children report having been bothered after going to such meetings. This contrasts with the finding for sexual images and messages, and suggests that meeting online contacts offline has a different relation to resilience and harm. Turkey has both the lowest percentage of children who have met online contacts offline and the highest percentage among those who went to such meetings who were upset or bothered by it. In Poland, Ireland, Spain and Portugal, there are relatively few children who meet online contacts offline but relatively more of those who do so are upset or bothered by the experience. In contrast, children in Sweden, Norway and Austria are more likely to meet online contacts offline but less likely to report that they have been bothered by the experience.
- What explains meeting online contacts offline? In Austria, Belgium, Denmark and Sweden, the most relevant predictor of meeting online contacts offline is the child’s risky online activities. In Bulgaria and the Czech Republic, pretending to be somebody else online is the most important predictor of going to offline

³ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

⁴ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

meetings with online contacts - those who are less likely to pretend to be someone else are more likely to experience such meetings. In some countries (Greece, the Netherlands, Portugal and Romania), self-efficacy is the strongest predictor. In Bulgaria and France, sending a photo or video is the most important predictor. In France and Norway, measures of use, such as number of minutes spent online each day, play a crucial role in predicting such meetings. In Germany, the younger the children are, the more likely they are to go to a meeting. In Hungary and Lithuania, the older the child, the more likely the child is to meet an online contact offline. In Finland, those children who are internet savvy (saying, 'I know lots of things about using the internet') are more likely meet face-to-face with people whom they first met online. More risky offline activities were also significant, with the independent variable 'had so much alcohol that I got really drunk' having the biggest impact in Slovenia. Sensation seeking seems to have the strongest influence on offline meetings with people first met online in Spain and Ireland.

Classifying countries by use and risk

Although in reality countries are subtly graded in terms of amounts and types of use and risk, we here group them for ease into four categories or 'ideal types'. Overall, it is striking that high internet use is rarely associated with low risk; and high risk is rarely associated with low use. Rather, the more use, the more risk.

- 'Lower use, lower risk' countries (Austria, Belgium, France, Germany, Greece, Italy, Hungary) – here children make the lowest use of the internet, and they are below average on all risks apart from meeting online contacts – online and offline; still, it may be expected that as levels of use rise in these countries, so too will risk.
- 'Lower use, some risk' countries (Ireland, Portugal, Spain, Turkey) have the lowest internet usage, although there is some excessive use of the internet and some problems with user-generated content.
- 'Higher use, some risk' countries (Cyprus, Finland, the Netherlands, Poland, Slovenia, the UK) make high use of the internet but are high only on some risks, possibly because of effective awareness-raising campaigns, regulatory strategies or strategies of parental mediation of children's internet use.

- 'Higher use, higher risk' countries (Bulgaria, Czech Republic, Denmark, Estonia, Lithuania, Norway, Romania, Sweden) include both wealthy Nordic countries and Eastern European countries (better called, 'New use, new risk').

Explaining differences across countries

- Wealthier Nordic countries, the UK and the Netherlands have the highest internet usage across Europe, along with the countries with lower GDP but recent introduction of broadband, such as Bulgaria, Romania, Lithuania, Estonia and the Czech Republic.
- Children in wealthier Nordic countries are also significantly more likely to have experienced a higher degree of online risk. In Italy, Spain, Ireland and the UK, higher GDP is not associated with an increased level of online risk. Children in Lithuania, Estonia and the Czech Republic have encountered more risk despite low GDP. Across all countries, however, the general trend is for a positive and significant effect of GDP per capita on a degree of risk within a country.
- Countries with more press freedom (that is, a low press index score) such as Norway, Denmark and Sweden, are more likely to have children who make more use of the internet. Turkey, the country with the lowest press freedom, has among the lowest usage among children in the 25 European countries surveyed.
- Countries with more press freedom, such as Nordic and Baltic countries, are also significantly more likely to encounter a high degree of online risk. These findings suggest that in countries with more press freedom there is less internet censorship, which could result in more online risk for children. However, Slovenia is an example of a country with less press freedom and more online risk.
- Children from countries with a higher broadband penetration are significantly more likely to have experienced more online risk (for example, Nordic countries and Estonia). Eastern European countries, such as Bulgaria and Romania, experience high degree of online risk despite a lower broadband penetration. There also seem to be countries (Ireland, Spain, the

UK and Germany) in which, despite the high broadband penetration, the risks are lower.

- In Nordic countries and the UK, where 50% of households have had access to the internet for at least six years, daily use of the internet by children is among the highest. Similarly, daily use is relatively high in countries with newer use of the internet such as Baltic and Eastern European countries.
- Other countries with a longer period (more than 3.5 years) since 50% of households had access to the internet are significantly more likely to experience more online risk (Slovenia, the Nordic countries and Estonia). Ireland and the UK are countries with more years of use and a lower degree of risk. Countries with less than 3.5 years since 50% of households had access to the internet are significantly less likely to encounter online risk. The only two countries with more recent use and high risk are the Czech Republic and Lithuania.
- Neither the country-level variables of expected years of schooling nor the percentage of schools that offer and use computers in classrooms have a significant effect on online usage or online risk. However, these factors have a positive and significant effect on children's digital literacy and safety skills. In countries with 15 years of expected schooling or more, children are more likely to have above-average digital skills. Similarly, children from countries with a higher percentage of schools that offer and use computers in classrooms (above 45% of schools or more) are significantly more likely to have better digital skills.

Note on methodology

- This report is the work of the *EU Kids Online* network, coordinated by the London School of Economics and Political Science (LSE), with research teams and stakeholder advisers in each of the 25 countries and an International Advisory Panel. It was funded by the European Commission's Safer Internet Programme in order to strengthen the evidence base for policies regarding online safety.
- Countries included in *EU Kids Online* are Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland,

Portugal, Romania, Slovenia, Spain, Sweden, Turkey and the UK.

- The report is based on a new and unique survey, designed and conducted according to rigorous standards by the *EU Kids Online* network. A random stratified sample comprised 25,142 children aged 9-16 who use the internet, plus one of their parents, interviewed during Spring/Summer 2010 in 25 European countries.
- In this report, 'children' refers to internet-using children aged 9-16 across Europe. 'Using the internet' includes any devices (fixed or mobile) by which children go online and any places in which they go online (at home or elsewhere). The pan-European findings are weighted by population statistics.
- The survey investigated key online risks: pornography, bullying, receiving sexual messages, contact with people not known face-to-face, offline meetings with online contacts, potentially harmful user-generated content and personal data misuse.
- Risk does not necessarily result in harm, as reported by children. Children who use the internet were asked if they had encountered a range of online risks and then, if they had been bothered by this, where 'bothered' was defined as something that '*made you feel uncomfortable, upset, or feel that you shouldn't have seen it*'. Findings vary by child (for example, age, gender), country and risk type, so generalisations should be treated with caution.
- It is particularly difficult to measure private or upsetting aspects of a child's experience. The survey was conducted in children's homes, as a face-to-face interview. It included a self-completion section for sensitive questions to avoid being heard by parents, other family members or the interviewer.
- This report is titled 'initial findings' as the *EU Kids Online* network will continue to work on country and individual level comparisons in the coming months. For full details and availability of the project methodology, materials, technical fieldwork report and research ethics, see www.eukidsonline.net.

1. INTRODUCTION

1.1. Context

The rapidity with which children and young people are gaining access to online, convergent, mobile and networked media is unprecedented in the history of technological innovation. Parents, teachers and children are acquiring, learning how to use and finding a purpose for the internet within their daily lives. Stakeholders – governments, schools, industry, child welfare organisations and families – seek to maximise online opportunities while minimising the risk of harm associated with internet use.

Diverse and ambitious efforts are underway in many countries to promote digital technologies in schools, e-governance initiatives, digital participation and digital literacy. As many families are discovering, the benefits are considerable. Children, parents, schools and public and private sector organisations are exploring new opportunities for learning, participation, creativity and communication.

Previous *EU Kids Online* research identified a complex array of online opportunities and risks associated with children's internet use.⁵ The classification distinguishes content risks (such as seeing sexual images, in which the child is positioned as recipient), contact risks (such as meeting online contacts offline, in which the child in some way participates, if unwillingly) and conduct risks (such as online bullying, where the child is an actor).

Interestingly, the risks of concern to children are often not those that lead to adult anxiety.⁶ Also, it appears that the more children go online to gain benefits, the more they may encounter risks, accidentally or deliberately.⁷

Risks may arise when children are sophisticated, confident or experimental internet users, as observed in 'high use, high risk' countries, or when, as in 'new use, new risk' countries, children gain internet access in advance of an infrastructure of awareness raising, parental understanding, regulation and safety protection. So, although the popular fear, that the internet endangers all children, has not been supported by evidence, there are grounds for concern and a need for intervention.

Further, despite the popular rhetoric of 'digital natives', many children still lack resources to use the internet sufficiently to explore its opportunities or to develop vital digital literacy and safety skills.⁸ It is therefore important to encourage and facilitate children's confident and flexible internet use. Stakeholders are faced with a difficult balancing act: promoting online opportunities without careful attention to safety may also promote online risk, but measures to reduce risk may have the unintended consequence of reducing opportunities.⁹

1.2. This report

This report presents the findings for *EU Kids Online Deliverable D6: Cross-national Comparison of Risks and Safety on the Internet*, conducted by the *EU Kids Online* network and funded by the European Commission's (EC) Safer Internet Programme.¹⁰

The *EU Kids Online* project aims to enhance knowledge of European children's and parents' experiences and practices regarding risky and safer use of the internet and new online technologies, and thereby to inform the promotion of a safer online environment for children.

It has generated a substantial body of new data – rigorously collected and cross-nationally comparable – on European children's access, use, opportunities, risks and

⁵ See Livingstone, S. and Haddon, L. (2009) *EU Kids Online: Final report*, LSE, London: EU Kids Online. (<http://eprints.lse.ac.uk/24372/>). See also Livingstone, S. and Haddon, L. (2009) *Kids online: Opportunities and risks for children*, Bristol: The Policy Press.

⁶ Optem (2007) *Safer internet for children: Qualitative study in 29 European countries*, Luxembourg: European Commission.

⁷ Livingstone, S. and Helsper, E. (2010) 'Balancing opportunities and risks in teenagers' use of the internet', *New Media & Society*, 12(2): 309-29.

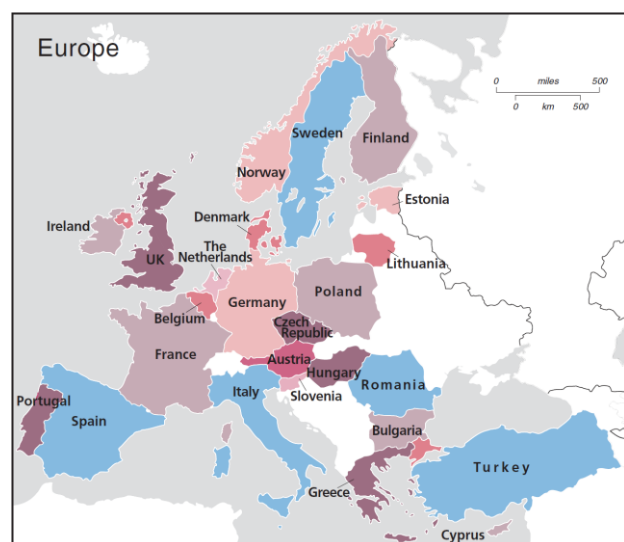
⁸ Helsper, E. and Eynon, R. (2010) 'Digital natives: where is the evidence?', *British Educational Research Journal*, 36(3), 502-20.

⁹ Livingstone, S. (2009) *Children and the internet: Great expectations, challenging realities*, Cambridge: Polity Press.

¹⁰ Finnish participation was separately funded by the Finnish Ministries of Education and Culture and of Transport and Communications.

safety practices regarding the internet and online technologies. Significantly, findings come from interviews conducted directly with children from 25 countries across Europe (see Figure 1).

Figure 1: Countries surveyed by EU Kids Online



This report examines the cross-national differences between the 25 countries included in the *EU Kids Online* project. The core of the project is a rigorous and detailed in-home, face-to-face survey with 1,000 children aged 9-16 in each country. Top-line findings for the survey are reported in:

Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings.*

This report offers a further analysis of these survey findings, focused on cross-country comparisons. It asks the following key questions:

- What are the main differences in children's online use, activities, skills, risks and harm across the 25 countries surveyed?
- How far can these differences be accounted for by external country-level factors (such as broadband penetration, education, GDP, etc)?

It is paired with a parallel report, published simultaneously (August 2011). Entitled *Patterns of risk and safety online*, this examines cross-national similarities among children's experiences of the internet in Europe, focusing on individual and group-level differences (age, gender, parental education).

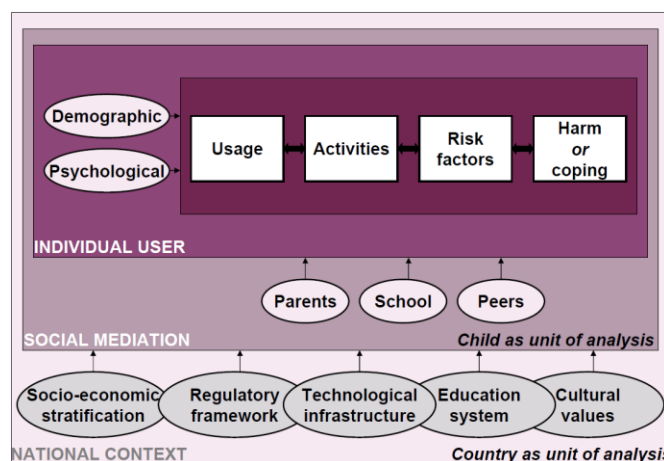
The intended audience for both reports includes researchers and research users. The reports include primary statistical analysis in order that the basis for the project's conclusions is clearly explained and accounted for.

To address policy stakeholders more widely, both reports will be followed, in September 2011, by a report discussing the policy implications of these individual and country-level comparisons of children's experiences.

1.3. Project design

Within the wider context just outlined, this report is organised according to a hypothesised sequence of factors relating to internet use that may shape children's experiences of harm. Figure 2 traces the core of our analysis, from children's internet use (amount, device and location of use) through their online activities (opportunities taken up, skills developed and risky practices engaged in) to the risks encountered.

Figure 2: Relating online use, activities and risk factors to harm to children



The factors hypothesised to increase risk of harm include encountering pornography, bullying/being bullied, sending/receiving sexual messages (or 'sexting'¹¹) and going to offline meetings with people first met online. Also included are risks linked to negative user-generated content and personal data misuse. Last, we ask how children respond to and/or cope with these experiences,

¹¹ The term originated in relation to mobile phone practices and was later applied to online messages. See Sacco, D.T., Argudin, R., Maguire, J. and Tallon, K. (2010) *Sexting: Youth practices and legal implications*, Cambridge, MA: Berkman.

recognising that to the extent that they do not cope, the outcome may be harmful.

As shown in Figure 2, many external factors may also influence children's experiences. Three levels of influence may discriminate among children, shaping the path from internet use to possible harm:

- Demographic factors such as the child's age, gender, socio-economic status (SES) and psychological factors such as emotional problems, self-efficacy and risk-taking.¹²
- Social factors that mediate children's online and offline experiences, in particular the activities of parents, teachers and friends.
- National context – a range of economic, social and cultural factors are expected to shape the online experience as shown in the model; examining the role of these remains for a later report.

1.4. Methodology

A total of 25,142 children who use the internet were interviewed, as was one of their parents, during Spring/Summer 2010, across 25 European countries.

Full details of the project's methods are provided in the Technical Report (which is available online at www.eukidsonline.net).

Key features include:

- Two rounds of cognitive testing, in addition to piloting, to check thoroughly children's understandings of and reactions to the survey questions.
- Random stratified survey sampling of 1,000 children (aged 9-16) per country who use the internet.
- Survey administration at home, face-to-face, with a self-completion section for sensitive questions.
- A detailed survey that questions children themselves, to gain a direct account of their online experiences.
- Equivalent questions asked of each type of risk to compare across risks.
- Matched questions to compare online with offline risks, to put online risks in proportion.

¹² Note that the *EU Kids Online* survey included a range of questions concerned with children's psychological strength/vulnerability (self-efficacy, emotional problems, peer conduct problems, sensation seeking, and so on) which will, in future analysis, be examined as possible predictors of online risk and harm.

- Matched comparison questions to the parent most involved in the child's internet use.
- Measures of mediating factors – psychological vulnerability, social support and safety practices.
- Follow-up questions to pursue how children respond to or cope with online risk.
- The inclusion of the experiences of young children aged 9-10, who are often excluded from surveys.

The design is comparative in several ways, comparing:

- children's experiences of the internet across locations and devices;
- similarities and differences by children's age, gender and SES;
- a range of risks experienced by children online;
- children's perception of the subjective harm associated with these risks;
- children's roles as 'victim' and 'perpetrator' of risks;
- accounts of risks and safety practices reported by children and their parents;
- data across countries for analysis of national similarities and differences.

The resulting findings from 25 participating countries (see Figure 1) thus contribute to the evidence base that underpins policy initiatives by the EC's Safer Internet Programme and by national and international organisations.

Note that findings reported for children across all countries are calculated as the weighted average across the particular 25 countries included in this project. In other words, the 'Europe' of this report is distinct from, although overlapping with, the European Union (EU).

1.5. The population

The population interviewed in the *EU Kids Online* survey were children aged 9-16 who used the internet at all.

Note that, in countries where nearly all children use the internet, internet-using children are almost the same as the population of children aged 9-16 in those countries. But in countries where some children still do not have access, or for whatever reason do not use the internet, internet-using children (the population sampled for this project) is not the same as all children.

In Annex 3 we estimate the proportion of internet-using children out of all children in each country. It is particularly important to keep this in mind when interpreting cross-country differences.

Additionally, to pinpoint the support children can call on at home, the *EU Kids Online* survey interviewed the parent 'most involved in the child's internet use' while also recording the existence of other adults in the household. Throughout the *EU Kids Online* research, the term 'parent' refers to the parent or carer most involved in the child's internet use. This was more often mothers/female carers (some three in four) than fathers (in a quarter of cases).

For **full details and availability of the project methodology**, materials, technical fieldwork report and research ethics, see www.eukidsonline.net.

2. THE LOGIC OF CROSS-NATIONAL COMPARISON

2.1. Countries as the object of study

Looking beyond national borders for comparative purposes has a long tradition in the history of social science research, and can be traced back to the birth of social science. However, it has been only in the last couple of decades that cross-national (or cross-cultural) comparative research has really gained popularity in the social sciences. Several processes have contributed to this trend. There has been a gradual internationalisation of the academic community, removal of political barriers, as well as computerisation of communication, so easily crossing traditional boundaries, geographical as well as social and cultural ones. Funding bodies and policy makers have also increasingly called for comparative research, and this call seems to have been readily accepted by researchers who find themselves initiating or invited to collaborate in multinational comparative projects.¹³

Despite this, the *EU Kids Online* thematic network found it difficult to extract, from the 400 or so studies reviewed in previous work,¹⁴ the information necessary to construct cross-national comparisons on issues other than the most commonly studied. This was the case despite great efforts being made to locate relevant data and negotiate its significance across the network. Simply put, some data was weaker than could be wished, some was lacking and some was difficult to interpret. Given the uneven evidence

base already uncovered,¹⁵ the second *EU Kids Online* project was designed to overcome many of these shortcomings and so to produce a rigorous, cross-nationally comparative quantitative evidence base regarding children's internet use across Europe.

Reasons for conducting comparative research are easy to enumerate. One of the most obvious concerns the question of universality and, simultaneously, uniqueness of findings based on nation-specific data, which cannot be answered unless we compare them with the data from other countries. Among other values of cross-national comparisons, broadening the research perspective and providing a 'fresh insight' into the issues examined within a particular national context are probably most often cited, implying that such an approach can reveal significant gaps in knowledge or point to new (and previously hidden) variables and factors influencing the phenomenon under scrutiny.

Despite these self-evident advantages and benefits, cross-national research must cope with many methodological as well as practical challenges and pitfalls, causing some scholars to warn against injudicious and theoretically unfounded engaging in cross-country explorations. Listing the methodological problems cross-national or cross-cultural collaborative research is facing, authors usually mention the selection of the research unit (which is mostly the nation state), the issues of sampling and comparability of data in the first place, complemented by more practical issues (although they can have serious methodological implications, too) such as variations in professional academic cultures, and standards of writing and communication.

In an often-quoted typology, Mervin Kohn¹⁶ distinguishes between four approaches to cross-national comparison

¹³ See Livingstone, S. (2011) 'Challenges of comparative research: cross-national and transnational approaches to the globalising media landscape', in F. Essler and T. Hanitzsch (eds) *Handbook of comparative communication research*, New York: Routledge. See also Livingstone, S. and Hasebrink, U. (2010) 'Designing a European project on child internet safety: reflections on comparative research in practice', in L. Weibull et al (eds) *Festschrift for Ulla Carlsson*, Gothenburg: Nordicom, pp 135-48.

¹⁴ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

¹⁵ Staksrud, E., Livingstone, S. and Haddon, L. with others (2009) *What do we know about children's use of online technologies? A report on data availability and research gaps in Europe*. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/24367/>

¹⁶ Kohn, M.L. (1989) *Cross-national research in sociology*,

according to their principal focus: (1) nation as an object of study (a juxtaposition of data/reports from particular nations); (2) nation as a context of study (testing universal hypotheses across a contrasting sample of nations); (3) nation as a unit of analysis (examining relations among dimensions along which nations vary systematically); and (4) nation as part of a larger international/global system.

In this report, we tried to apply the first, second and the third principle:

- We treated countries as objects of analysis in an idiographic way to understand countries through comparison that provides a useful strategy for 'seeing better' and determining what is distinctive (or not) about a country.
- We treated countries as the context for examining general hypotheses. This approach tests general theoretical models across nations, hypothesising similarities across countries while also permitting findings of cross-national differences to challenge or limit claims.
- We treated countries as units in a multilevel analysis. This approach seeks to explain patterns of similarities and, particularly, differences between countries, by inquiring into the national level indicators that explain how and why nations vary systematically.

2.2. Country-level or individual-level data

As comparable data from many countries has become increasingly available, analytical techniques have been developed allowing researchers to model the available data in more and more sophisticated but at the same time more complex ways. Understanding country-level differences is important for at least two reasons.

First, some of the variance that appears on the individual level might actually be a function of factors that belong to the country level. Looking at findings for the individual level only might prompt the reader to perform what is called an individualist fallacy by making macro-level inferences from micro-level relations. An example of this would be if we find on the individual level that family income is negatively related to encountering online risks. Then we note that GDP per capita is higher in the UK than in Spain. Having noted this might prompt someone then to the assumption that children in Spain will be less likely to

have encountered risks online than their UK counterparts. That, however, is not necessarily the case. Furthermore a focus on individual-level variables can lead to the assumption that contextual effects either do not matter or they are simply summaries of individual-level factors. For these reasons it is important to link the individual-level analysis to the cross-country context in which these individuals live.

Second, from the cross-country perspective it is also important for a variety of reasons to take individual-level information into account when trying to explain country-level differences. So just as variance observed on the individual level might be a function of factors on the country level, variance observed at the country level can be a function of factors on the individual level. And if we present findings from the national level only, this might prompt an ecological fallacy with inference being made about micro-level (individual-level) relations from relations between macro-level averages.

When modelling this kind of data at least three things will have to be considered:

- First, it is possible to focus on country averages, for example, comparing means as outcomes, and to aim for a contextual explanation of cross-national differences in some aggregate properties, for example, level of internet use or proportion of children that have seen sexual images on the internet. In this case we would try to relate differences in these outcomes (children who have seen sexual images) to some structural or institutional properties of the respective countries, for example, internet penetration or GDP.
- Second, it is possible to aim for a contextual explanation of cross-national differences in terms of the relations between individual-level properties, for example, the strength of gender differences in the likelihood of having seen sexual images on the internet. The focus here is on the size of correlations instead of averages, as in the previous example. In this case we would want to state the cross-level interactions of relations between individual-level properties with the structural or institutional properties of the respective countries (in the case of regression this would be the R^2), for example, if internet penetration is related to the strength of the relationship between gender and likelihood of having seen sexual images on the internet.
- The third possible aim would be to explain cross-national differences in terms of the linear relations

between individual-level properties. Again we could look at the gender differences in the likelihood of having seen sexual images on the internet, but instead of focusing on the strength of the relationship as in the previous example, the focus here is on the relationship itself (in the case of regression this would be the beta coefficients). In this example we want to know not only to what extent gender is related to the likelihood of having seen sexual images on the internet, but also how that relationship looks (positive or negative and the level of difference).

Added to all of this, the choice of methods for data analysis depends on the assumptions we make about the nature of the populations that we are studying. In that respect it is important to recognise that the population of internet-using children is structured into countries in a meaningful way. So we are not just looking at country level because we don't have information on individuals but because we specifically believe that country-level factors matter for individual-level outcomes. Important structures that can be theoretically related to important outcome variables on the individual level are organised in a country-specific way (educational systems, internet regulation). Therefore it should be expected that we want to model these relationships rather than just to account for them. In other words, we have specifically hypothesised that how countries organise things like education and internet regulation influences how children experience risks and opportunities online. Furthermore, the rationale for looking at country-level factors is not only a question of removing noise (such as possible correlation between SES and country) but understanding how country-level and individual-level factors behave.

However, one implication of this is that country-level estimates are regarded as that – namely, estimates – and therefore they have a standard error just like individual-level estimates. On the individual level we are interested not only in making inferences about the respondents in our sample but about internet-using children in Europe and their parents in general. The same applies on the country level that we are not only interested in making inferences about those 25 countries that are present in our study but European countries in general. Now it is possible to regard the 25 chosen countries as being also the population of all available countries, but it is also possible to regard the 25 countries as a sample of countries from a population of all European-like countries at all times. The analytical techniques chosen have to take this into account.

2.3. The logic of this report

As the focus of this report is to examine the cross-national variations in risk encounters and harmful experience, the findings in this report are presented in the following manner.

The chapter 3 briefly presents the key characteristics of internet usage across countries, also addressing comparison of skills and activities. Excessive use is then presented as the first risk issue in the report.

In chapter 4, each of four different areas of risk (seeing sexual images, being bullied, receiving sexual messages and meeting online contacts offline) is discussed in more detail.

Each risk subsection concludes with a regression model of what predictors across countries affect each specific risk. The regression models are initially done across all 25 countries to determine the model and the most important effects that work best on the European level. This general model is then tested 25 times for each country to see country variations of the general model and to reveal identification of country differences in the explanation of risk. In each of the regression tables, the most important predictive variables for every country are ranked. In the last line, the general European model is presented. Here it is important to note that a degree of caution is needed when generalising the findings.

The regression models in general account for (that is, explain) 20-30% of variation in a certain risk, which means as regards 70-80% of the variation in key outcome variables (e.g. level of usage, exposure to risk) there are still unknown factors at work. If the models were to include fewer or more variables, the results might be different from those presented in the report. The decisions about the number of variables and what variables are included in the model have been based on theoretical assumptions (as developed by chapter authors of the book to be published based on the *EU Kids Online* project in 2012).

Chapter 5 examines the role of national context in explaining country variations in usage and risks. To begin with, a large national context database was constructed, consisting of numerous national indicators from various sources (such as national statistics, global statistics and indexes, and some other research databases such as Eurobarometer) addressing the national context – **socio-economic stratification, regulatory framework, technological infrastructure, educational system** and

cultural values (See Annex 3, National Level Indicators). In the next step, one or more national indicators were chosen to be included into the analysis.

To statistically check the effects of national level indicators a multilevel analysis was conducted using mixed linear models in the SPSS statistical analysis programme. The relationship between the country level indicators and the key outcome variables of the survey on use and risks is shown in scatterplots.

3. USAGE, SKILLS AND ACTIVITIES

Where, when and how children use the internet makes a difference to the nature of that use. Some locations accord more privacy for the user, some are easier for parents to monitor, some can be shared with friends or are subject to adult rules, and so forth. Two kinds of flexibility are increasingly becoming available to children – the location of use is diversifying, especially with the growth of mobile devices for accessing the internet, and also the platforms or devices themselves are diversifying. The pace of change, however, varies across Europe, with children in different countries gaining this increased access more or less rapidly, depending on both the market and the culture of each country.

In addition to measuring the amount, devices and location of use, the *EU Kids Online* project explored children's online activities for two distinct reasons. First, by mapping the range of activities children undertake on the internet, a balanced view can be obtained of the benefits the internet affords children against which our subsequent examination of risks should be considered. Second, since there is no easy line to be drawn between activities which result in benefits and those that carry a risk of harm, understanding the nature of children's activities is necessary if research is to dissect the interplay between benefits and harm, recognising that this may vary for different groups of children.

Associated with both use and activities online is the development of digital literacy and safety skills. These are also, it is hoped by policy makers, the key to increasing opportunities while managing or reducing risks and thus the development of children's digital skills across Europe is an important theme for our analysis.

3.1. Locations, devices and time

In the survey, children were asked in which locations they use the internet, recognising that it is possible that more private locations are associated with more experience of online risks. Further, in relation to safety, the location of use suggests which adults, if any, could mediate

children's experiences, whether encouraging them to take up opportunities or helping them to minimise risks.

Of the children surveyed (that is, out of all children who use the internet at all), 85% use it at home.

Table 1 shows the percentage of children who say that they use the internet at the locations asked about, bearing in mind that they may use it in more than one location.

Table 1: Where children use the internet

% of children who say they use the internet at the following locations	
At school or college	63
Living room (or other public room) at home	62
At a friend's home	53
Own bedroom (or other private room) at home	49
At a relative's home	42
In an internet café	12
In a public library or other public place	12
When 'out and about'	9
Average number of locations of use	3

QC301a-h: Looking at this card, please tell me where you use the internet these days¹⁷ (*Multiple responses allowed*).

Base: All children who use the internet

Since personal and mobile devices permit children to go online flexibly, there is increasing overlap between where and with what devices children connect to the internet. Further, children do not always grasp the technical

¹⁷ For all tables and figures, the exact question number on the questionnaire is reported. Where younger and older children's questionnaires use different numbers, the one for the older children is reported (all questionnaires may be found at www.eukidsonline.net).

distinctions among devices that are relevant to policy makers or technology providers.

The *EU Kids Online* survey asked children which device they use to go online, permitting multiple responses (see Table 2).

- Most (58%) children still access the internet via a shared personal computer (PC), although access via their own PC is next most common (35%).
- Nearly one third (32%) go online through their television set, around another third do so via a mobile phone (31%), and a quarter access the internet via a games console (26%). Given that computer access has long predominated, these other options have clearly been taken up in recent years.
- About a quarter go online using a personal laptop (24%) or a shared laptop (22%), reflecting the growth in the use of laptops in general and, clearly, the greater access that children now have to them.
- Twelve per cent go online using a handheld or portable device (for example, iPod Touch, iPhone or Blackberry).

Table 2: Devices through which children access the internet

% of children who use the internet	
Shared PC	58
Own PC	35
Television set	32
Mobile phone	31
Games console	26
Own laptop	24
Shared laptop	22
Other handheld or portable device (eg iPod Touch, iPhone or Blackberry) – hereafter 'Handheld device'	12
Average number of devices of use	2.5

QC300a-h: Which of these devices do you use for the internet these days? (Multiple responses allowed)¹⁸

Base: All children who use the internet

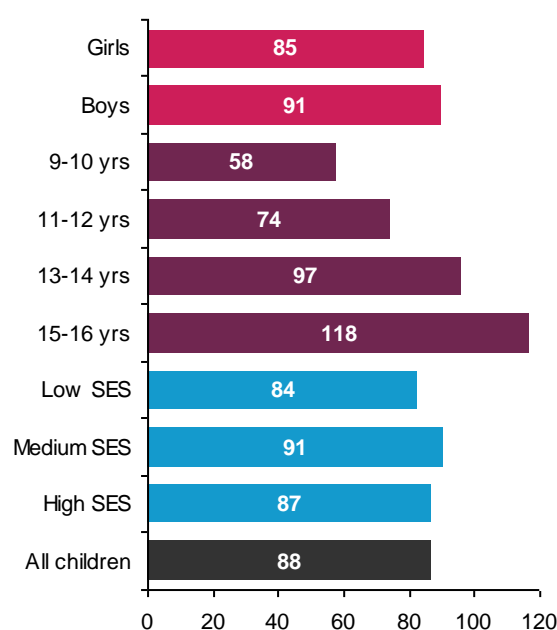
¹⁸ For all tables and figures, the exact question number on the questionnaire is reported. Where younger and older children's questionnaires use different numbers, the one for the older children is reported (questionnaires may be found at www.eukidsonline.net).

Previous research has suggested that the more children use the internet, the more they gain digital literacy, the more opportunities they take up, and the more risks they encounter.¹⁹ Greater use suggests a deeper embedding of online activities in children's everyday lives at home, at school and with friends. While less use may reflect the choice not to use the internet, it may also indicate digital, and possibly social, exclusion.

Time spent online was calculated using a method widely used to measure television viewing. It asks children for separate estimates for an average school day and an average non-school day. These are combined to estimate average internet use each day (see Figure 3).

Note that time spent online was difficult to measure because younger children in particular find time estimates difficult and because children multi-task, going online while doing other activities while not turning off the internet.

Figure 3: How long children use the internet for on an average day (in minutes)



Derived from QC304 and QC305: About how long do you spend using the internet on a normal school day/normal non-school day? Base: All children who use the internet

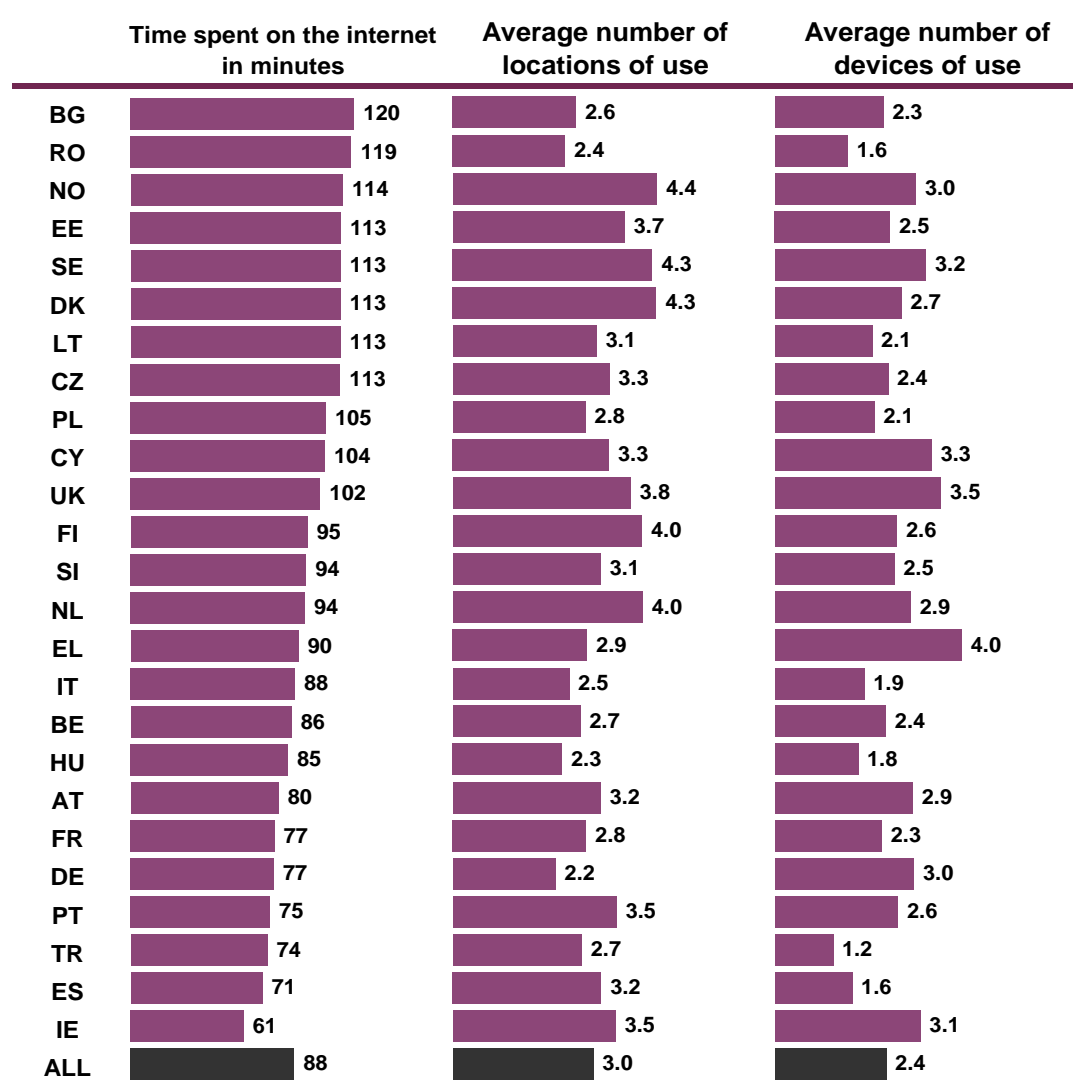
¹⁹ Livingstone, S. and Helsper, E. (2010) 'Balancing opportunities and risks in teenagers' use of the internet', *New Media & Society*, 12(2): 309-29.

- The average time spent online by 9- to 16-year-olds is around an hour-and-a-half per day (88 minutes).
- Gender differences in time spent online are small (boys go online for an average of six minutes per day more than girls). SES differences are also small.
- The largest difference in time spent online is by age. The 15- to 16-year-olds spend almost two hours per day, on average (118 minutes) twice that of the youngest group (9- to 10-year-olds average 58 minutes per day).

It remains to be seen whether children will spend even more time online in the coming years. What is clear is that, for many European children, internet use is already thoroughly embedded in their daily lives and everyday routines.

Figure 4 summarises the levels and patterns of children's internet usage, by country, to establish a broad context for understanding risks.

Figure 4: Children's usage of internet, by country

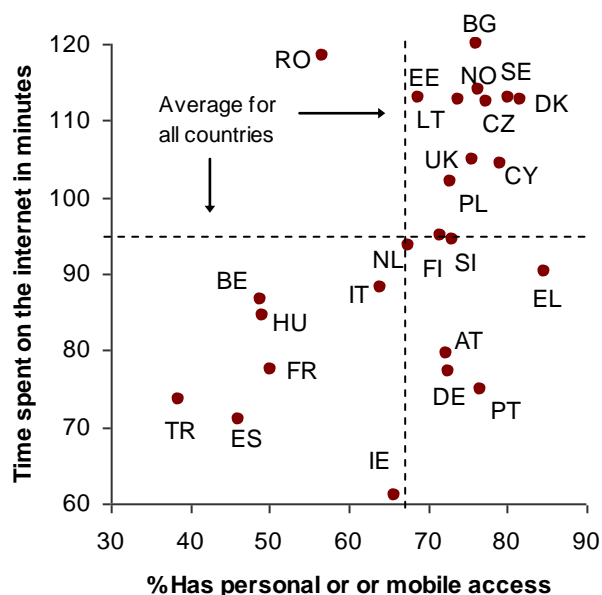


Time spent online derived from QC304 and QC305: About how long do you spend using the internet on a normal school day/normal non-school day? Number of locations: QC301a-h: Looking at this card, please tell me where you use the internet these days. (*Multiple responses allowed*). Number of devices: QC300a-h: Which of these devices do you use for the internet these days? (*Multiple responses allowed*)

Base: All children who use the internet

Looking more specifically within the home, in many countries there has been a considerable increase in access to the internet from private bedrooms, indicating that a media-rich 'bedroom culture' has spread across countries. Further, with the spread of mobile and personalised devices, children's privacy when using the internet has been altered. As the full findings report for the *EU Kids Online* survey points out,²⁰ the internet has become a private phenomenon for many European children.

Figure 5: Mobile and/or private access by usage of internet in minutes



Time spent online derived from QC304 and QC305: About how long do you spend using the internet on a normal school day/normal non-school day? Type of access: QC300a-h: Which of these devices do you use for the internet these days? (*Multiple responses allowed*)

Base: All children who use the internet

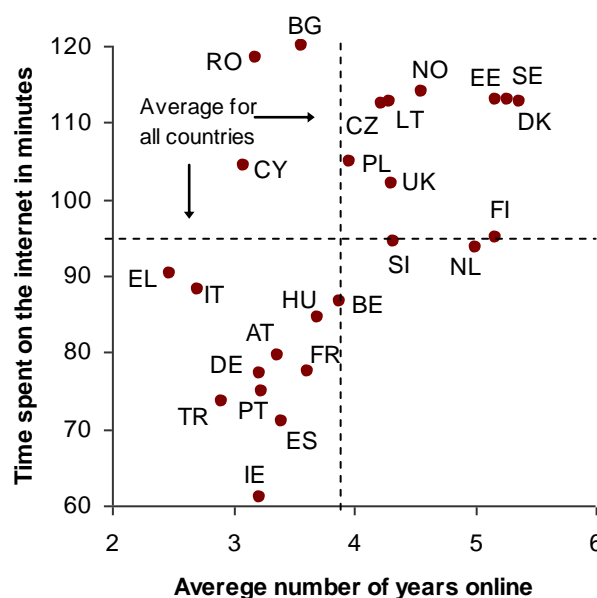
- Figure 5 examines whether private and mobile access contributes to the increase in use of the internet. A positive correlation between private or mobile access and the average time spent on the internet is noted in the majority of European countries. In Bulgaria, Norway, Sweden, Denmark

²⁰ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*, LSE, London: EU Kids Online.

and the Czech Republic there is a pattern of high private and mobile access as well as the highest average internet usage. In Portugal, Austria and Germany, despite high figures in private access, internet usage remains below the average.

- In Romania, a comparatively lower percentage of private and mobile access still results in one of the highest usages. In Ireland, despite the above-average mobile and private access, time spent on the internet is the lowest among children in Europe.

Figure 6: Average time spent on the internet by average years online



Time spent online derived from QC304 and QC305: About how long do you spend using the internet on a normal school day/normal non-school day? Years online: QC302: How old were you when you first used the internet?

Base: All children who use the internet

- Figure 6 indicates a positive pattern across Europe between the average number of years that children have been using the internet and the average time they spend online. Children from Nordic countries and Estonia have been online longer compared to their European peers, and they also spend more time online. This corresponds with the history of diffusion of the internet, with earlier diffusion in the Nordic countries. The exceptions from this pattern are children in Bulgaria and Romania where, despite

fewer years online, they still have the highest usage. This suggests that there might be a 'normal' pattern in the evolution of usage, but also that there are exceptions where different countries follow different routes. In the case of Estonia, there has been in recent years a strong (and uncritical) promotion of the internet as a positive benefit.

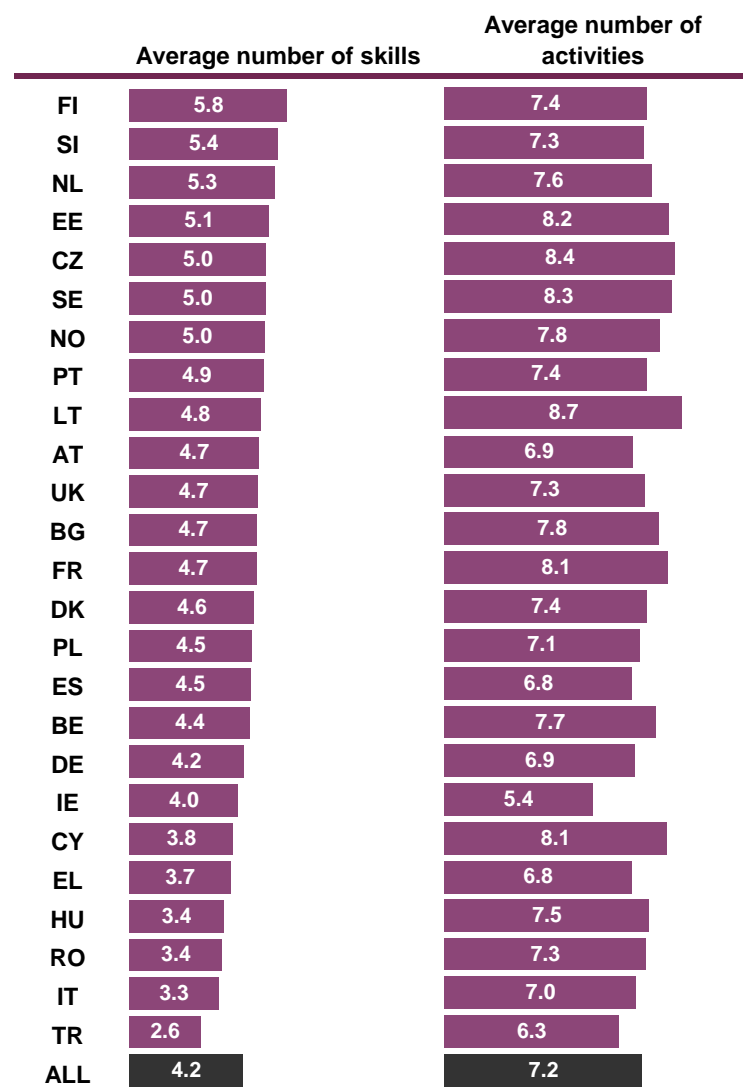
- To summarise, in the left upper corner of Figure 6, there are countries with non-experienced heavy users. In the left lower corner, there are also non-experienced users but light users. In the right upper corner, there are countries with experienced heavy users (Nordic, Baltic countries). The right lower corner is almost empty as there are almost no countries with experienced users.

3.2. Range of children's online activities

Next, we examine the 17 activities and eight self-reported digital literacy and safety skills studied for the *EU Kids Online* survey, and analyse the average number of activities young people engage in. Differences in digital skills might not only occur between children, but also between the different countries within Europe. Figure 7 shows the averages across countries.

- Children in Finland, Slovenia and the Netherlands report the highest level of digital skills in Europe, but undertake about an average range of activities online. Children in Lithuania, on the other hand, report a score slightly above the average skill level in Europe, but do the widest range of online activities. Cyprus has under-average reported digital skills but above-average diversity of online activities. Further, children in Ireland show an average level of digital skills and yet they report the smallest range of online activities in Europe. In Turkey, both the self-reported level of skills and diversity of activities are rather low.
- If the measure of digital skills and the diversity of online activities both measured the same underlying construct of digital skills, one would expect that countries that score high on the scale of digital skills would also score high on the scale of online activities. It was found that at the country level, there is, indeed, a positive correlation between the digital skills and diversity of activities ($r=0.47$), but it is somewhat weaker at the country than at the individual level ($r=0.55$). Still, in general, it holds that countries where children report a higher level of digital skills also display a wider repertoire of online activities.

Figure 7: Digital literacy and safety skills, by country



Variables: Diversity of internet activities: Used the internet for schoolwork; played internet games on your own or against the computer; watched video clips; visited a social networking profile; used instant messaging; sent/received emails; read/watched the news on the internet; downloaded music or films; put or posted photos, videos or music to share with others; played games with other people online; put or posted a message on a website; used a webcam; visited a chat room; used file-sharing sites; created a character, pet or avatar; spent time in a virtual world; written a blog or online diary.

Digital literacy and safety skills: Bookmark a website; block messages from someone you don't want to hear from; find information on how to use the internet safely; change privacy settings on a social networking profile; compare different websites to decide if information is true; delete the record of which sites you have visited; block unwanted adverts or junk mail/spam; change filter preferences.

Base: All children aged 11-16 who use the internet

Let us look more closely at what European children aged 9-16 say they do when they go online.

Table 3 shows how many children have done each of a range of activities in the past month, by age and gender. Online activities were grouped into the categories of content, contact and conduct, based on earlier work by *EU Kids Online*.²¹

- Use of the internet for schoolwork is the top online activity of the common things that children do online (85%), confirming the importance of incorporating the internet into educational contexts.
- Playing internet games (for example, 83% playing against the computer), receiving content produced by others (for example, watching video clips, 76%), and communicating (for example, social networking and instant messaging, 62%) are the next most popular online activities.
- This contrasts with the various ways of creating user-generated content. Posting images (39%) or messages (31%) for others to share, using a webcam (31%), file-sharing sites (18%), spending time in a virtual world (16%) or writing a blog (11%) are all less common. This is perhaps surprising given popular attention to the supposed rise of a more 'participatory culture'.²²

Overall, of the 17 activities surveyed, children undertake nearly half of the activities (7.2 activities on average; see Table 3). The number of activities in which children engage increases with their years of age and years of internet use. There are gender differences, where both older and younger boys undertake more variety of activities than girls of the same age. The differences of averages, while always being statistically significant, is smaller when children are younger, but become more pronounced with time.

Table 3: Children's activities online in the past month

	9-12 year old		13-16 year old		
% who have...	Boys	Girls	Boys	Girls	All
Content-based activities					
Used the internet for schoolwork	79	82	87	90	85
Played internet games on your own or against the computer	86	84	88	71	83
Watched video clips	66	64	87	85	76
Read/watched the news on the internet	38	36	60	57	48
Downloaded music or films	27	26	61	56	44
Contact/communication-based activities					
Used instant messaging	43	47	76	77	62
Visited a social networking profile	39	42	80	81	62
Sent/received emails	42	47	74	76	61
Played games with other people online	47	33	63	33	44
Used a webcam	23	25	37	38	31
Visited a chat room	14	14	35	28	23
Conduct/peer participation activities					
Put or posted photos, videos or music to share with others	22	24	54	55	39
Put or posted a message on a website	18	18	44	40	31
Created a character, pet or avatar	20	17	21	13	18
Used file-sharing sites	11	8	30	22	18
Spent time in a virtual world	15	14	21	12	16
Written a blog or online diary	4	6	15	18	11
Average number of Activities	5.7	5.5	9.1	8.2	7.2

²¹ Livingstone, S and Haddon, L. (2009) *EU Kids Online: Final report*, London: EU Kids Online(<http://eprints.lse.ac.uk/24372/>).

²² Jenkins, H. (2006) *An occasional paper on digital media and learning*, Chicago, IL: The John D. and Catherine T. MacArthur Foundation.

QC102: How often have you played internet games in the past 12 months? QC306a-d, QC308a-f, QC311a-f: Which of the following things have you done in the past month on the internet? Base: All children aged 9-16 who use the internet

Source: Sonck, N., Livingstone, S., Kuiper, E. and de Haan, J. (2011) *Digital literacy and safety skills*.

In order to analyse whether the percentages as observed in Table 3 reflect a 'ladder of opportunities', we followed the logic of Livingstone and Helsper. This had shown, for children in the UK, that there is a predictable series of steps that children take when gaining experience of the internet, beginning with simple activities that many undertake (searching for school-related activities, some communication) through more complex or specialist tasks, to the final step of creative and participatory activities. Significantly, not only do younger children and girls not progress as far along this path as teenagers and boys, but

also many never reach the final set of activities at all. What then, can be said of this ladder of opportunities as it is traversed by children in different countries across Europe?

The *EU Kids Online* survey data was used to differentiate among groups of young people according to the number of opportunities taken up. In our analysis, we defined five groups (0-2, 3-5, 6-9, 10-12 and 13-17 activities) and based on the percentages in these groups, five stages of activities can be differentiated (see Table 4).

Table 4: 'Ladder of opportunities' – type of opportunities taken up by groups with a different range of activities

Stage		Groups according to number of opportunities taken up					Total
		0-2	3-5	6-9	10-12	13-17	
	% of people who belong in each	12	23	36	19	9	100
1	Used the internet for schoolwork	68	78	87	92	95	84
	Played games on your own or against the computer	61	77	78	86	93	80
2	Watched video clips	19	61	87	97	99	76
3	Visited social networking profile	3	31	73	94	99	61
	Used instant messaging	3	29	73	94	98	61
	Sent/received email	5	31	71	90	97	60
	Read, watched the news on the internet	8	30	52	70	84	48
4	Played games with other people online	6	29	42	65	92	43
	Downloaded music or films	2	17	45	75	90	43
	Put or posted photos, videos or music to share with others	1	8	39	73	92	39
	Used a webcam	1	11	29	55	77	31
	Put or posted a message on a website	0	5	27	57	89	30
5	Visited chat room	1	3	19	42	80	23
	Used file-sharing sites	1	2	12	34	68	17
	Created a character, pet or avatar	1	6	14	27	58	17
	Spent time in the virtual world	1	5	12	24	57	15
	Written a blog or online diary	0	1	5	20	52	11

Source: Hasebrink, U. et al (2011) *Patterns of risk and safety online* LSE, London: EU Kids Online.

- **Stage 1: 'popular activities'** that are also practised most by people who only engage in 1-2 activities. These are: use of internet for schoolwork and playing games on your own against the computer.
- **Stage 2: 'watching video clips'** is the next popular activity, which is done by more than half of those who engage in 3-5 activities.
- **Stage 3: 'communicative and news-related activities'** consist of visiting social networking sites, instant messaging and sending/receiving emails. Also, watching the news online was grouped here as these are the opportunities that are mostly taken up by people who engage in six or more activities online.
- **Stage 4: 'Playing, downloading and sharing'** - those who expand their activities to 10 or more opportunities tend to play games against other people, download music or films, post photos, use a webcam or post messages on websites. These activities already include some conduct-related practices where young people become active contributors to the online environments.
- **Stage 5: 'advanced and creative'** - these activities are regularly practised by those who are able to use 13 or more online activities. Thus, although visiting chat rooms, using file-sharing sites, creating characters, spending time in a virtual world or writing

a blog or a diary are in general practised only by a small percentage of the overall population, more than half of those who engage in 13-17 activities also engage in these.

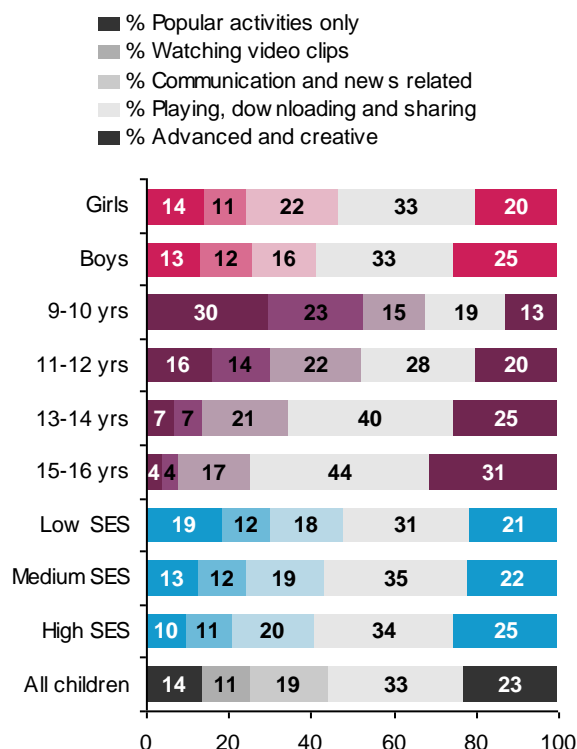
The analysis in Table 4 clearly indicates that to evaluate children's opportunities on the internet it is not enough to merely look at the number of activities.

To apply the idea of 'a ladder of opportunities' on both the individual and the country level, respondents were re-classified into five groups based on the level of activities they reported. In other words, rather than merely counting the number of activities a child engages in, we judged which step on the ladder a child had reached in terms of the underlying logic of the steps revealed by Table 4. Thus we set as the criterion that a child actually did the activities belonging to that step (or, for the latter three steps, at least two of the relevant activities).

Figure 8 re-classifies the respondents into five groups. On the first step, those that report only the two most common activities (using the internet for schoolwork and playing games) - this applies to some 14% of the overall group. Adding those who also use the internet to watch video clips (i.e. step 2) includes a further 11%. An additional 19% report at least two of the communication and news-related activities (step 3). A further 33% report activities that belong to step 4 and a final 23% report two or more activities from the advanced and creative fifth step.

In line with previous research the range of activities is strongly correlated with age, and to a lesser extent with gender and SES. Thus over half of the youngest respondents are confined to activities in the first two steps while the same applies to only 8% of the oldest children. There are few gender differences but some differences by SES.

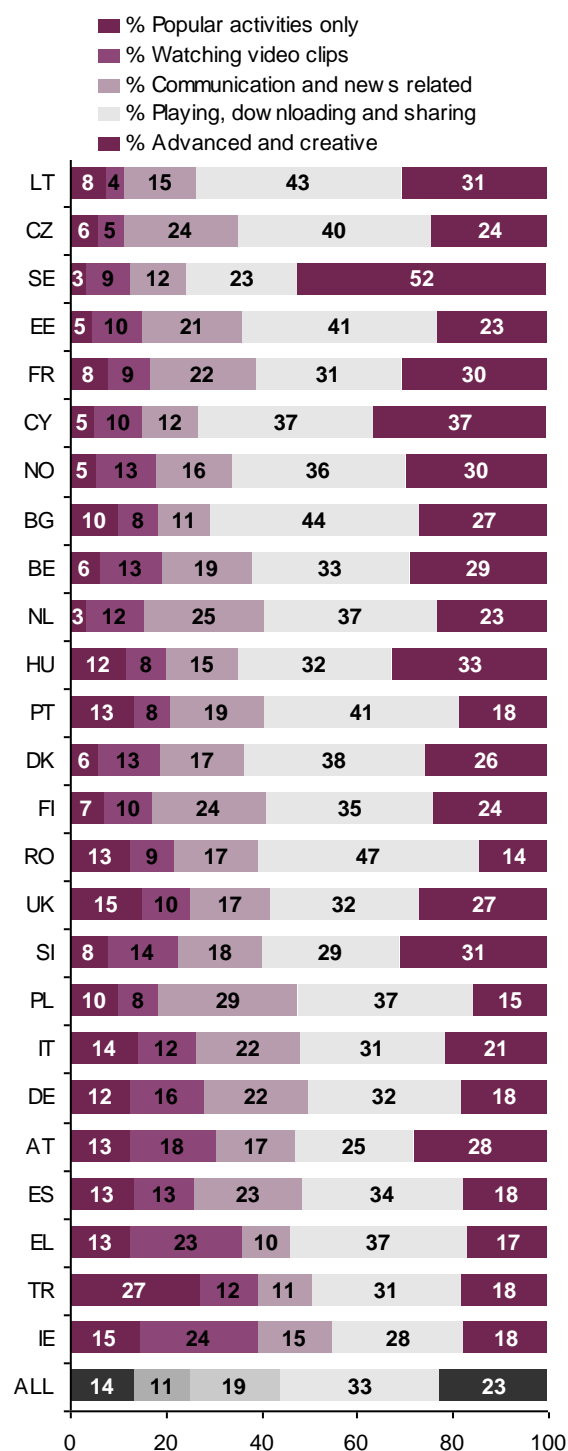
Figure 8: 'Ladder of opportunities' – type of opportunities taken up, by age, gender and SES



QC102: How often have you played internet games in the past 12 months? QC306a-d, QC308a-f, QC311a-f: Which of the following things have you done in the past month on the internet?

Base: All children aged 9-16 who use the internet

Figure 9 explores how countries differ in the take-up of different activities. For comparative purposes the figure has been ordered according to the average number of online activities, and it shows that countries with the highest number of advanced users are not necessarily those with the highest average number of online activities.

Figure 9: 'Ladder of opportunities' – type of opportunities taken up, by country

QC102: How often have you played internet games in the past 12 months? QC306a-d, QC308a-f, QC311a-f: Which of the following things have you done in the past month on the internet?

Base: All children aged 9-16 who use the internet

It is worth noting that there can be complex reasons for countries having either a high or a low number of advanced users. One is that certain activities are not widespread in that country in general, or that certain applications are not available. Another reason is that age differences play out differently depending on the country. Possibly, as the more young people start using the internet, the more varied will be their paths to take up the diversity of online opportunities. Nonetheless, countries where rather fewer children reach the more advanced steps in the 'ladder' may find it worthwhile to promote and support youthful internet use in all its diversity and sophistication.

3.3. Excessive use of the internet across countries

The term 'excessive internet use' is used to describe obsessive, compulsive, excessive or generally problematic behaviour caused by use of the internet and other new digital technologies. It typically has a pathological connotation and corresponds to the more frequently used term 'online addiction'. Literature reviews show a few other terms used to refer to the same, or very similar, phenomenon – internet addiction or pathological internet use, problematic internet use, internet addiction disorder or addictive behaviour on the internet.²³

The basic experience of excessive internet use has been addressed in the full findings report,²⁴ where we discovered that four in ten (41%) children agree with the statement 'I have caught myself surfing when I am not really interested'. How does this differ across countries?

The following statements about excessive use were asked of the 11- to 16-year-olds:

- Have tried unsuccessfully to spend less time on the internet.
- Have spent less time than I should with either family, friends or doing schoolwork because of the time I spent on the internet.
- Have caught myself surfing when I am not really interested.

²³ Šmahel, D. and Blinka, L. (forthcoming) 'Excessive internet use among European children', in S. Livingstone, L. Haddon and A. Goerzig (eds) *Children and youth online: Risks and opportunities in comparative perspective*, Bristol: The Policy Press.

²⁴ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

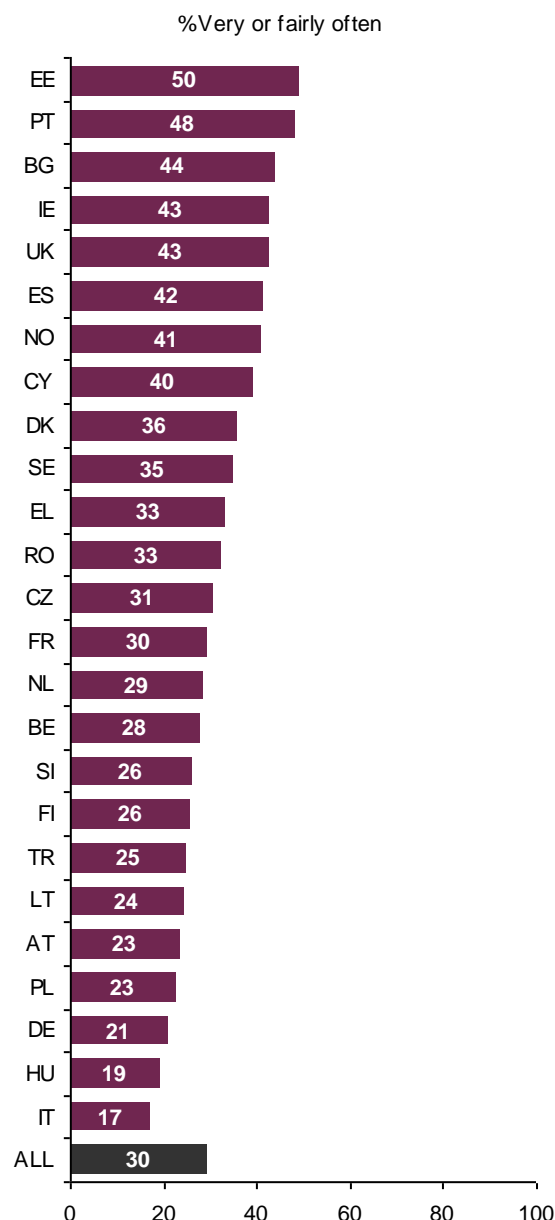
- Have felt bothered when I cannot be on the internet.
- Have gone without eating or sleeping because of the internet.

These statements were selected from wider investigations into excessive use of the internet.²⁵ As will be seen, the focus is not simply on overall amount of use but on the problems this may introduce with family or schoolwork, together with the experience of not being able to reduce or stop the activity.

Figure 10 is based on a composite index – the percentage of children, out of all children, who answer ‘fairly’ or ‘very often’ to one or more of these five statements. There is considerable country variation with the percentage of children saying that at least one of this has happened ‘fairly’ or ‘very often’ to them ranging from 17% in Italy to around 50% in Estonia and Portugal.

Table 11 shows the percentage of children who say ‘fairly’ or ‘very often’ to each of the statements on excessive use in each country. Here we can see that it is different statements that result in Estonia, Portugal and Bulgaria being the three countries at the top of the excessive use ranking in Figure 10. In Estonia it is children saying that they have ‘caught themselves surfing when they were not really interested’. In Portugal it is a combination of all of the statements, but in Bulgaria it is mainly the statement ‘bothered when I can’t be on the internet’.

Figure 10: Child has experienced one or more forms of excessive internet use ‘fairly’ or ‘very often’, by country (age 11+)

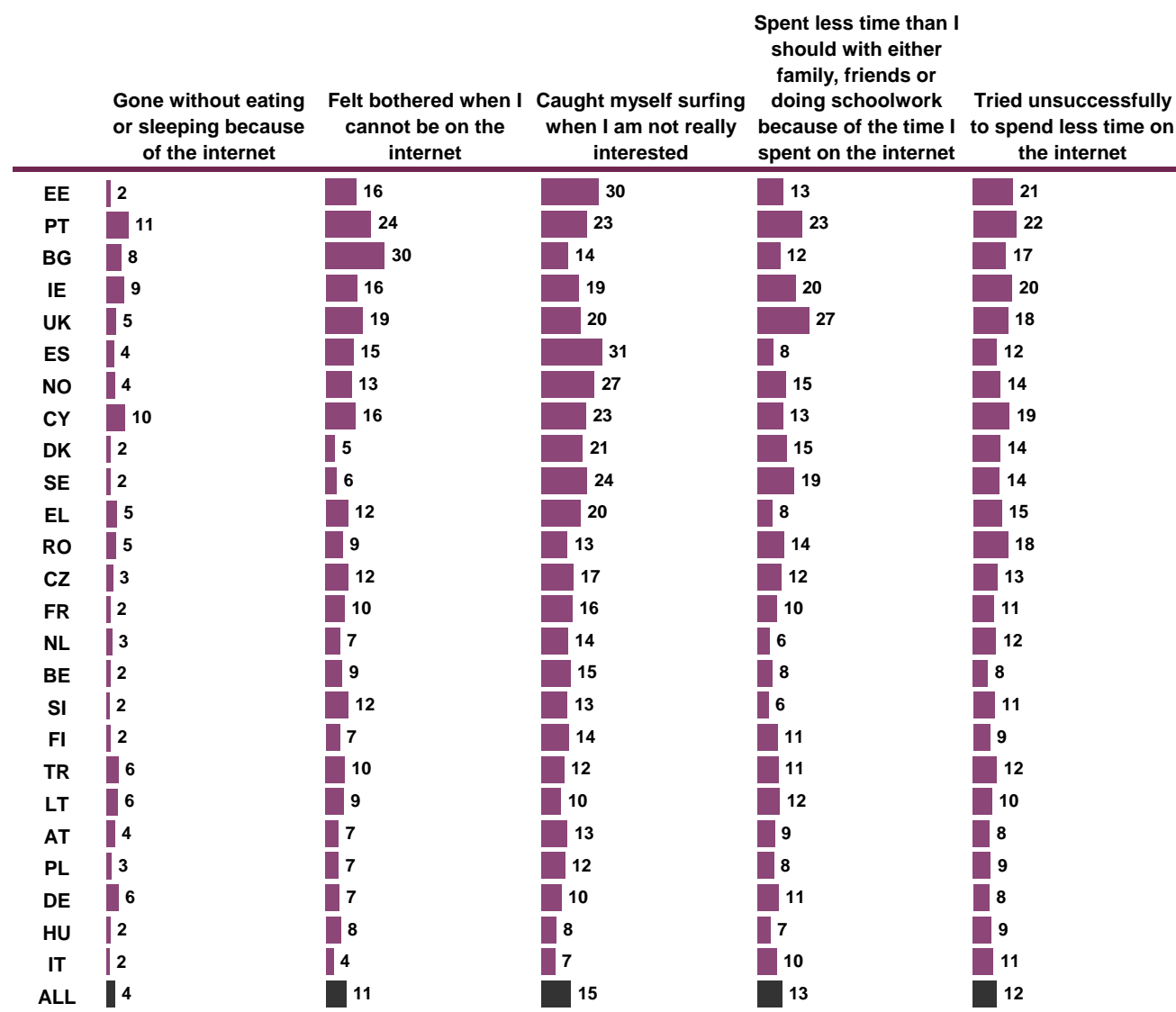


QC144a-e: How often have these things happened to you? The graph shows the percentage of children who answer ‘fairly’ or ‘very often’ to one or more of the five statements in Table 11

Base: All children aged 11-16 who use the internet

²⁵ Šmahel, D., Ševčíková, A., Blinka, L. and Veselá, M. (2009) ‘Addiction and internet applications’, in B. Stetina and I. Kryspin-Exner (eds) *Gesundheit und Neue Medien*, Berlin: Springer, pp 235-60.

Figure 11: Questions on excessive use of the internet among children (age 11+), by country – % saying this has happened ‘very’ or ‘fairly often’



QC144a-e: How often have these things happened to you? The graph shows the percentage of children who answer ‘fairly’ or ‘very often’ to each statement.

Base: All children aged 11-16 who use the internet

In the next step, a linear regression was run on individuals in each country to illuminate possible country differences in predicting excessive internet use.

Table 5 presents the summary of linear regression results across countries to illuminate which factors (predictors) have the biggest effect on the level of excessive use in each country. The general European model, including the predictive variables in Table 5 below, accounts for 26% of

variation in the excessive (linear regression, dependent variable: excessive use index; $R^2 = 0.262$; model is statistically significant; method = enter; ordered by beta).

Looking at beta coefficients,²⁶ ‘time, spent on the internet (in minutes)’ is the most important variable to explain the

²⁶ Beta coefficients as standardised effects show the relevance of each variable.

variation in excessive internet use, followed by 'SDQ emotional problems' and 'risky offline activities'. Sensation seeking and peer problems are less important in explaining the variation in excessive internet use but still significant. Interestingly, neither demographic, social background nor parental mediation variables are considered significant in explaining excessive internet use.

Table 5: Predictors of excessive internet use

Variables	B	SE	Beta	Sig
Time spent on the internet (minutes)	0.001	0.000	0.223	0.000
SDQ emotional problems	0.062	0.004	0.129	0.000
Risky offline activities	0.024	0.002	0.117	0.000
Types of online communication in past year	0.010	0.001	0.112	0.000
Online persona: easier to function online then offline	0.039	0.003	0.112	0.000
SDQ conduct problems	0.059	0.005	0.102	0.000
Sensation seeking index	0.013	0.001	0.074	0.000
SDQ peer problems	0.040	0.004	0.071	0.000
Constant	-.252	.008	.000	.000

$R^2 = 0.262$; dependent variable excessive use index; model is significant; method = enter; ordered by beta

This general model has been tested 25 times across each country to see country variations of the general model and to reveal country differences in the explanation of excessive internet use. In Table 6, the most important predictive variables for every country are ranked. This model works for most of the countries. It shows which predictive variables are the most relevant predictors of excessive use across countries based on calculated averages of beta coefficient values in each country for each predictive variable. The variables are ranked from 1-5, where 1 means the most relevant predictive variable for

a country²⁷ and 5 means the least relevant predictive variable in that country.

- Unsurprisingly, in the majority of countries, time spent by children on the internet (in minutes) is the main predictor of excessive use. However, in Denmark and Italy, the most relevant predictor is SDQ emotional problems. The more children encounter psychological difficulties (as measured by the SDQ), the more likely that they use the internet excessively. Measures of these difficulties asked the child whether the following applied to them: getting a lot of headaches, stomach aches or sicknesses; worrying a lot; often being unhappy, sad or tearful; being nervous in new situations and easily losing confidence; having many fears; and being easily scared.
- In Austria and Spain, types of online communication used in the past year is the most relevant factor to predict the level of excessive use – this included measures that the child had sent/received emails; visited a social networking profile; visited a chat room; used instant messaging; made/received phone calls (for example, Skype); played games with other people on the internet; spent time in a virtual world; and put (or posted) a message on a website, that is, on a message board or forum.
- In Belgium, Bulgaria and Portugal, the variable of risky offline activities is the most relevant factor to predict the level of excessive use. This asked whether children had so much alcohol that they got really drunk; missed school lessons without their parents knowing; had sexual intercourse; been in trouble with their teachers for bad behaviour; or been in trouble with the police.

²⁷ It has the highest beta coefficient and accounts for the most variance in excessive internet use in that country.

Table 6: What predicts excessive internet use across countries?²⁸

Country/variable	Time spent on the internet (minutes)	SDQ emotional problems	Types of online communication in past year	Risky offline activities	Online persona: easier to function online than offline
Austria	4		1	3	2
Belgium	2	3		1	
Bulgaria	2			1	
Cyprus					
Czech Republic	1	2			3
Germany	1	4	3	5	2
Denmark	2	1	3		
Estonia					
Greece	1		2		
Spain	2	3	1	5	4
Finland	1	3	2		4
France	1	2	5	3	4
Hungary	1	3			2
Ireland	1		2		
Italy	4	1	2		3
Lithuania	1				
Netherlands	1	2	3	4	5
Norway	1		2	3	
Poland	1		2	4	3
Portugal	3		2	1	
Romania	1		2		3
Sweden	1	3		4	2
Slovenia					
Turkey	1	5	4	3	2
UK	1	2	5	3	4

* All effects in the table are positive.

Where there is no ranking regression coefficients, that means other coefficients are significant or none. This model as a whole does not hold for Cyprus, Estonia or Slovenia.

Base: All children who use the internet

²⁸ The order of predictive variables for each specific country in this table depends on the average size of beta coefficient in a country.

4. RISK AND HARM

4.1. Experiences of risk and harm across countries

Before taking a closer look at each of the risk encounters, a short summary of overall experiences of risk and harm is presented here, based on the sum of all the different risk encounters reported by children in each country. The main areas of risk asked about were:

- seen sexual images on websites in the past 12 months;
- have been sent nasty or hurtful messages on the internet in the past 12 months;
- seen or received sexual messages on the internet in the past 12 months;
- ever had contact on the internet with someone not met face-to-face before;
- ever gone on to meet anyone face-to-face first met on the internet;
- have come across one or more types of potentially harmful user-generated content in the past 12 months;
- have experienced one or more types of misuse of personal data in the past 12 months.

Looking across all these risks, 41% of European 9- to 16-year-olds had encountered one or more of these risks. Further, risks increase with age: 14% of 9- to 10-year-olds had encountered one or more of the risks asked about, rising to 33% of 11- to 12-year-olds, 49% of 13- to 14-year-olds and 63% of 15- to 16-year-olds.

As with uses, activities and skills, we now examine these findings more carefully across countries. It should be kept

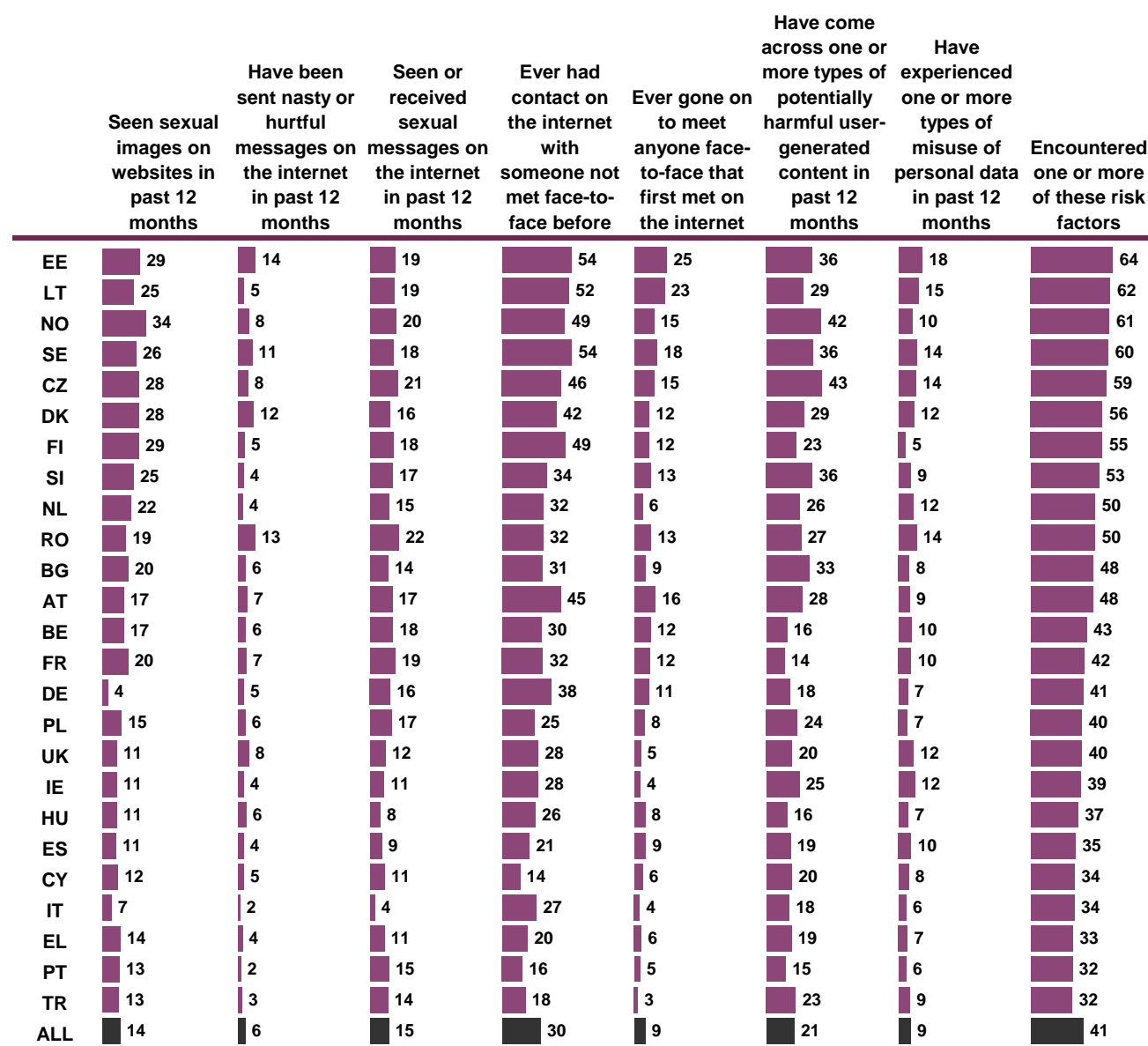
in mind that an important premise of the *EU Kids Online* project is that 'risk' refers to the probability of harm, but that the probability may be low.

Thus we report percentages of risk encountered (for example, percentage of children who have seen sexual images on the internet) and, separately, percentages of harm experienced (for example, percentage of children, out of those who have seen sexual images on the internet, who report that they have been bothered or upset by this experience).

As outlined in the introduction to this report, risks are reported two ways (first, the simple incidence of risk; second a more complex index of risk based on the types of the risk encountered). Similarly, harm is reported in two ways (first, the simple proportion of children who experienced the risk who found it bothersome or upsetting; and second, an index based on the intensity of harm which combines the degree of upset and the length for which it lasted).

Figure 12 shows the percentage of online risks that children have experienced online in each country. Overall, the highest percentage of risks experienced by children has been in North East Europe – Estonia and Lithuania have the highest percentage, closely followed by Sweden and Norway. Countries with the lowest risk encountered online are West and South European countries, the lowest percentage being in Turkey, Portugal, Greece and Italy.

Figure 12: Summary of online risk factors shaping children's probability of experiencing harm, by country



Note: For the exact questions asked of children, see the following sections of this report. Questions on sexual messages ('sexting'), negative user-generated content and data misuse were not asked of children aged 9-10.

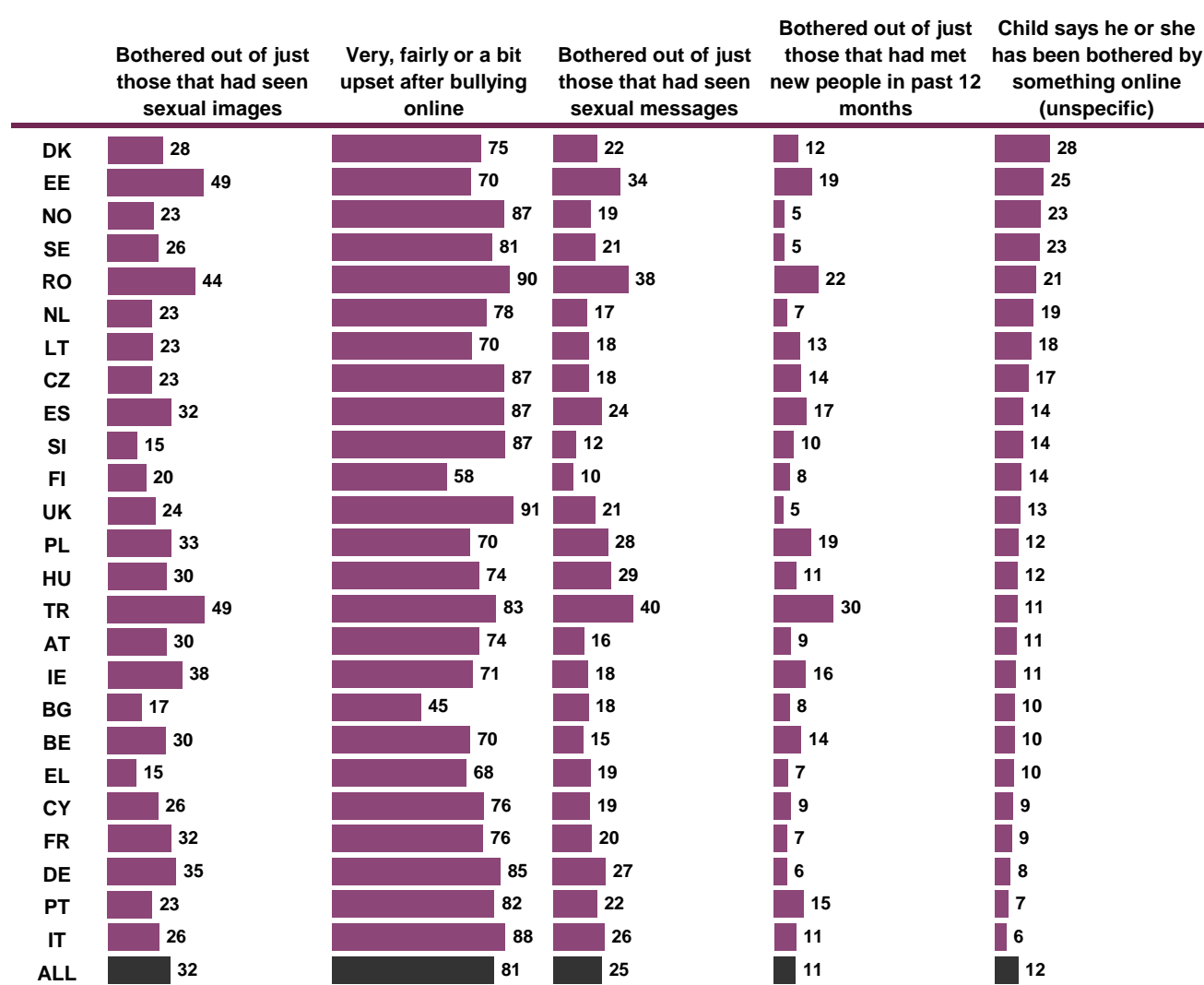
Base: All children who use the internet

Looking at the percentage of children feeling at least a bit upset due to the above risks, Figure 13 shows that country averages are relatively low in most of the countries. The percentage of children that have experienced any harm due to being exposed to sexual images (out of those who have seen such images) is highest in Turkey, Estonia, and Romania.

- Of those who have encountered bullying online, the percentage of children who have been upset due to bullying is the highest in Denmark, the UK, Sweden and Romania.
- Of those who have received sexual messages online, this has bothered the highest percentage of children in Turkey, Romania and Estonia.

- Going to a face-to-face meeting with someone first met on the internet seem to be a surprisingly harmless activity in nearly all European countries, apart from Turkey, where almost one-third of children who went to such a meeting have been bothered at such meetings.
- Also Polish, Spanish and Portuguese children have been slightly more bothered by face-to-face meetings with new people from the internet out of those who went to such meetings.
- But, for most children, such meetings appear harmless, even fun, and have generally involved meeting other children in their wider circle.
- A word of caution here: the sample sizes for country differences in Figure 13 are generally rather small, and so should be treated as indicative only.

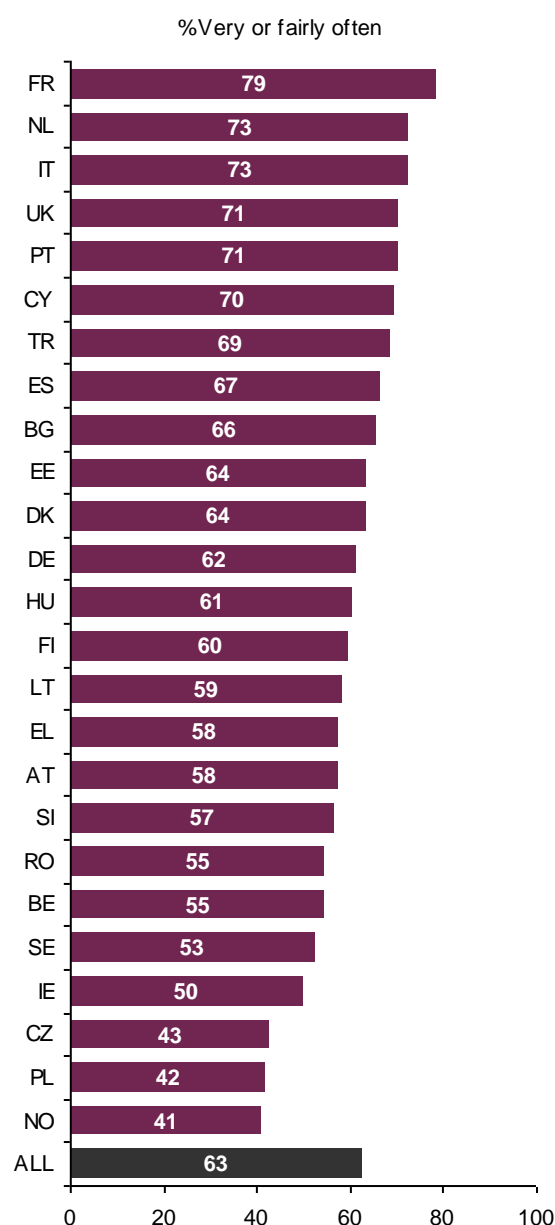
Figure 13: Percentage of children who have been bothered or upset after having encountered risks on the internet out of those who had encountered such risks



Variables: QC134, QC171 (In the last 12 months have you seen anything like this that bothered you in any way? For example, made you feel uncomfortable, upset, or feel that you shouldn't have seen them?) QC118 and QC160: How upset did you feel about what happened (if at all)?

Base: All children who have encountered a certain risk

Figure 14: Percentages of children talking about harm experienced online across countries



Variables: QC121, QC138, QC163, QC175: Again, still thinking about this time, did you talk to anyone about what happened?

Base: All children who have experienced harm associated with a certain risk

Surprisingly, the countries in which children tend to talk to someone about harm the most are neither the countries with the highest percentage of children with harmful experiences nor the countries with the most intensive

harmful experiences, France being the exception. The children who tend to talk to someone about the harmful experiences are from France, the Netherlands, Italy, the UK and Portugal. In the Nordic countries, where the percentage of harmful risks encountered is highest, children tend to speak less to someone about that harm and on the contrary, in Italy, where the amount and the intensity of harmful experience is among the lowest, children are open to speak to someone about their harmful experience.

In Sweden, Ireland, the Czech Republic, Poland and Norway, children seem to be the least keen on talking to someone about their harmful experience.

Table 7 presents country clusters based on K-means clustering procedure on country means with usage and risk variables. This analysis attempts to find centres of natural clusters in the data set and thus to find countries that exhibit similar characteristics in terms of use, activities and risks on the internet. The analysis reveals four groups of countries.

- **Group 1:** Spain, Ireland, Portugal and Turkey. These are the countries with the lowest internet usage in Europe. Nonetheless, excessive use of the internet among some children represents one of the two biggest problems in this group. It seems that internet use is not yet embedded in the everyday in these countries, used only a little by many children and used too much by a few. The second problem characteristic of this group is that they are relatively high in terms of the risks associated with user-generated content. Seeing or receiving sexual messages online, pornography and data misuse are below average, while bullying and meeting people online are similar or lower than for other groups. This group may be labelled 'lower use, some risk'.
- **Group 2:** Austria, Belgium, Germany, France, Greece, Hungary and Italy. These are the countries that are low on internet usage and also below average on all risks apart from meeting online contacts – online and offline. Assuming a developmental path according to which more internet use brings more opportunities and, associated with those, more risks, it may be predicted that these countries might expect risk exposure to rise as the internet becomes further embedded in children's lives. This may be labelled 'lower use, lower risk'.
- **Group 3:** Bulgaria, the Czech Republic, Denmark, Estonia, Lithuania, Norway, Romania and Sweden. These are the countries that are highest in Europe

regarding usage as well as all types of online risks. Nonetheless, as indicated below, it is likely that there are diverse reasons for the membership of this rather heterogeneous group – some countries where risks are relatively new and the country lacks infrastructure to manage them and others where internet use is thoroughly embedded although not especially high while risk management is well developed. This may be labelled 'higher use, higher risk' and subdivided into 'established use, higher risk' (for Nordic countries) and 'newer use, higher risk' (for Eastern European countries).

- **Group 4:** Cyprus, Finland, the Netherlands, Poland, Slovenia and the UK. These are the countries with heavy internet use among children in Europe. More of them declared having problems with excessive use. With regards to various risks, negative user-generated content seems to be more often encountered than elsewhere. This may be labelled 'higher use, some risk'.

Table 7: Country clusters by usage and various risks

		Country segmentation			
		ES, IE, PT, TR	AT, BE, DE, EL, FR, HU, IT	BG, CZ, DK, EE, LT, NO, RO, SE	CY, FI, NL, PL, SI, UK
CLUSTER ANALYSIS	Usage	72,5	80,3	115,3	101,3
	Level of seeing sexual images risks	,04	,04	,08	,05
	Level of bullying risks	,01	,01	,02	,02
	Level of sending/receiving sexual messages risks	,05	,05	,07	,04
	Level of meeting new people risks	,03	,05	,07	,05
	Meeting strangers offline risk	,24	,31	,36	,23
	Level of negative user generated risks	,08	,06	,13	,08
	Level of misuse data risks	,04	,03	,06	,04
	Excessive use Index	,16	,12	,18	,17

Variables: Dctimeuse (estimated time spent online), dc133sd (level of seeing sexual images), dc117sd (level of bullying risk), dc169sd (level of sending/receiving sexual messages risk), dc151sd (level of meeting new people risk), dc142sd (level of negative user-generated content), dc143sd (level of misuse data risk), dc148dy (meeting online contacts offline risk) and excessive use index

Base: All children who have encountered a certain risk

In the following we turn to examine each of the four main risks in detail, looking first at the country level of a certain risk and then seeking to explain what factors predict that specific risk in each country.

4.2. Seeing sexual images

Pornography is not easy to define. It covers a wide range of material, from the everyday to the illegal. It may or may not be harmful to those exposed to it. In terms of the classification of risks, it constitutes a content risk,

positioning the child as receiver of what is, generally, mass-produced content distributed via the internet.

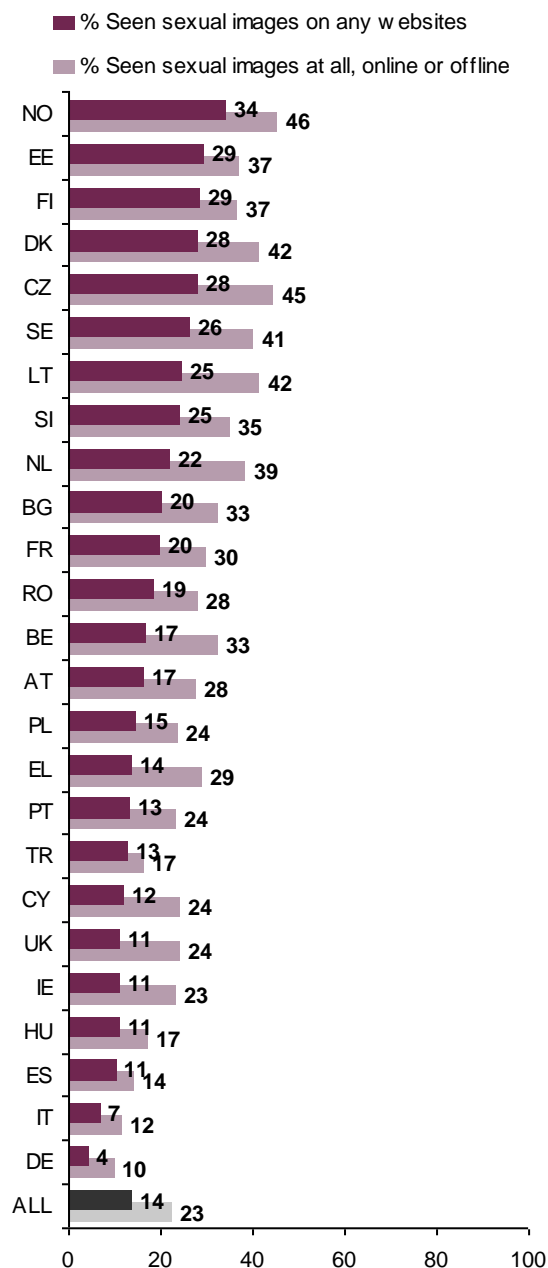
For ethical reasons, pornography cannot be defined very explicitly in a survey with children, for to do so might introduce new ideas to children who are hitherto unaware of such phenomena. Consequently, although this section broadly concerns pornography, the term itself was not used in the interviews with children.²⁹

²⁹ We are aware that there could be some slippage of meaning between pornographic and other kinds of sexual images (for

Questions about pornography were introduced to children in the following way:

'In the past year, you will have seen lots of different images – pictures, photos, videos. Sometimes these might be obviously sexual, for example, showing people naked or people having sex.'

Figure 14: Child has seen sexual images online or offline in past 12 months, by country



QC128: Have you seen anything of this kind [obviously sexual]?
 QC131: Have you seen these kinds of things on any websites in the past 12 months?

Base: All children who use the internet

example, biological, health-related), but in a survey of this kind, there is little means of pursuing this distinction with children. In interpreting the findings, a degree of caution is appropriate. When it comes to parents, it is easier to be clear that parents understood that the question referred to pornography, although other issues arise in relation to where adults draw the line between what they do or do not call pornographic.

To contextualise online pornography within the wider context of exposure to pornography across any media, children were first asked, *'Have you seen anything of this*

kind in the past 12 months?’ As noted in the full findings report,³⁰ most 9- to 16-year-olds in Europe say that they have not seen sexual images of any kind.

Figure 14 shows the risk of seeing sexual images encountered across countries. The European average is relatively low: on average, very few children across Europe had seen any kind of sexual images online.

Country differences in exposure to sexual images online are shown in Figure 14. This reveals striking differences across Europe.

- The greatest exposure to sexual images online is among children in Northern European countries (Norway, Denmark, Sweden, the Netherlands and Finland) and Eastern European countries (the Czech Republic, Lithuania, Estonia and Slovenia), with around one-third having seen sexual images either online or offline.
- Least exposure is in large, ‘older’ members of the EU – Germany, Italy, Spain, Ireland and the UK – possibly countries where technical safety infrastructure is more developed than in newer entrant countries.

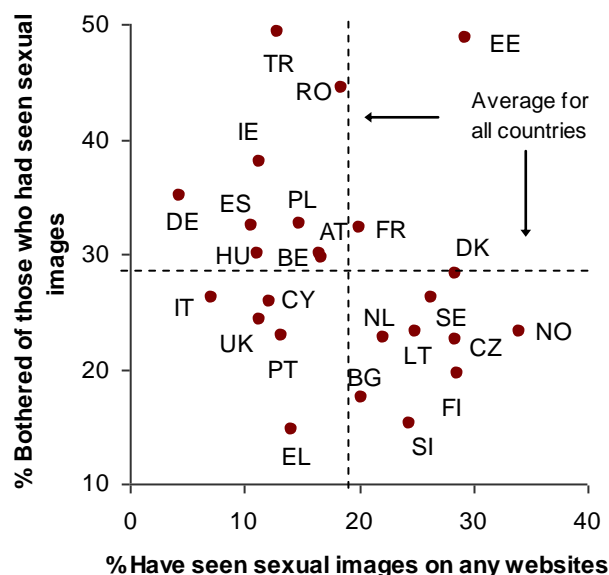
The overall reported exposure to sexual images in this survey is somewhat lower than found in other surveys, although others may use milder definitions of pornography (here the emphasis was on sexuality, including images of people having sex) and, generally, others have surveyed teenagers.³¹ In the present survey, the one in five who report exposure to sexual images across media represents an average of all age groups, from the lowest (one in nine of the 9- to 10-year-olds) to the highest (more than one in three of the 15- to 16-year-olds). It is also an average across all countries, where a similar range occurs (from countries where more than one-third of children have seen sexual images to those where only one in eight has seen it).

On average, 14% of the children surveyed have seen sexual images online. It is noteworthy that exposure to such images on the internet is roughly associated with exposure across all media. In countries where more

children have seen sexual images in general (in particular, on television, film or video/DVD), it seems that children in those countries are also more likely to have encountered it online. In some countries, the internet represents a proportionately less important source of exposure to pornography (for example, Germany, Ireland, Portugal, Greece and the UK). This suggests that if children do see sexual images in these countries, it is often on other media. In other countries, it seems that the internet has become as or more common than any other source of pornography (for example, Estonia, Finland, Turkey and Spain). National studies are needed to provide an explanation of these differences.

Figure 15 plots countries in terms of the percentage of children in each country who have seen sexual images on the internet, compared with the percentage of children in that country who have seen sexual images on the internet and been upset or bothered by seeing such images.

Figure 15: Children bothered out of those who have seen sexual images on the internet, among those children who have seen such images online, by country



³⁰ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings* LSE, London: EU Kids Online.

³¹ When reviewed in Hasebrink, U. et al (2009) *op cit*, the average exposure to pornography on the internet among teenagers was around four in ten. Clearly the inclusion of younger children in the *EU Kids Online* survey has reduced the average overall.

QC131: Have you seen these kinds of things [obviously sexual] on any websites in the past 12 months? And QC134: In the LAST 12 MONTHS have you seen any things like this that have bothered you in any way? For example, made you feel uncomfortable, upset, or feel that you shouldn't have seen them.

Base: All children who use the internet and then only children who have seen sexual images online

- In general the higher the percentage of children in a country who have seen sexual images on websites, the lower the percentage who have been bothered by seeing such images.
- Estonia is a notable exception from this overall pattern, with not only relatively more children having seen sexual images but also relatively more of these children saying that they have been bothered by seeing these images.

Table 8 presents the summary of linear regression results across countries to illuminate which factors (predictors) have the biggest effect on the risk of seeing sexual images in each country. The general European model, including the predictive variables in Table 8 below, accounts for 17% of variance in the dependent variable (linear regression, dependent variable: type of seeing sexual images; $R^2 = 0.168$; model is significant; method = enter; ordered by beta).

Table 8: Predictors of seeing sexual images on websites

Variables	B	SE	Beta	Sig
Risky offline activities	0.034	0.002	0.180	0.000
Risky online activities	0.017	0.001	0.144	0.000
Number of online activities	0.006	0.000	0.118	0.000
Sensation seeking index	0.014	0.001	0.083	0.000
Number of places where the internet is used	0.006	0.001	0.056	0.000
Internet competencies	0.002	0.001	0.035	0.000
Time spent on the internet (minutes)	0.000	0.000	0.030	0.000
Child age	0.002	0.001	0.022	0.009
Number of online activities allowed any time (restrictions)	0.001	0.000	0.021	0.020
Self-efficacy	0.005	0.003	0.015	0.057
Child gender	-.007	0.003	-.021	0.005
SES of household	-.012	0.002	-.051	0.000
Number of devices used to access the internet	-.008	0.001	-.076	0.000
Constant	-.074	0.016		0.000
Linear regression, dependent variable: type of pornography; $R^2 = 0.168$; model is significant; method = enter; ordered by beta				

This general model has been tested 25 times across each country to see country variations of the general model and to allow reveal country differences in the explanation of which children see sexual images. This model works for most of the countries. Table 9 shows which variables are the most relevant predictors of risk of seeing sexual images across countries based on beta coefficient values in each country for each predictive variable. The variables are ranked from 1-5, where 1 means the most relevant predictive variable for a country³² and 5 means the least relevant predictive variable in that country.

- In the majority of countries, risky offline activities (children had so much alcohol that they got really drunk; missed school lessons without their parents knowing; had sexual intercourse; been in trouble with their teachers for bad behaviour; been in trouble with the police) account for a greater risk of seeing sexual images. The more children encounter offline risks, the higher risk of seeing sexual images they will encounter. Applying a 'risk migration hypothesis', it would suggest that children in 'at risk' life circumstances are more likely to encounter higher risk of seeing sexual images than those in 'normal' circumstances.
- In Belgium, Romania, Sweden and the UK the most relevant predictor is risky online activities (children have looked for new friends on the internet; added people to their friend's list or address book whom they have never met face-to-face; pretended to be a different kind of person on the internet from what they really are; sent personal information to someone whom they have never met face-to-face; sent a photo or video of themselves to someone whom they have never met face-to-face).
- In Hungary, sensation seeking is the most important predictor. Those children who are inclined to do dangerous things for fun or exciting things even if they are dangerous are more likely to encounter a higher risk of seeing sexual images.
- The number of activities children do online is the most important predictor in the Netherlands and Portugal, where the higher number of online activities leads to a higher risk of seeing sexual images.
- Child's gender is the most important predictor in Greece, where girls encounter a lower risk of seeing sexual images.

³² It has the highest beta coefficient and accounts for the most variance in risk of seeing sexual images in that country.

Table 9: The most important predictors for risk of seeing sexual images across countries

Country/variable	Risky offline activities	Risky online activities	Sensation seeking index*	Number of online activities	Child gender**
Austria	1				
Belgium	2	1			
Bulgaria	1		3	2	
Cyprus	1	4	2		3
Czech Republic	1	2	3		4
Germany	1	2			
Denmark	1	4	2		3
Estonia	1	3	4		
Greece		2			1
Spain	1	2	3		
Finland	1	2		5	3
France	1	2	3	4	
Hungary	2	3	1		
Ireland	1	3			
Italy	1		3	2	
Lithuania	1	4	2	3	
Netherlands	2	4		1	
Norway	1	6	2	5	4
Poland	1	2		5	3
Portugal	3	6	4	1	5
Romania	2	1			
Sweden	2	1	4		5
Slovenia	1		4	2	3
Turkey	1	3		2	
UK		1	2	3	

* Positive effect, but negative in Slovenia. ** Negative effect, but positive in Poland (means less risky for girls, but more in Poland).

Base: All children who use the internet

4.3. Being bullied

In terms of the classification of risks, being bullied is one of several conduct risks that may harm children when they use the internet. In some sense, bullying builds on children's availability through and/or conduct in peer-to-peer exchanges and, significantly, the threat comes from a peer.

Although the term 'bullying' has a distinct and familiar meaning in some countries, this is not universal, making the term difficult to translate. So, as with 'pornography', the term 'bully' was not used in the children's questionnaire. Instead, it was defined thus:³³

*Sometimes children or teenagers say or do hurtful or nasty things to someone and this can often be quite a few times on different days over a period of time, for example. This can include: teasing someone in a way this person does not like; hitting, kicking or pushing someone around; leaving someone out of things.*³⁴

The interviewer then explained to the child that these activities could refer to events that occurred in person face-to-face, by mobile phone calls or texts, or on the internet, for example, via email or social networking sites. (We aim here to put online bullying or 'cyberbullying' in the context of other kinds of bullying 'offline'.)

Following this introduction, children were asked whether *someone has acted in this kind of hurtful or nasty way to you in the past 12 months?* The findings in the general report of this project³⁵ have shown that bullying is rarely a frequent experience – 5% say someone has acted towards them in a hurtful or nasty way more than once a week, for 4% it is once or twice a month, and for 10% it is less often, suggesting one or a few instances have occurred in the past year.

- One in five (19%) 9- to 16-year-olds across Europe say that someone has acted in a hurtful or nasty way towards them in the past 12 months.

- Bullying is not a common experience – 5% say someone has acted towards them in a hurtful or nasty way more than once a week, for 4% it is once or twice a month, and for 10% it is less often, suggesting one or a few instances have occurred in the past year.
- Few if any demographic differences can be seen in bullying. In this sense, bullying is spread thinly across the range of children of both genders and all ages.
- The most common form of bullying is in person, face-to-face: 13% say that someone has acted in a hurtful or nasty way towards them in person face-to-face compared with 6% who say that this happened on the internet and 3% who say that this happened by mobile phone calls or messages.

Country differences are noteworthy both in general and online (see Figure 16).

- In Romania and Estonia more than four in ten children report having been bullied, twice the average across all countries, and online bullying in these countries is more than twice the average, at one in seven children who use the internet.
- Bullying occurs less frequently in several Southern European countries (Portugal, Italy, Turkey and Greece) and the Netherlands.

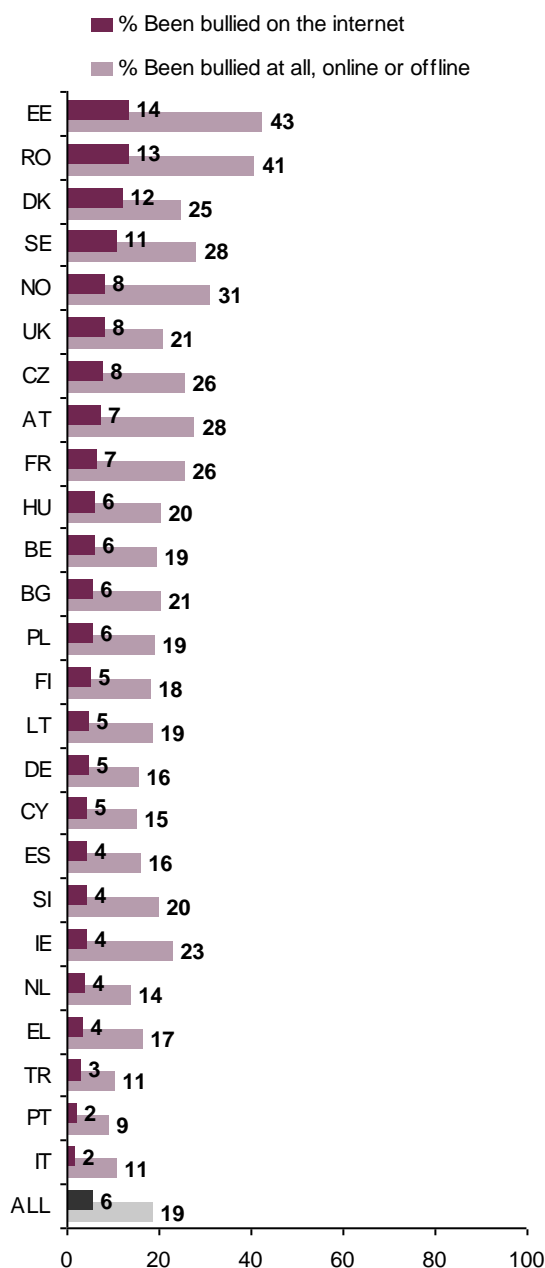
Bullying online appears more common in countries where bullying in general is more common (rather than, say, in countries where the internet is more established). This suggests that online bullying is a new form of a long-established childhood problem rather than, simply, the consequence of a new technology.

³³ See Smith, P.K., Mahdavi, J. and Carvalho, M. (2008) 'Cyberbullying: its nature and impact in secondary school pupils', *Journal of Child Psychology and Psychiatry*, 49(4), 376-85. See also www.olweus.org/public/bullying.page

³⁴ For 9- to 10-year-olds, the texts introducing each section were shorter than for 11- to 16-year-olds, and just for the younger children, the interviewer ensured the child understood the topic before the child completed those questions privately.

³⁵ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

Figure 16: Child has been bullied online or offline in past 12 months, by country

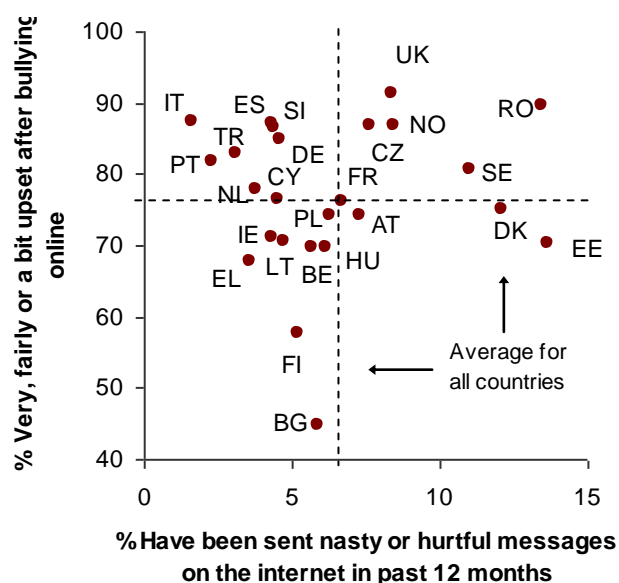


QC112: Has someone acted in this kind of hurtful or nasty way to you in the past 12 months? QC115: At any time during the last 12 months has this happened on the internet?

Base: All children who use the internet

Figure 17 plots countries in terms of the percentage of children who have been bullied and then for those children who have been bullied the percentage of children who say that they have been a bit, fairly or very upset by this experience.

Figure 17: Children very, fairly or a bit upset after bullying online out of those who have been bullied online, by country



QC115: At any time during the last 12 months has this [someone acting in this kind of hurtful or nasty way to you] happened on the internet? And QC118: Thinking about the last time you were [sent nasty or hurtful messages on the internet], how upset were you about what happened (if at all)?

Base: All children who use the internet; those who have been bullied on the internet in the past 12 months

For most countries somewhere between 70 and 90 percent of children who have encountered bullying on the internet say that they have been a bit, fairly or very upset by this experience. Finland and Bulgaria are a noteworthy exception and are not only below average in terms of children who have encountered bullying but also below average in terms of to what extent those who experienced it found it upsetting.

Table 10 presents the summary of logistic regression results across countries to illuminate which factors (predictors) have the biggest effect on bullying in each country.

Table 10: Predictors of bullying

Variables	(Exp)B	Wald	Sig
Has sent a nasty or a sexual message	1.711	52.353	0.000
'I get very angry and often lose my temper'	1.004	39.676	0.000
Gender	1.177	45.141	0.000
Time spent on the internet (minutes)	1.311	16.617	0.000
Risky online activities	1.125	5.431	0.020
Online persona: easier to function online than offline	2.871	89.691	0.000
Constant	0.050	237.552	0.000
Hosmer and Lemeshow test = 0.105 (-2Log likelihood = 4522.934); Model significantly fits the data, ordered by Wald; Nagelkerke R ² = 13.8% (method = enter); 69.7% correctly classified cases			

This general model has been tested 25 times across each country to see country variations of the general model and to reveal country differences in the explanation of country specifics regarding bullying. The model works for most of the countries. However, the predictive variables are ranked with regard to their importance in each country, taking into consideration in how many countries it appears and what is its average Wald coefficient. Table 11 shows which variables are the most relevant predictors of bullying across countries, based on beta coefficient values in each country for each predictive variable. The variables are ranked from 1-5, where 1 means the most relevant predictive variable for a country and 5 means the least relevant predictive variable in that country.

- In the majority of the countries, having acted as a perpetrator by either bullying or sending sexual messages to other children accounts for a greater level of bullying risk. In other words, children in Austria, Belgium, Cyprus, the Czech Republic, France, Ireland, Lithuania, Norway and Romania are significantly more likely to encounter bullying because they have bullied someone or have sent sexual messages to someone.

- In Bulgaria, Denmark, Poland, Portugal and Sweden the most relevant predictor is risky online activities (children have looked for new friends on the internet; added people to their friend's list or address book whom they have never met face-to-face; pretended to be a different kind of person on the internet from what they really are; sent personal information to someone whom they have never met face-to-face; sent a photo or video of themselves to someone whom they have never met face-to-face).
- In Spain, Finland and Lithuania, child gender is the most relevant in predicting the level of bullying. Girls are more likely to encounter such risk than boys.
- In Greece, Hungary, Italy and Slovenia, the most important predictor is usage. If children in these countries spend more time on the internet, they are more likely to encounter bullying risk. This might suggest that children who use the internet more have access to many online opportunities and at the same time may encounter more online risks, namely more risk of being bullied.
- In Turkey, children who get angry and more often lose their temper are the most likely to be bullied.

Table 11: The most important predictors of bullying across countries

Country/variable	Has sent a nasty or a sexual message	Risky online activities	Child gender	Time spent on the internet (minutes)	I get very angry and often lose my temper*
Austria	1	2	3		
Belgium	1				
Bulgaria	3	1	2		
Cyprus	1				
Czech Republic	1				
Germany					
Denmark		1	3	2	
Estonia					
Greece				1	
Spain			1		
Finland			1		
France	1		3		2
Hungary				1	
Ireland	1			3	2
Italy				1	
Lithuania	1				
Netherlands		2	1		
Norway	1		3	2	
Poland		1			
Portugal		1			
Romania	1	2			
Sweden	2	1			
Slovenia			2	1	
Turkey		2			1
UK					

* Negative effect, but positive in France.

Where there is no ranking of the regression coefficients none of the predictors used in the overall model are significant. This model as a whole does not hold for Germany, Estonia or the UK.

Base: All children who use the internet

4.4. Sending/receiving sexual messages online ('sexting')

There is some evidence, and much speculation, that the internet facilitates the exchange of sexual messages among peers. Originating with the spread of mobile phone messaging more than with online communication, and thus popularly labelled 'sexting' (an amalgam of 'sex' and 'texting'), such practices have given rise to popular and policy concern.³⁶

This topic was explored in the survey because of both the intended and unintended consequences of sexual messaging. Exchanging messages with sexual content, whether in words or pictures, may merely make visible on the internet the kinds of practices in which children have always engaged, and this may be fun, part of flirtation, involving the exploration of developing sexuality and intimacy. On the other hand, when distributed on the internet, such messages may be circulated to unexpected recipients and hard to delete or edit in terms of their content.

Although the practice of sexual messaging online could be compared with offline equivalents (notably, via mobile text messaging), so the focus here is on the internet: how much do such practices occur, and among which children? As with pornography, it was judged appropriate first to ask children about these practices and then to ask if such practices had bothered them or not. As with bullying, questions concerned both receiving and also sending sexual messages. Last, for reasons of both research ethics and interview length, questions about sending and receiving sexual messages were not asked of 9- to 10-year-olds.

The term 'sexting' was not used in the questionnaire. Children were introduced to the questions on sending and receiving sexual messages as follows:

'People do all kinds of things on the internet. Sometimes they may send sexual messages or images. By this we mean talk about having sex or images of people naked or having sex.'

³⁶ Lenhart, A. (2009) *Teens and sexting: How and why minor teens are sending sexually suggestive nude or nearly nude images via text messaging*, Washington, DC: Pew Internet & American Life Project. See also Sacco, D.T., Argudin, R., Maguire, J. and Tallon, K. (2010) *Sexting: Youth practices and legal implications*, Cambridge, MA: Berkman.

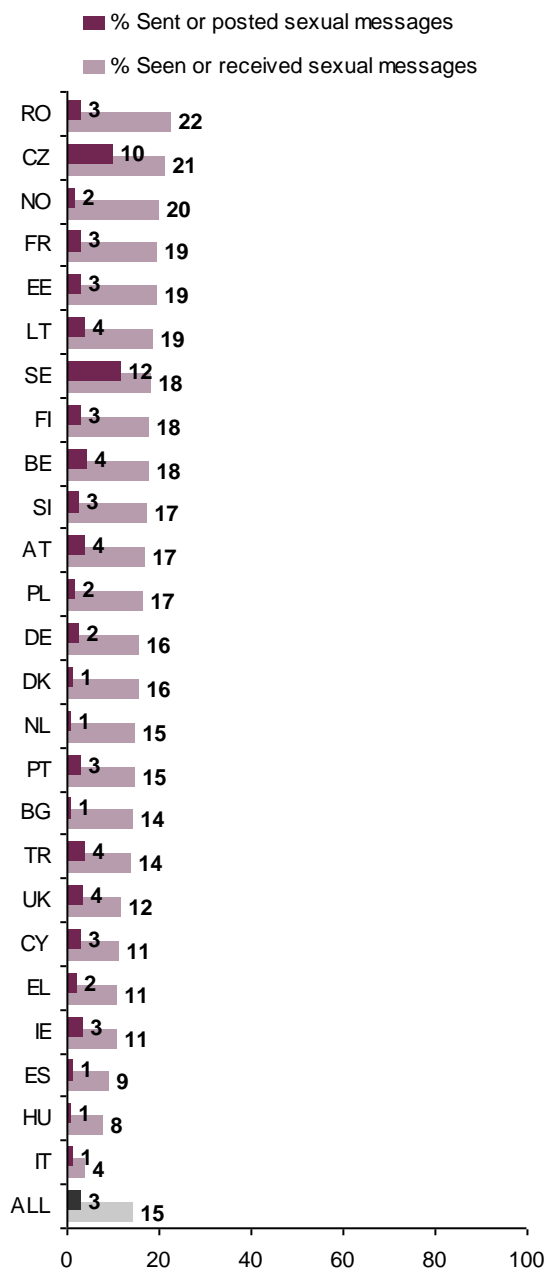
One complication of online communication, and one reason for public and policy concern about sexual messaging, is that these messages may be sent from peer to peer directly or they may be posted online (for example, on a social networking site or message board) where they can be seen by others.

Consequently we asked about both sending/receiving messages and about posting/seeing messages. Seeing and receiving are treated in this section as passive (or, potentially, 'victim') activities. Posting or sending is treated as active (or, potentially, 'perpetrator') activities. As elsewhere in this report, the exact question asked in the survey is reproduced at the foot of each figure. It should be noted that the survey referred to '*sexual messages of any kind on the internet? This could be words, pictures or videos*'.

Countries vary in the practice of sexual messaging. Figure 18 includes the finding for posting or sending sexual messages, as well as seeing or receiving such messages.

- Overall, seeing/receiving is more common (although still a minority practice, at 15%) than posting/sending. Only a small proportion of children – 3% of 11- to 16-year-olds – say that they have posted or sent a sexual message in the past 12 months.
- National differences are relatively minor – about two-thirds of countries are in the range from 14-20%. Seeing/receiving sexual messages is more common in some Eastern European countries (Romania, the Czech Republic and Estonia) and France, and least common in Italy, Hungary and Spain. Interpreting the pattern of incidence by country is difficult.
- The relative balance between sending and receiving sexual messages is most equal in Sweden and the Czech Republic. In other countries, far fewer claim to have sent than to have received sexual messages on the internet.
- Generally there is little variation in the percentage of children who have sent or posted sexual messages, which in most cases ranges between 1% and 4%. Sweden and the Czech Republic stand out in this respect, however, with more children (12% and 10% respectively) saying that they have sent such messages in the past 12 months.

Figure 18: Child has seen/received or posted/sent sexual messages online in past 12 months (age 11+)

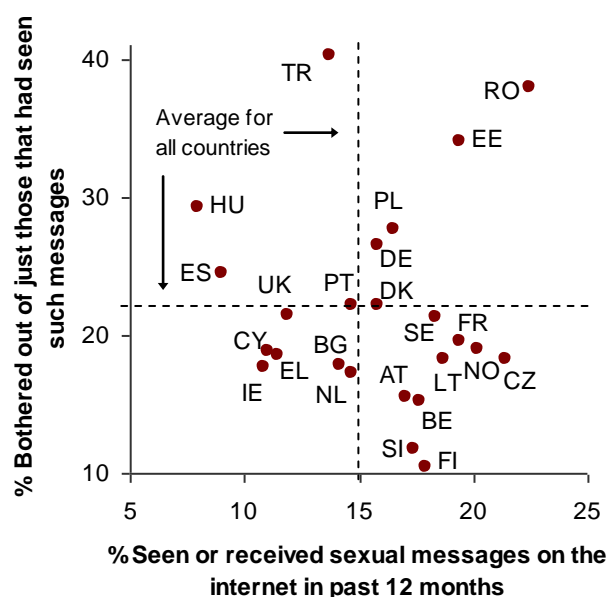


QC167: In the past 12 months have you seen or received sexual messages of any kind on the internet? This could be words, pictures or videos. QC179: In the past 12 months, have you sent or posted a sexual message (words, pictures or video) of any kind on the internet? This could be about you or someone else.

Base: All children aged 11-16 who use the internet

Figure 19 plots countries in terms of the percentage of children who have seen or received sexual messages and compares it with the percentage of children who have seen or received such messages and been bothered by them.

Figure 19: Children bothered after seeing or receiving sexual messages out of those who have seen or received such messages, by country



QC167: In the past 12 months have you seen or received sexual messages of any kind on the internet? This could be words, pictures or videos. QC171: Has any of the sexual messages that you have seen or received bothered you in any way? For example, made you feel uncomfortable, upset, or feel that you shouldn't have seen it?

Base: All children aged 11-16 who use the internet; children aged 11-16 who have seen or received sexual messages online in the past 12 months

In general for countries where more children have seen or received sexual messages, a smaller share of those who have say that they have been bothered by these messages. Turkey, Romania and Estonia are an exception as the share of bothered is considerably above the average is these countries.

Table 12 presents the summary of linear regression results across countries to illuminate which factors (predictors) have the biggest and significant effect on receiving sexual messages in each country. The general European model, including all the variables in the table,

accounts for 19% of variance in the dependent variable (linear regression, dependent: level of receiving sexual messages. $R^2 = 0.189$; model is significant; method = enter; ordered by beta).

Table 12: Predictors of risk of seeing or receiving sexual messages

Variables	B	SE	Beta	Sig
Risky offline activities	0.036	0.001	0.234	0.000
Risky online activities	0.016	0.001	0.173	0.000
Number of online activities	0.004	0.000	0.106	0.000
Sensation seeking index	0.007	0.001	0.053	0.000
Time spent on the internet (minutes)	0.000	0.000	0.042	0.000
Child gender	0.007	0.002	0.027	0.000
SDQ complete	0.011	0.004	0.021	0.006
Age	0.001	0.001	0.016	0.044
Constant	-.085	0.011	0.000	0.000
Linear regression, dependent: type of risk of sexting. $R^2 = 0.189$; model is statistically significant. Method = enter; ordered by beta				

This general model has been tested 25 times across each country to see country variations of the general model and to reveal country differences in the explanation of which children receive sexual messages. The model works for most of the countries, as shown in Table 13. It shows which predictive variables are the most relevant predictors of receiving sexual messages across countries based on beta coefficient values in each country for each predictive variable. The variables are ranked from 1-5, where 1 means the most relevant predictive variable for a country³⁷ and 5 means the least relevant predictive variable in that country.

- In the majority of countries, risky offline activities (children had so much alcohol that they got really drunk; missed school lessons without their parents knowing; had sexual intercourse; been in trouble with their teachers for bad behaviour; been in trouble with the police) account for a greater level of sexting. Again, this might be explained by the fact that children with 'at risk' life circumstances are more likely to encounter a higher risk of receiving sexual messages than those in 'normal' circumstances. In Romania and Slovenia, the variable of risky offline activities is the least important statistically significant factor to predict the level of sexting.
- In Belgium, Bulgaria, Greece, Romania, Slovenia, Spain and the UK the most relevant predictor is risky online activities (children have looked for new friends on the internet; added people to their friend's list or address book whom they have never met face-to-face; pretended to be a different kind of person on the internet from what they really are; sent personal information to someone whom they have never met face-to-face; sent a photo or video of themselves to someone whom they have never met face-to-face), followed by the number of online activities they engage with.

³⁷ It has the highest beta coefficient and accounts for the most variance in excessive internet use in that country.

Table 13: The most important predictors of receiving sexual messages across countries

Country/variable	Risky offline activities	Risky online activities	Number of online activities	Sensation seeking index	Time spent on the internet (minutes)
Austria	1	2			
Belgium		1			
Bulgaria	2	1	3		
Cyprus					
Czech Republic					
Denmark	1	2	3	4	5
Estonia	1	2			
Finland					
France	1				
Germany	1	2		3	
Greece		1		2	
Hungary	1	2	5	3	4
Ireland	1				2
Italy	1				
Lithuania	1		2		
Netherlands	1				
Norway	1	2	3		
Poland	1		2		
Portugal	1	2	3		4
Romania	3	1	2		
Slovenia	3	1	2		
Spain	2	1			
Sweden					
Turkey	1	2	4		3
UK	2	1	4	3	

* All effects in the table above are positive.

Where there is no ranking of the regression coefficients, none of the predictors used in the overall model are significant. The model is not significant in Cyprus, the Czech Republic, Finland or Sweden.

Base: All children aged 11-16 who use the internet

4.5. Meeting new people

The greatest public and policy concern for children's safety on the internet is possibly focused on the risk that a child will meet someone new online who then abuses them in a subsequent face-to-face meeting. Such meetings constitute a contact risk.

However, previous research suggests that the risk of harm from a face-to-face meeting with someone whom one first met on the internet is low, not least because children increasingly use the internet to widen their circle of friends, with very few using online communication to meet adults (whether deliberately or inadvertently).³⁸ And although it is possible for contacts with new people online to result in harm, public concern tends to leave unclear just what harm might result (online exploitation or deception or offline abuse?).

The *EU Kids Online* questionnaire focused on the practice of making new friends online leading to meetings with such people offline and, then, whether this latter posed a statistically significant risk of harm to children aged 9-16.

The first step was to understand the pattern of children's online contact and/or face-to-face meetings with people with whom they had not previously met face-to-face. The general report findings³⁹ show that three in ten children (30%) had made contact online with someone they did not previously know offline. Further, 9% of 9- to 16-year-olds had gone to a meeting face-to-face with someone whom they first met on the internet. Since this 9% is an average of a lower percentage of younger children and a higher percentage of teenagers, this accords with our previous estimate, based on a review of national surveys, that roughly one in ten teenagers have met an online contact offline.⁴⁰ However, most of these meetings were with other children about their own age, although a few were with unknown adults. It seems unlikely, therefore, that the internet is responsible for a substantial increase in the likelihood of face-to-face meetings with online contacts.

Figure 20 shows national differences in contacts and meetings with people first met online. Countries are ordered by the occurrence of face-to-face meetings:

- Children are most likely to have gone to an offline meeting with a contact first made online in some of the Baltic countries (25% in Estonia and 23% in Lithuania). Such offline meetings are least common in Turkey (3%), followed by Italy and Ireland (each 4%).
- It appears that in countries where making contact with new people online occurs more often, there is also a greater likelihood that children will have gone to meet such a person or people offline, notably in Estonia, Lithuania and Sweden. However, there are quite a few exceptions: for example, children in Finland, Denmark, Slovenia and the Netherlands have quite a high likelihood of having online contacts whom they have not met face-to-face but they go to relatively fewer offline meetings compared to some other countries.

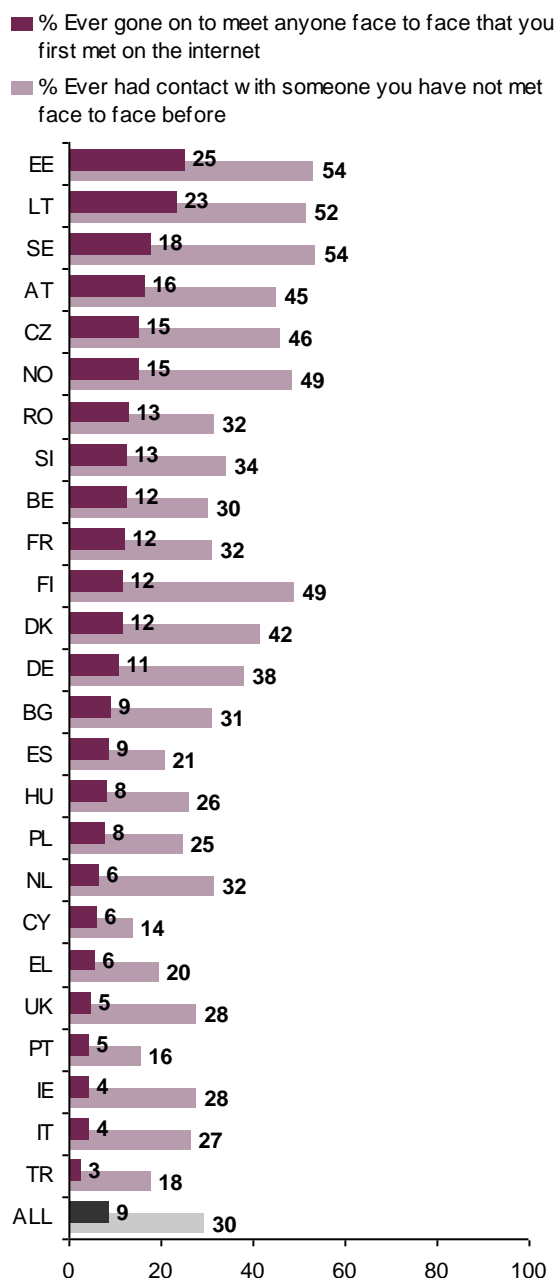
In what follows, we examine the findings for meeting online contacts offline. It is not assumed that making new contacts online is necessarily harmful and it may, for many, afford positive opportunities to make new friends. If there are associated risks, this remains for future research.

³⁸ Wolak, J., Finkelhor, D., Mitchell, K. and Ybarra, M. (2008) 'Online "predators" and their victims', *American Psychologist*, 63(2), 111-28.

³⁹ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

⁴⁰ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn, LSE, London: EU Kids Online (<http://eprints.lse.ac.uk/24368/>)).

Figure 20: Child has communicated online with, or gone to an offline meeting with, someone not met face-to-face before, by country



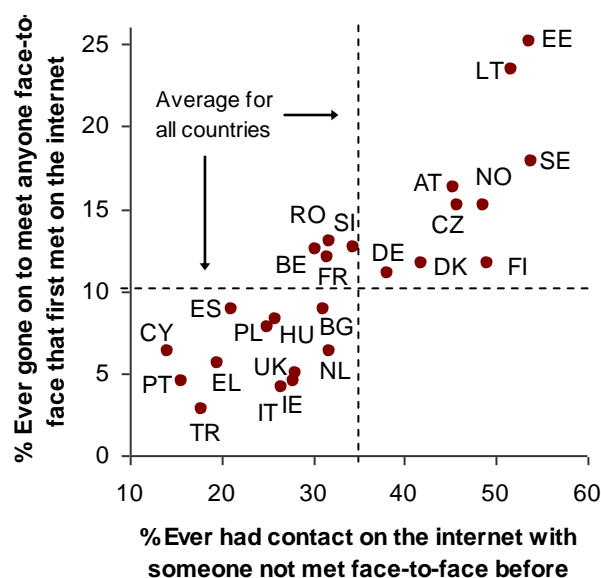
QC147: Can I just check, have you ever had contact on the internet with someone you have not met face-to-face before?
QC148: Have you ever gone on to meet anyone face-to-face that you first met on the internet in this way?

Base: All children who use the internet

As shown in Figure 20 the higher the number of children who communicate online with people whom have not met face-to-face, the higher the number of children who have also gone on to meet such contacts offline. Figure 21 shows even better how this goes hand in hand:

- In the upper right corner, there are countries with the highest percentage of children who made a contact first online and then have gone to an offline meeting with them. Estonia and Lithuania have the highest percentage of such encounters. In Norway, Sweden, Finland, Denmark, Germany, Austria and the Czech Republic, children tend to keep some of the online contacts only online and have not gone on to meet them face-to-face.

Figure 21: Child has communicated online with someone not met face-to-face before and gone on to meet them face to face, by country



QC147: Can I just check, have you ever had contact on the internet with someone you have not met face-to-face before?
QC148: Have you ever gone on to meet anyone face-to-face that you first met on the internet in this way?

Base: All children who use the internet

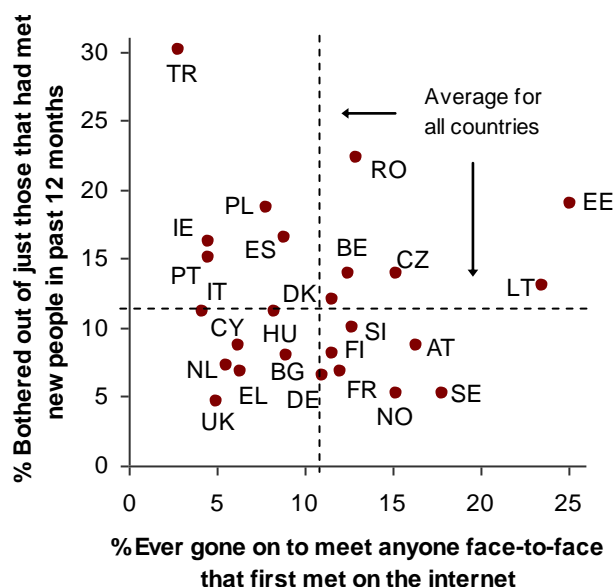
In the next step, we examined possible harmful consequences that meeting online contacts offline brings into children's lives. Figure 22 shows the occurrence of meeting online contacts offline and to what extent those children who went to such meeting were bothered by the experience.

One of the biggest concerns on the policy and public agenda is the harm children might experience as a result of going to meetings with people whom they met online:

- In general the more children that go on to meet online contacts offline, the more children report having been bothered after going to such meetings. There are exceptions from this general pattern however.
- Turkey has both the lowest percentage of children who have gone on to meet online contacts offline and the highest percentage for those who went to such meetings and were upset or bothered by it.
- In Poland, Ireland, Spain and Portugal, there are also relatively few children who go on to meet online contacts offline but relatively many of those who do so are upset or bothered by the experience.
- In contrast, children in Sweden, Norway and Austria are relatively likely to go on to meet online contacts offline but at the same time relatively unlikely to report that they have been bothered by the experience.

Table 14 presents the summary of logistic regression results across countries to illuminate which factors (predictors) have the biggest statistically significant effect on meeting online contacts offline in each country. This logistic regression model fits the data (Hosmer and Lemeshow test = 0.284, the model significantly fits the data; Nagelkerke $R^2 = 0.197$ [method = enter]; 73.3% correctly classified cases). The set of variables in this model accounts for almost 20% of variance in meeting online contacts offline. Table 15 shows only the most representative eight coefficients (those who appear as statistically significant in more than five countries) are ranked by Wald significances. The variables are ranked from 1-8, where 1 means the most relevant predictive variable for a country and 8 means the least relevant predictive variable in that country.

Figure 22: Children bothered after meeting new people out of those who had gone to such meetings, by country



QC148: Have you ever gone on to meet anyone face-to-face that you first met on the internet? QC152: In the LAST 12 MONTHS have you gone to a meeting with someone you met in this way that bothered you?

Base: All children who use the internet and then only those children who have gone on to meet new people offline in the past 12 months

Table 14: Predictors of meeting online contacts offline across countries

Variables	(Exp)B	Wald	Sig
A: Added people never met	1.394	53.400	0.000
A: Pretended to be somebody else	0.692	35.517	0.000
A: Sent a photo or video	1.438	30.640	0.000
Had sexual intercourse in the past 12 months	1.797	30.427	0.000
Number of active restrictions by parents as reported by children	0.885	28.300	0.000
Time spent on the internet (minutes)	1.003	25.279	0.000
Sensation seeking	1.134	21.824	0.000
Risky online activities	1.166	13.895	0.000
Self-efficacy	1.349	12.480	0.000
Number of places where the internet is used	0.926	12.196	0.001
'I know lots of things about using the internet'	0.811	11.638	0.002
'Missed school lessons without my parents knowing' (playing truant or bunking off school)	1.305	9.522	0.002
SDQ complete	1.449	9.300	0.011
'Had so much alcohol that I got really drunk'	1.263	6.470	0.020
'I know more about the internet than my parents'	1.107	5.405	0.067
Child age	1.048	3.365	0.070
Constant	0.02	53.40	0.00
Hosmer and Lemeshow test = 0.284 (-2Log likelihood = 5097.4); model significantly fits the data. Ordered by Wald; Nagelkerke R ² = 19.7% (method = enter); 73.3% correctly classified cases			

The model in Table 15 is much dispersed. Many countries vary considerably from the general model that works for all 25 countries. However, the eight most important predictors from the general model do play an important role in each country, each being the most important predictor at least in some countries:

- In Austria, Belgium, Denmark and Sweden the most relevant predictor is risky online activities (children have looked for new friends on the internet; added

people to their friend's list or address book whom they have never met face-to-face; pretended to be a different kind of person on the internet from what they really are; sent personal information to someone whom they have never met face-to-face; sent a photo or video of themselves to someone whom they have never met face-to-face).

- In Bulgaria and the Czech Republic, pretending to be somebody else online is the most important predictor of going to offline meetings with online contacts. Those who are less likely to pretend to be someone else are more likely to experience such meetings.
- In some countries (Greece, the Netherlands, Portugal and Romania), self-efficacy is the strongest predictor. Children with more self-efficacy are more likely to go to meetings with new people. Here, the 'richer-get-richer' hypothesis might explain this trend, that extraverted children benefit more from the internet by expanding their networks of contacts.
- In Bulgaria and France, sending a photo or video is the most important predictor. Those who sent a photo or video are less likely to go to meet online contacts offline.
- In France and Norway, measures of use, such as number of minutes spent online each day, have a crucial role in predicting such meetings.
- Child age plays the most important role in meeting online contacts offline. In Germany, the younger the children are, the more likely they are to go to a meeting. In Hungary and Lithuania, the chances for the meetings are increased with older children.
- In Finland, those children who are internet savvy ('I know lots of things about using the internet') are more likely to go to a face-to-face meeting with people first met online.
- More risky offline activities were also statistically significant, with the independent variable 'had so much alcohol that I got really drunk' having the biggest impact in Slovenia.
- Sensation seeking seems to have the strongest influence on meeting online contacts offline in Spain and Ireland. This partly corresponds with the recreation hypothesis, which says that high sensation seeking children and adolescents, who value the anonymity of the internet, might engage in a more active search for meetings with online contacts.

Table 15: Most important effects that explain meeting online contacts offline across countries

Country/variable	Risky online activities	*Pretended to be somebody else	Self-efficacy	**I know lots of things about using the internet	Had so much alcohol that I got really drunk	***Child age	Time spent on the internet (minutes)	Sensation seeking
Austria	1	2				3		
Belgium	1							
Bulgaria	2	1			3			
Cyprus								
Czech Republic	2	1		3				
Germany						1		
Denmark	1	2						
Estonia								
Greece			1					
Spain								1
Finland				1				2
France		2		3			1	
Hungary	3	2				1		
Ireland								1
Italy								
Lithuania					2	1		
Netherlands			1					
Norway							1	
Poland								
Portugal		3	1	2				
Romania			1					2
Sweden	1	2			3			
Slovenia	2	3	4	5	1			
Turkey								
UK								

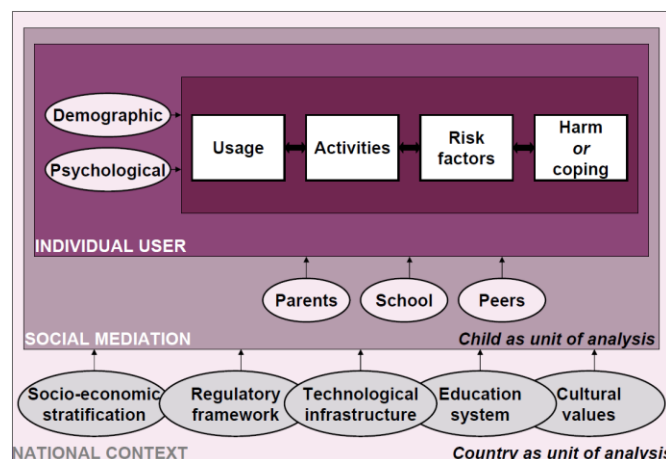
* Negative effect (but positive in Denmark); ** Negative effect (but positive in the Czech Republic. and Finland); *** Positive effect (but negative in Germany). All other, positive effects.

Where there is no ranking of the regression coefficients, none of the predictors used in the overall model are significant. The model is not significant in Cyprus, Estonia, Italy, Poland, Turkey or the UK.

5. EXPLAINING COUNTRY DIFFERENCES

The general model of the research field (see Figure 23) hypothesises that various national contexts at the country level are expected to shape the children's patterns of online use, opportunities and risks. Following the logic developed in our previous reports,⁴¹ the final step of this report is to explore the national context – **socio-economic stratification, regulatory framework, technological infrastructure, educational system and cultural values**. In this part of the comparative process we **conceptualised countries as units of analysis in order to examine cross-national differences in children's online experiences**.

Figure 23: Relating online use, activities and risk factors to harm to children



The analysis in this chapter is organised according to a hypothesised sequence of factors relating to internet use that may shape children's experiences of risk and harm. Figure 23 traces the core of our analysis from children's

internet use through their online activities to the risks encountered.⁴²

In previous chapters of this report we addressed the factors hypothesised to increase risk of harm that include encountering pornography, bullying/being bullied, sending/receiving sexual messages (or 'sexting') and meeting people first met online. The intensity of harmful experiences and/or coping with these experiences suggests that to the extent that children do not cope, the outcome may be harmful.

As shown in Figure 23, many external factors may also influence children's experiences beside demographic factors such as the child's age, gender, SES, psychological factors such as emotional problems, self-efficacy and risk-taking and social factors that mediate children's online and offline experiences, especially the activities of parents, teachers and friends. Therefore, national context is expected to shape the online experience as shown in the model, and is examined in this chapter.

These contextual factors for each of socio-economic stratification, regulatory framework, technological infrastructure, educational system and cultural values were collected as secondary national level data from various databases. Initially, several contextual factors for each area were collected and tested. Based on the hypothesised effect of specific contextual factors,⁴³ it was decided to keep one or two factors per area, notwithstanding some concerns about the quality and availability of external indicators available for each factor in each country. The final list of contextual factors included in the present analysis (Annex 3) consists of:

⁴¹ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

⁴² Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

⁴³ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

- **GDP per capital** as an indicator for **socio-economic stratification**. GDP in US dollars refers to total market value of all final goods and services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports.
- **Broadband penetration** as an indicator for **technological infrastructure**. This refers to the percentage of households in each country using a broadband connection.
- **Number of years since 50% of households had access to the internet** as an indicator for **technical infrastructure**. This refers to the number of years since 50% of households in the country had access to the internet (from 2004-10; minimum 0 years, maximum 7 years).
- **Expected years of schooling** as an indicator for **educational system**. The data shows the years of schooling that an adult in that country is expected to go through.
- **Percentage of schools that offer and use computers in classrooms** as an indicator for **educational system**. This refers to the percentage of schools that offer and use one or more computers in classrooms (among all schools that use computers for education purposes).
- **Are filtering/blocking tools avoiding the access to certain websites applied when your child uses the internet?** This serves as an indicator for **regulatory framework**. It refers to the percentage of those who mentioned use of filtering software (parents whose child accesses the internet from their own computer or the family's computer at home).
- **Press freedom index** as an indicator for **regulatory framework**. This reflects the degree of freedom of journalists and news organisations and the efforts made by the authorities to respect and ensure respect for this freedom. In this scale a lower score means more press freedom, therefore 0 makes the best rating.
- Cultural values indicators were not used in the further analysis due to the lack of available data for a number of countries.

The following sections examine the role of the above listed contextual factors on children's internet usage, skills and risks. To check these hypothesised effects, that is, of the country-level variables on individual measures of usage and risk (for children in each country), simple multilevel analysis was conducted using the mixed linear models available in the SPSS statistical analysis

programme. Dependent variables (on individual level) were checked with the multilevel modelling method, unstructured with independent variable (on a national level) defined as fixed effect. There were no random effects defined for checking the influence of one independent variable only. In the following step, countries were classified simply by setting a cut-off point at the mean of national indexes and treating the distribution of statistically significant higher and lower degree of usage and risk with the 'middle' group of countries being those with non-significantly different values when compared to the mean.

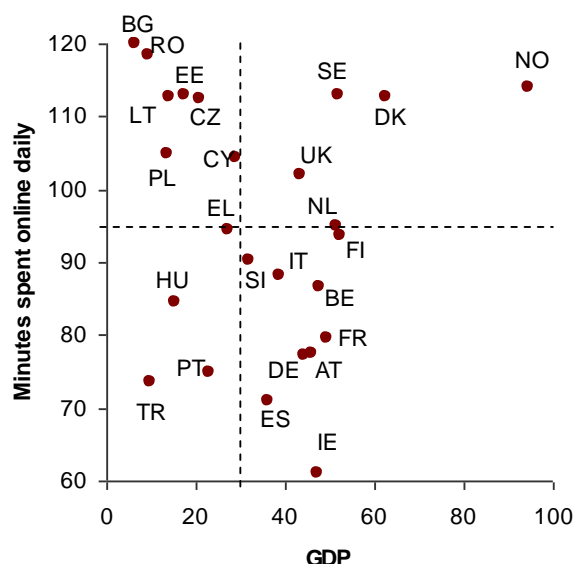
5.1. Socio-economic stratification

In the previous *EU Kids Online* work,⁴⁴ it was hypothesised that countries' wealth is related to internet use. Likewise, it was supposed that higher SES households would be more likely to provide access to the internet to their children and this would in turn lead to a greater and more frequent use of the internet among more advantaged children.

Using **GDP per capita** (in US dollars) as an indicator for **socio-economic stratification** on a national level, three analyses have shown that GDP has no statistically significant influence on internet use among children. This indicator was cut off by the average point, so the countries below the average value are classified on the left side and those above the average are classified on the right side.

⁴⁴ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn), LSE, London: EU Kids Online.

Figure 24: Countries regarding online usage (estimated time spent on internet in minutes) and by GDP on a national level



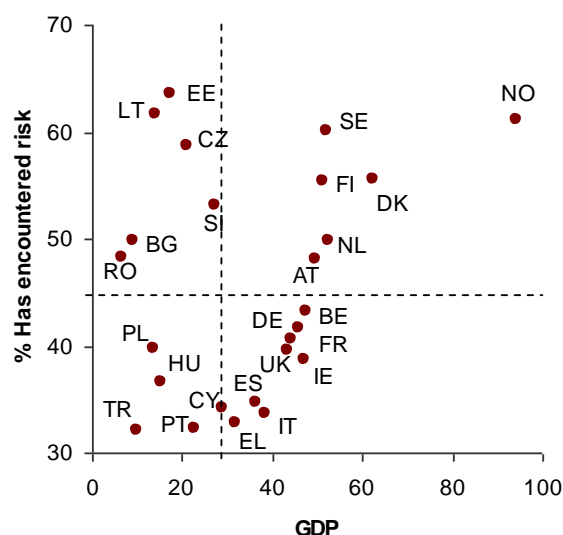
No correlation between GDP on the country level and usage on the individual level

Base: All children who use the internet and where country-level data is available

- Wealthier Nordic countries, the UK and the Netherlands are shown to have the highest usage across Europe, along with countries with lower GDP but the more recent introduction of broadband, such as Bulgaria, Romania, Lithuania, Estonia and the Czech Republic. The effect is not statistically significant, however.

Looking at the degree of risk across countries, Figure 25 shows a positive and statistically significant effect of GDP per capita on a degree of risk within a country. Children in the wealthier Nordic countries are significantly more likely to have encountered a higher degree of online risk. In Italy, Spain, Ireland and the UK, however, higher GDP is not associated with a higher level of online risk – children in Lithuania, Estonia and the Czech Republic have encountered more risk despite low GDP.

Figure 25: Countries classified by online risk (% who encounter at least one of the online risks) and by GDP on a national level



GDP has a small but statistically significant and positive effect on risk degree. There is 6.2% of variance explained by GDP in the model

Base: All children who use the internet and where country-level data is available

5.2. Regulatory framework

Previous research from the *EU Kids Online* project⁴⁵ further hypothesised that a straightforward relation between the development of regulatory framework and children's experience online cannot be discerned.

Two contextual factors were used to explore this hypothesis. The first was a question taken from the 2005 Eurobarometer survey of parents in Europe,⁴⁶ which asked, 'Are filtering/blocking tools avoiding the access to certain websites applied when your child uses the internet?'. The second one was a **press freedom index** that indicates the degree of freedom of journalists and news organisations and the efforts made by the

⁴⁵ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn), LSE, London: EU Kids Online.

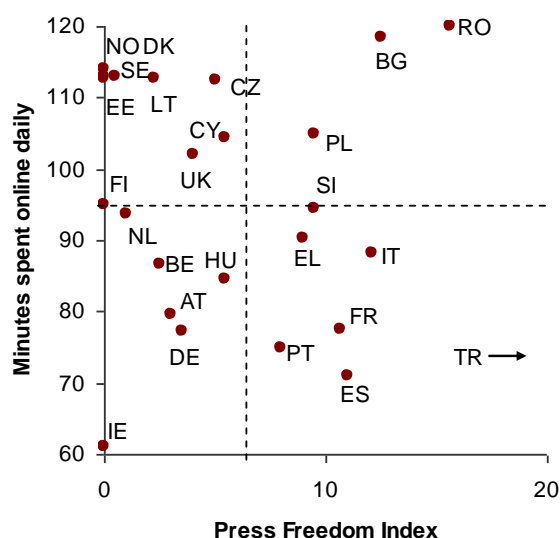
⁴⁶ Eurobarometer (2006) *Safer internet*, Eurobarometer 64.4, Special No 250, Luxembourg: Directorate General, Information Society and Media, European Commission.

authorities to respect and ensure respect for this freedom. Both indicators were cut off by the average point. Therefore, the countries below the average value are classified on the left side and those above the average are classified on the right side.

Conducting a multilevel analysis, it transpired that parental use of filtering and blocking, measured at a country level, has no statistically significant effect either on usage or on the degree of risks across all countries. This, in itself, may be a disappointing finding for policy makers. However, the analysis indicates that in certain countries such as the UK, Ireland and Portugal that have high levels (over 43%) in the use of filtering/blocking tools, there is a low degree of online risk.

Likewise, the press freedom index has no statistically significant effect on internet usage, notwithstanding expectations that a freer media might mean more widespread usage of the internet. However, Figure 26 suggests that the countries with the lowest press index score and therefore more press freedom, such as Norway, Denmark and Sweden, are more likely to have a higher internet use. Turkey as the country with the lowest press freedom has among the lowest usage in Europe.

Figure 26: Countries classified by online usage (estimated time spent on internet in minutes) and by press freedom index on a national level



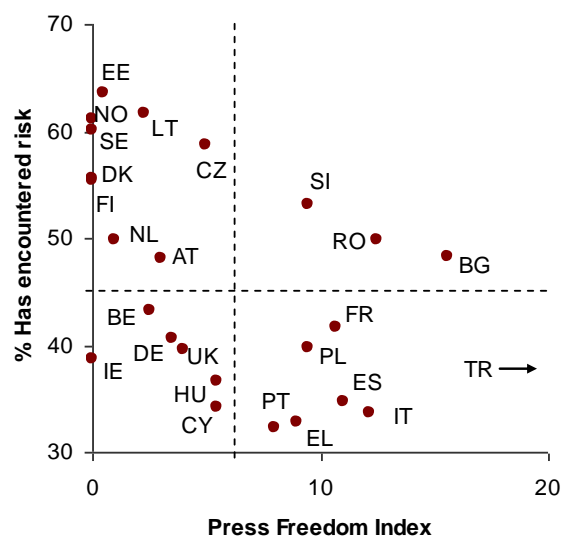
Press freedom index has no statistically significant effect on usage

Base: All children who use the internet and where country-level data is available

PRESS FREEDOM INDEX: degree of freedom of journalists and news organisations and the efforts made by the authorities to respect and ensure respect for this freedom. Note that 0 on the scale represents the maximum freedom and higher scores indicate lesser freedom

- Figure 27 suggests that the countries with more press freedom, such as Nordic and Baltic countries, are also statistically significantly more likely to have children who encounter a relatively high degree of online risk. In countries with more press freedom there is possibly less internet censorship that could result in more online risk for children. However, Slovenia is an example of a country with less press freedom and more online risk.

Figure 27: Countries classified by online risk (% who encounter at least one of the online risks) and by press freedom index on a national level



Press freedom index has a small negative and statistically significant effect on risk. There is 4.4% variance of risk explained on country level by national level variable

Base: All children who use the internet and where country-level data is available

PRESS FREEDOM INDEX: degree of freedom of journalists and news organisations and the efforts made by the authorities to respect and ensure respect for this freedom. Note that 0 on the scale represents the maximum freedom and higher scores indicate lesser freedom

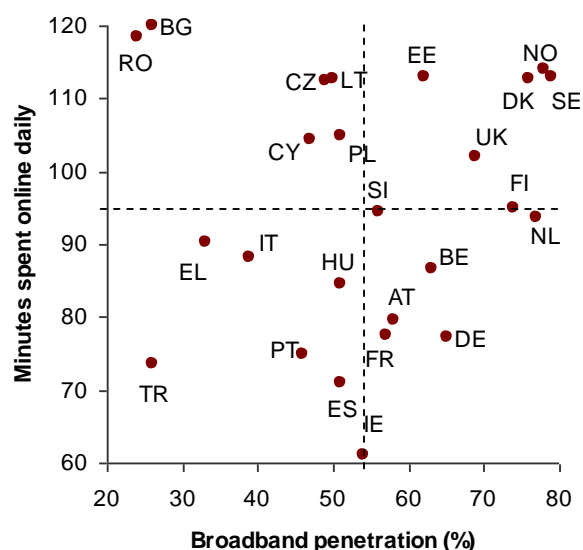
5.3. Technological infrastructure

Conclusions of previous research from the *EU Kids Online* project⁴⁷ hypothesised that cross-national variation in the amount of children's use and online risk depends in many ways on cross-national variation in internet diffusion, namely technological infrastructure, as the crucial dimension in influencing children's online experience.

To explore this hypothesis further, **broadband penetration** (% of households in each country using broadband connection) and the **number of years since 50% of households had access to internet** (from 2004-10; minimum 0 years and maximum 7 years) has been used in a multilevel analysis as indicators for **technical infrastructure**. Again, indicators were cut off by the average point. Therefore, the countries below the average value are classified on the left side and those above the average are classified on the right side.

The analysis shows that neither broadband penetration nor the number of years since 50% of households had access to the internet has a statistically significant effect on usage. However, there are some interesting patterns emerging from the analysis.

Figure 28: Countries classified by online usage (estimated time spent on internet in minutes) and by broadband penetration on a national level



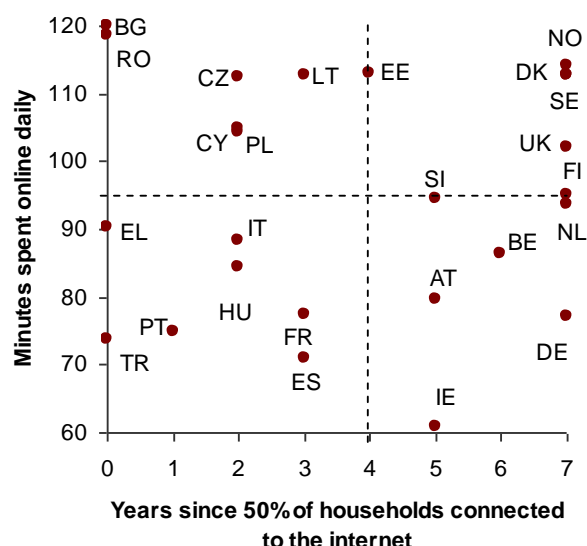
Broadband penetration has no statistically significant effect on usage

Base: All children who use the internet and where country-level data is available

In Nordic countries and the UK, where 50% of the households had access to the internet for six years or more, the daily use of internet is among the highest. Similarly, daily use is relatively high in countries with newer use of the internet such as Baltic and Eastern European countries.

⁴⁷ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn), LSE, London: EU Kids Online.

Figure 29: Countries classified by usage and by number of years since 50% of households had access to the internet on a national level



Number of years since 50% of households had access to the internet has no statistically significant effect on usage

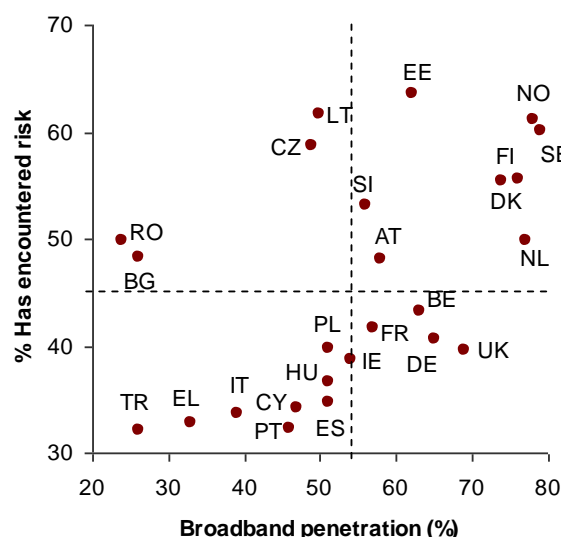
Base: All children who use the internet and where country-level data is available

When considering broadband penetration, it has a positive and statistically significant effect on online risks. Children from countries with a higher broadband penetration are significantly more likely to have encountered more online risk. Figure 30 shows that there are more countries with medium and high risk when the broadband penetration is higher. Countries with more online risk and high broadband penetration are the Nordic countries and Estonia. In Nordic countries in particular there are many initiatives to promote children's rights and freedoms and this might explain the high risk.

However, Eastern European countries, such as Bulgaria and Romania, encounter more online risk despite a lower broadband penetration. There also seem to be countries (Ireland, Spain, the UK and Germany) that indicate that despite the high broadband penetration, the risk can be low, possibly because of active efforts at risk reduction and safety awareness.

This suggests that what broadband access contributes to more online risk, whether it be in 'new risk' countries such as Eastern Europe, or 'high risk' countries such as Nordic countries.

Figure 30: Countries classified by online risk (% who encounter at least one of the online risks) and by broadband penetration on a national level



Broadband penetration has a small but statistically significant and positive effect on risk degree. There is 6.2% of variance explained by broadband penetration in the model

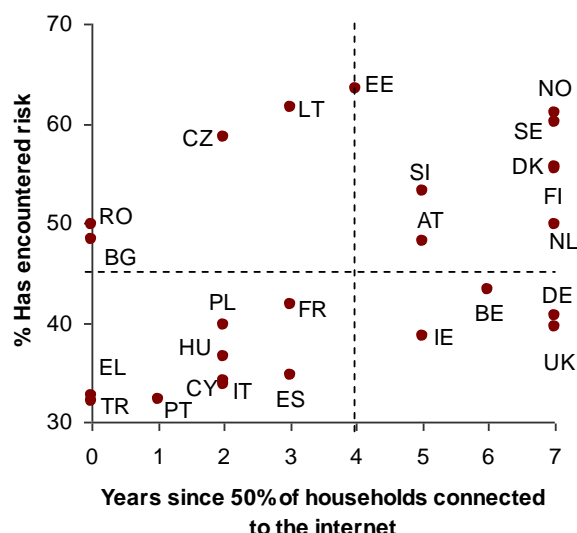
Base: All children who use the internet and where country-level data is available

Further, the countries with a longer period (more than 3.7 years) since 50% of households had access to the internet are statistically significantly more likely to experience more online risk. These countries are Slovenia, the Nordic countries and Estonia. Ireland and the UK are countries with more years of usage and a lower degree of risk.

Likewise, countries with less than approximately three-and-a-half years since 50% of households had access to the internet are statistically significantly more likely to experience less online risk. The only two countries with more recent usage and high risk are the Czech Republic and Lithuania.

This might suggest that in the preponderance of countries where low risk is associated with only recent mass internet use, risk is set to rise, as in the well-established internet-using countries (with high risk).

Figure 31: Countries classified by children's encounters with online risks and by number of years since 50% of households had access to the internet on a national level



Number of years since 50% of households had access to the internet has a positive and statistically significant effect on risk. There is 6.2% variance of risk explained on country level by national level variable

Base: All children who use the internet and where country-level data is available

5.4. The educational system

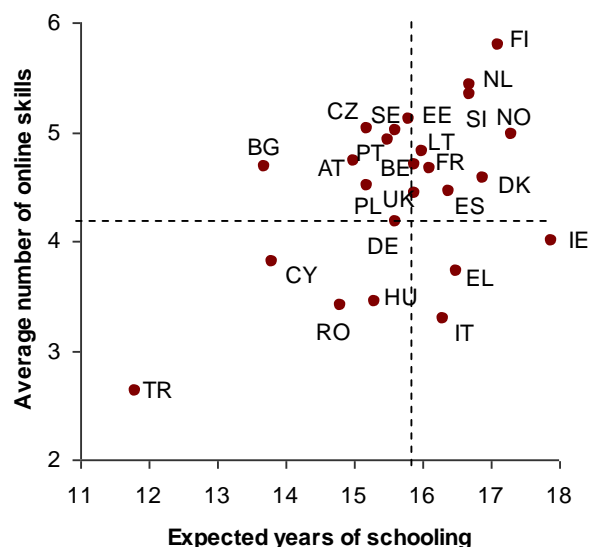
According to the previous project from the *EU Kids Online* project,⁴⁸ cross-country differences in children's online use can be partly explained by a different level of general education. It has been hypothesised that higher general education of a country would lead to a higher online use among children. In addition, it has been assumed that higher education would help children to develop their digital literacy and safety skills.

Expected years of schooling (the years of schooling in a country that an adult is expected to go through) has been used as an indicator for **the degree of general education**. In addition, the **percentage of schools that offer and use computers in classrooms** indicator has

been used. Also here, the indicators were cut off by the average point. Therefore, the countries below the average value are classified on the left side and those above the average are classified on the right side.

Neither the expected years of schooling nor the percentage of schools that offer and use computers in classrooms has any statistically significant effect either on online usage or online risks. However, Figure 32 suggests that education has a positive and significant effect on children's digital skills (skills are considered as: deleting the record of which sites you have visited; changing privacy settings on social networking sites; blocking unwanted messages; and searching of information on the safe use of the internet). In countries with 15 years of schooling or more children are more likely to have above-average digital skills.

Figure 32: Countries classified by children's digital/online skills by expected years of schooling on a national level



Expected years of schooling has a statistically significantly positive effect on the digital skills of children. There is 10.5% variance of digital skills explained on country level by education variable

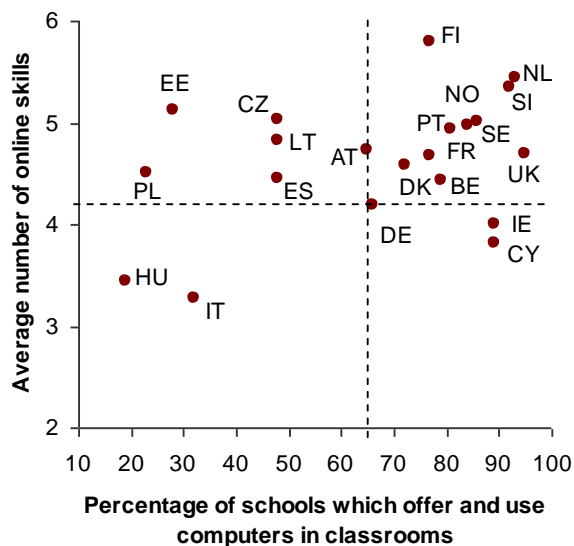
Base: All children who use the internet and where country-level data is available

⁴⁸ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

Similarly, children from countries with a higher percentage of schools that offer and use computers in classrooms

(above 45% of schools or more) are statistically significantly more likely to have better digital skills.

Figure 33: Countries classified by digital/online skills and by percentage of schools with computer use in the classroom on a national level



Percentage of schools that offer and use computers in classrooms has a statistically significantly positive effect on digital skills of children. There is 7.2% variance of computer skills explained on country level by this education variable

Base: All children who use the internet and where country-level data is available

6. CONCLUSIONS

6.1. Country classification for children's online risk

In our previous report (Hasebrink et al, 2009), based on the previous literature review of some 400 empirical studies conducted over the past decade,⁴⁹ we developed a country classification as shown in Table 16. This combined, first, a country classification based on national differences in the percentage of children who used the internet and, second (here using risk figures obtained from prior research, albeit often using different measures in different countries), a classification of countries based on the likelihood of children's encountering online risk.

Table 16: Country classification based on children's online use and risk (from literature review)

Risk	Level of usage		
	Low	Medium	High
Low	CY IT	FR DE	
Medium	EL	AT BE IE PT ES	DK SE
High		BG CZ	EE NL SI NO UK PL

Source: Hasebrink et al (2009)

The classification in Table 16 revealed that:

- high use of the internet is rarely if ever associated with low risk although low to medium use of the internet may be associated with some risk;
- 'high use, high risk' countries are, for the most part, wealthy Northern European countries, while 'medium use, high risk' countries are characteristic of new entrants to the EU;

⁴⁹ Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

- Southern European countries tend to be relatively lower in risk, although there are differences among them.

In Hasebrink et al (2009) it was concluded that Northern European countries tend to be 'high use, high risk', Southern European countries tend to be 'low use, variable risk' and Eastern European countries can be characterised as 'new use, new risk'.

In the present report, now based on directly comparable measures applied across all countries, we have developed a comparable country classification, again based on national differences in children's online use and likelihood of encountering risk but using the *EU Kids Online* survey data. As described in section 4.1, this was generated by a cluster analysis of the countries in terms of their levels and types of usage and risk (from the survey findings). Note that a cluster analysis is based on the patterning of variables rather than on absolute values.

The new country classification is shown in Table 17. This suggests that the situation has changed in a number of countries, although some continuities remain:

Table 17: Country classification based on children's online use and risk (from the EU Kids Online survey)

Risk	Level of usage	
	Lower	Higher
Lower	Lower use, lower risk AT, BE, DE, FR, EL, HU, IT Lower use, some risk ES, IE, PT, TK	
Higher		Higher use, some risk CY, FI, NL, PL, SI, UK Higher use, higher risk (+ New use, new risk) BG, CZ, DK, EE, LT, NO, RO, SE

- As before, two cells remain empty – high internet use is rarely associated with low risk; and high risk is rarely associated with low use. Rather, the more use, the more risk.
- While the earlier figures presented in this report show clearly that countries are subtly graded in terms of amounts and types of both use and risk, we here group them for ease into four categories which should be regarded as ideal types rather than fixed and non-overlapping groups.
- Group 1 (lower use, some risk) includes some countries previously classified as medium use, medium risk. Now we can see, more precisely, that while their use remains below average, particular risks do occur. Spain, Ireland, Portugal and Turkey have the lowest internet usage but some excessive use of the internet and some problems with user-generated content.
- The composition of Group 2 (lower use, lower risk) is not much changed from before. These are the countries that are low on internet usage and also below average on all risks apart from meeting online contacts – online and offline. However, while in these countries, use remains relatively low, by comparison with the overall European picture, it may be expected that as levels of use rise in these countries, so too will risk.
- Group 3 countries were characterised as ‘higher use, higher risk’ in both the earlier and present analysis. As before, several of these countries are wealthy Nordic countries. Some Eastern European countries can also be characterised in this way, although the label ‘new use, new risk’ may still fit better for the Czech Republic, Estonia, Lithuania and Romania.
- Group 4 (‘higher use, some risk’) includes some countries previously considered lower risk (e.g. Cyprus), and some previously higher risk but now qualified as high only on some risks (e.g. Netherlands, Poland, Slovenia, the UK).
- However, there are now some countries where high use is associated with relatively low risk. Greece, Italy and Cyprus have increased their usage without a commensurate increase in risk, while the UK and Poland have reduced their risk while maintaining their already high use. This may reflect national differences in awareness-raising campaigns, or

strategies of parental mediation of children’s internet use,⁵⁰ as further analysis may yet reveal.

We can conclude that ‘high use, high risk’ and ‘new use, new risk’ remain roughly the same as in the previous classification.⁵¹ Other differences between the earlier and new classification of countries may reflect changing practices of internet use between children and/or changing awareness and regulatory strategies among industry, government and policy makers in those countries.

The overall conclusion from the full findings of the survey⁵² is also applicable to the findings in this report: the more children in a country who use the internet daily, the more children in that country who will have encountered one or more of the risks. The same is true on the individual level, that children who use the internet on a daily basis are more likely than those who do not to have experienced one or more of the risk factors.⁵³ Further, private and/or mobile access may also be an important factor when explaining the variations in risk encounters across countries.

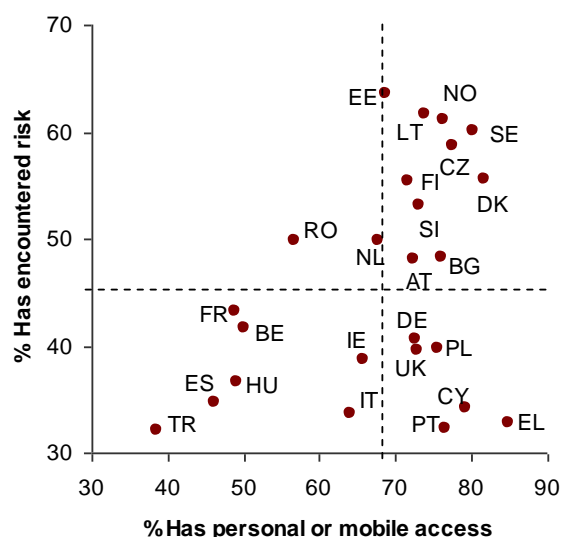
⁵⁰ Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

⁵¹ See Hasebrink, U., Livingstone, S., Haddon, L. and Ólafsson, K. (eds) (2009) *Comparing children’s online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online* (2nd edn). LSE, London: EU Kids Online.

⁵² Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children. Full findings*. LSE, London: EU Kids Online.

⁵³ Correlation on a country level, $r=0.74$ and on an individual level, $r=0.30$; both are statistically significant, $p<0.001$.

Figure 34: Percentage of children who have experienced risk by percentage with personal or mobile access



Risk is the percentage of children who have encountered one or more of the risks listed in Figure 12. Type of access: QC300a-h: Which of these devices do you use for the internet these days? (Multiple responses allowed)

Base: All children who use the internet

- To explain the effect of personal and/or mobile access on risk encounters, a logistic regression⁵⁴ was run. Encounters with risk increase with higher personal and/or mobile access (see Figure 34). However, there are some exceptions – Greece, Portugal, Cyprus, the UK and Poland all have above-average personal access and still the risk is kept low. As already suggested, this might be due to high parental mediation in Cyprus, the UK and Poland, a relatively low number of diverse activities in Greece and low use in general in Portugal.

6.2. Specific risks and harm across countries

Based on the previous chapter, the following may be concluded as regards the specific four risks examined in the *EU Kids Online* project. In interpreting the following it should be recalled that, overall, the incidence of all risks discussed is relatively low, affecting a minority of children

in each case. Moreover, the subjective report of harm associated with each risk is even lower. Findings can be summarised as follows:

- The risk of seeing sexual images is higher in Nordic, Baltic and Eastern European countries.
- The risk of being bullied online is higher in Estonia, Denmark, Romania and the UK.
- The risk of receiving sexual images is higher in Nordic and Baltic countries along with the Czech Republic.
- In Nordic and Baltic countries, the Czech Republic and Austria, children are the most likely to encounter the risk of meeting new people online.

Looking at the regression tables introduced in the risk sections, we can identify several major factors that predict specific risks, although there are cross-national differences in most cases, as detailed in the previous chapter:

- Children's experience of risky offline activities is associated with excessive internet use, and also the risk of seeing sexual images and of receiving sexual messages in the majority of countries.
- Further, children's practices of risky online activities is the strongest predictor of the risk of being bullied online as well as the risk of seeing sexual images, receiving sexual messages and meeting new people offline.
- Child's gender makes a difference in the risk of seeing sexual images, receiving sexual messages and being bullied online.
- In a few countries, child's age is the most significant predictor of the risk of seeing sexual images, receiving sexual message and meeting new people online.
- Time spent online seems to be the most important predictor of excessive use in a majority of countries. It is also the strongest predictor of risk of being bullied online and of meeting new people offline in a few countries, as well as of seeing sexual images and receiving sexual messages online.
- Sensation seeking plays a significant role in predicting the risk of seeing sexual images and receiving sexual messages in some countries. It is also the most important predictor of the risk of meeting new people offline in a couple of countries.

This knowledge of what factors shape specific risks can be useful in implementing policy interventions.

⁵⁴ Five per cent is Nagelkerke pseudo R^2 and 0.827 is the regression coefficient; this shows a positive, significant effect.

6.3. How national context shapes risk encounters across countries

Several country-level contextual factors have been found to have influenced children's encounters of online risk in addition to individual-level factors such as the child's age, gender and psychological factors (emotional problems, self-efficacy and risk-taking activities). Together, these shape children's online and offline activities as discussed in the previous section, although it should be noted that there may be many other factors not examined in this report that could also play a role.

The country-level analysis revealed that:

- Factors associated with socio-economic stratification, regulatory framework, technological infrastructure and educational system all have a significant effect on shaping children's online risk encounters across countries.
- However, none of these is significant in shaping children's online usage, even though we have observed some interesting patterns.

Wealthier Nordic countries, the UK and the Netherlands have the highest usage across Europe, along with the countries with a lower GDP but more recent introduction of broadband, such as Bulgaria, Romania, Lithuania, Estonia and the Czech Republic.

Children in Nordic wealthier countries are significantly more likely to have experienced a higher degree of online risk. In Italy, Spain, Ireland and the UK, higher GDP is not associated with an increased level of online risk. Children in Lithuania, Estonia and the Czech Republic have experienced more risk despite the low GDP in these countries. There is a positive and significant effect of GDP per capita on a degree of risk within a country.

Countries with more press freedom, such as Norway, Denmark and Sweden, are more likely to have higher internet use. Turkey as the country with the lowest press freedom has among the lowest usage in Europe.

Countries with more press freedom, such as Nordic and Baltic countries, are also significantly more likely to encounter a higher degree of online risk. In countries with more press freedom there is possibly less internet censorship that could result in more online risk for children. However, Slovenia is an example of a country with less press freedom and more online risk.

Children from countries with a higher broadband penetration are significantly more likely to have experienced more online risk, for example, the Nordic countries and Estonia. Eastern European countries such as Bulgaria and Romania experience a higher degree of online risk despite a lower broadband penetration. There also seem to be countries (Ireland, Spain, the UK and Germany) that indicate that despite high broadband penetration, the level of risk can be low.

In Nordic countries and the UK, where 50% of the households had access to the internet for six years or more, daily use of the internet is among the highest. Similarly, daily use is relatively high in countries with newer use of the internet such as Baltic and Eastern European countries.

The countries with a longer period (more than 3.5 years) since 50% of households had access to the internet are significantly more likely to experience more online risk – these include Slovenia, the Nordic countries and Estonia. However, Ireland and the UK are countries with older use and a lower degree of risk. Countries with less than approximately three-and-a-half years since 50% of households had access to the internet are significantly less likely to experience online risk. Countries with newer use and high risk include the Czech Republic and Lithuania.

Neither the expected years of schooling nor the percentage of schools that offer and use computers in classrooms has any significant effect on online usage or online risks. However, education has a positive and significant effect on children's digital skills. In countries with 15 years of schooling or more, children are more likely to have above-average digital skills. Similarly, children from countries with a higher percentage of schools that offer and use computers in classrooms (above 45% of schools or more) are significantly more likely to have better digital skills.

This report has offered the initial findings from the comparative analysis of children's experiences of the internet in 25 rather different European countries. As can be seen, a large number of factors play a role in accounting for these differences, and the task of constructing clear patterns or strong associations among variables is difficult. Findings presented in this report indicate the current balance of similarities and differences across countries, also providing some indications of how future trends may unfold and, therefore, how future policy

interventions may be focused. However, further analysis is required to uncover more subtle trends affecting children's experiences in particular countries or regions within Europe. Some of this work will be undertaken by the *EU Kids Online* network as it continues its work. Some may also be undertaken by others, using the *EU Kids Online* dataset, when this is made publicly available in Autumn 2011.

ANNEX 1: EU KIDS ONLINE

Overview

EU Kids Online II: Enhancing Knowledge Regarding European Children's Use, Risk and Safety Online, 2009-11, is funded by the EC Safer Internet Programme.⁵⁵

The project aims to enhance knowledge of European children's and parents' experiences and practices regarding risky and safer use of the internet and new online technologies, in order to inform the promotion of a safer online environment for children among national and international stakeholders.

Adopting an approach that is child-centred, comparative, critical and contextual, *EU Kids Online* conducted a major survey of children's experiences (and their parents' perceptions) of online risk in 25 European countries. The findings will be disseminated during 210-12.

Objectives

- To design a robust survey instrument appropriate for identifying the nature of children's online access, use, risk, coping and safety awareness.
- To design a robust survey instrument appropriate for identifying parental experiences, practices and concerns regarding their child's internet use.
- To administer the survey in a reliable and ethically sensitive manner to national samples of internet users aged 9-16 and their parents in Europe.
- To analyse the results systematically to identify core findings and more complex patterns among findings on a national and comparative basis.
- To disseminate the findings in a timely manner to a wide range of relevant stakeholders nationally, across Europe, and internationally.
- To identify and disseminate key recommendations relevant to the development of safety awareness initiatives in Europe.
- To identify remaining knowledge gaps and methodological guidance to inform future projects on the safer use of online technologies.

⁵⁵ Finnish participation was funded by the Finnish Ministries of Education and Culture and of Transport and Communications.

Work packages

- WP1: Project management and evaluation: ensure effective conduct and evaluation of work packages.
- WP2: Project design: design a robust survey instrument and sampling frame for children and parents.
- WP3: Data collection: tender, select and work with the subcontractor appointed to conduct the fieldwork.
- WP4: Data reporting: cross-tabulation, presentation and report of core findings.
- WP5: Statistical analysis of hypotheses: analysis and hypothesis testing of relations among variables.
- WP6: Cross-national comparisons: interpretation of similarities and differences across countries.
- WP7: Recommendations: guide awareness and safety initiatives and future projects in this field.
- WP8: Dissemination of project results: dissemination to diverse stakeholders and the wider public.

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- Kjartan Ólafsson, University of Akureyri, Iceland
- Janice Richardson, European Schoolnet and Insafe
- Kuno Sørensen, Save the Children Denmark, European NGO Alliance on Child Safety Online
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ANNEX 3: NATIONAL LEVEL INDICATORS

Index	Description
GDP per capita (2009)	<p>GDP per capita (in US\$)</p> <p>Source: ITU</p> <p>http://www.itu.int/ITU-D/ict/eve/Reporting/ShowReportFrame.aspx?ReportName=WTI/BasicIndicatorsPublic&ReportFormat=HTML4.0&RP_intYear=2009&RP_intLanguageID=1&RP_bitLiveData=False</p>
Inequality index (2009)	<p>The ratio of share of income or expenditure of the richest 10% to the poorest 10% of the population</p> <p>Source: Human Development Report</p> <p>http://hdr.undp.org/en/media/HDR_2009_EN_Indicators.pdf</p>
Broadband penetration (2009)	<p>% of households using broadband connection</p> <p>Source: Eurostat</p> <p>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tin00089&plugin=1</p>
Years since 50% of households had access to internet (2004-2010)	<p>Years since 50% and more of households in county had access to internet</p> <p>Source: Eurostat</p> <p>http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/database#</p>
Expected years of schooling (2010)	<p>Years of schooling that adults in that country are expected to go through</p> <p>Source: Human Development Report</p> <p>http://hdr.undp.org/en/media/HDR_2010_EN_Tables_reprint.pdf</p>
Offer and use of computers in classrooms (2006)	<p>% of schools which offer and use one or more computers in classrooms (among all schools that use computers for education purposes)</p> <p>Source: European Commission</p> <p>http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/final_report_3.pdf</p>
Parental use of filtering software (2008)	<p>% of those who mentioned use of filtering software (parents whose child access the Internet from their own computer or the family's computer at home)</p> <p>Source: Eurobarometer (2008) <i>Towards a Safer Use of the Internet for Children in the EU: A Parents' Perspective</i>. Luxembourg: European Commission.</p>
Press Freedom Index (2009)	<p>This reflects the degree of freedom of journalists and news organisations and the efforts made by the authorities to respect and ensure respect for this freedom.</p> <p>Source: http://en.rsf.org/IMG/pdf/classement_en.pdf</p>

Country	GDP	Inequality index	Broadband penetration	Years since penetration reached 50%	Expected years of schooling	Computer use in classrooms	Parental use of filtering	Press freedom index
AT	49558	6.9	58	5	15.0	65	42.7	3.0
BE	47570	8.2	63	6	15.9	79	50.7	2.5
BG	6573	6.9	26	0	13.7		15.7	15.6
CY	28772		47	2	13.8	89	32.7	5.5
CZ	21036	5.3	49	2	15.2	48	21.9	5.0
DE	44352	6.9	65	7	15.6	66	55.3	3.5
DK	62522	8.1	76	7	16.9	72	32.4	0.0
EE	17299	10.4	62	4	15.8	28	22.2	0.5
EL	31939	10.2	33	0	16.5		47.2	9.0
ES	36203	10.3	51	3	16.4	48	42.7	11.0
FI	51385	5.6	74	7	17.1	77	36.7	0.0
FR	45957	6.2	57	3	16.1	77	57.8	10.7
HU	15494	6.8	51	2	15.3	19	28.6	5.5
IE	47251	9.4	54	5	17.9	89	64.3	0.0
IT	38621	11.6	39	2	16.3	32	47.9	12.1
LT	14244	10.3	50	3	16.0	48	19.5	2.3
NL	52304	9.2	77	7	16.7	92	45.5	1.0
NO	94402	6.1	78	7	17.3	84		0.0
PL	13798	9.0	51	2	15.2	23	38.4	9.5
PT	22781	15.0	46	1	15.5	81	26.1	8.0
RO	9172	7.6	24	0	14.8		14.9	12.5
SE	52051	6.2	79	7	15.6	86	40.6	0.0
SI	27094	7.3	56	5	16.7	93	25.1	9.5
TR	9873	17.4	26	0	11.8			38.3
UK	43321	13.8	69	7	15.9	95	77.3	4.0
EU27			56	7			48.8	

ANNEX 4: KEY VARIABLES USED IN THE ANALYSIS

1. Risky activities (online and offline)

2. Online risks

3. Online risks - perpetrators

4. Harm from online risks

5. Mediation

6. Psychological scales

1. Risky activities

Label (original source)	Item or calculation	Response scale
Risky offline activities (age: 9-10) (adapted from the <i>Health Behaviour in School-aged Children</i> survey; Currie et al., 2008)	The number out of three response options	Missed school lessons without my parents knowing, Been in trouble with my teachers for bad behaviour, Been in trouble with the police.
Risky offline activities (age: 11-16) (adapted from the <i>Health Behaviour in School-aged Children</i> survey; Currie et al., 2008)	The number out of five response options	Had so much alcohol that I got really drunk, Missed school lessons without my parents knowing, Had sexual intercourse, Been in trouble with my teachers for bad behaviour, Been in trouble with the police.
Risky online activities (adapted from the <i>UK Children Go Online</i> survey; Livingstone & Helsper, 2007).	The number out of five response options	Looked for new friends on the internet, Added people to my friends list or address book that I have never met face-to-face, Pretended to be a different kind of person on the internet from what I really am, Sent personal information to someone that I have never met face-to-face, Sent a photo or video of myself to someone that I have never met face-to-face

2. Online risks

Label	Item or calculation	Response scale
ONLINE CONTACTS		
Online contacts	Can I just check, have you ever had contact on the internet with someone you have not met face to face before?	yes/no
Meeting online contacts offline	And have you ever gone on to meet anyone face to face that you first met on the internet in this way?	yes/no
Number of online contacts met offline	And how many new people have you met in this way in the last 12 months, if any?	1 to 2 3 to 4 More than 10
Types of online contact with those met offline	And thinking about any people you have gone on a meeting with in the LAST 12 MONTHS who you first met on the internet, in what ways did you first get in contact with them?	On a social networking site, By instant messaging, In a chatroom, By email, In a gaming website, Some other way on the internet
SEXUAL MESSAGES		
Receiving sexual messages	In the PAST 12 MONTHS, have you seen or received sexual messages of any kind on the internet?	yes/no
Frequency of receiving sexual messages	How often have you seen or received sexual messages of any kind on the internet in the PAST 12 months?	Every day or almost every day Once or twice a week Once or twice a month Less often
Types of sexual messages received	The number out of five response options	I have been sent a sexual message on the internet, I have seen a sexual message posted where other people could see it on the internet, I have seen other people perform sexual acts, I have been asked to talk about sexual acts with someone on the internet, I have been asked on the internet for a photo or video showing my private parts
SEXUAL IMAGES		
Seeing sexual images	Have you seen these kinds of things [images that are obviously sexual] on any websites in the past 12 months?	yes/no
Types of sexual images	Which types of website have you seen things like this [ANY KIND OF SEXUAL IMAGES] on in the LAST 12 MONTHS?	On a social networking site, By images that pop-up accidentally, On a video-hosting site (e.g. Youtube), On an adult/X-rated website, In a gaming website, On a peer to peer file-sharing website (e.g. limewire), Some other

Label	Item or calculation	Response scale
		type of website
BULLYING (introduction)	<p>Sometimes children or teenagers say or do hurtful or nasty things to someone and this can often be quite a few times on different days over a period of time, for example. This can include:</p> <ul style="list-style-type: none"> teasing someone in a way this person does not like hitting, kicking or pushing someone around leaving someone out of things <p>When people are hurtful or nasty to someone in this way, it can happen:</p> <ul style="list-style-type: none"> face to face (in person) by mobile phones (texts, calls, video clips) on the internet (e-mail, instant messaging, social networking, chatrooms) 	
CYBERBULLYING (victim of)		
Being cyberbullied	Has someone acted in this kind of hurtful or nasty way to you in the past 12 months? At any time during the last 12 months, has this happened...By mobile phone calls, texts or image/video texts? [AND/OR] At any time during the last 12 months, has this happened on the internet?	yes/no yes/no
ONLINE BULLYING (victim of)		
Being bullied online	Has someone acted in this kind of hurtful or nasty way to you in the past 12 months? At any time during the last 12 months, has this happened on the internet?	yes/no
Types of being bullied online	And in which ways has this [SOMEONE HAS DONE NASTY OR HURTFUL THINGS TO YOU ON THE INTERNET] happened to you in the LAST 12 MONTHS?	On a social networking site, By instant messaging, In a chatroom, By email, In a gaming website, Some other way on the internet

3. Online risks - perpetrators

Label	Item or calculation	Response scale
CYBERBULLYING OTHERS		
Cyberbullying others	Have you acted in a way that might have felt hurtful or nasty to someone else in the PAST 12 MONTHS? In which of the following ways have you acted like this in the past 12 months...? By mobile phone calls, texts or image/video texts [AND/OR] On the internet	yes/no yes/no
ONLINE BULLYING OTHERS		
Bullying others online	Have you acted in a way that might have felt hurtful or nasty to someone else in the PAST 12 MONTHS? In which of the following ways have you acted like this in the past 12 months...? On the internet	yes/no
Frequency of bullying others online	How often have you acted in this kind of way in the past 12 months?	Every day or almost every day Once or twice a week Once or twice a month Less often
SEXUAL MESSAGES		
Sending sexual messages	In the PAST 12 MONTHS, have you sent or posted a sexual message (example: words, pictures or video) of any kind on the internet? This could be about you or someone else.	yes/no
Frequency of sending sexual messages	how often have you done this in the PAST 12 MONTHS?	Every day or almost every day Once or twice a week Once or twice a month Less often

4. Harm from online risks (sexual images, sexual messages, meeting online contacts offline, being bullied online)

Label	Item or calculation	Response scale
Experience of harm	And in the LAST 12 MONTHS has [the risk] bothered you in any way? For example, made you feel uncomfortable, upset [...]	yes/no
Intensity of harm	Thinking about the last time you were bothered by [experiencing the risk], how upset did you feel about it (if at all)?	0 (<i>not at all upset</i>) to 3 (<i>very upset</i>)
Duration of harm	How long did you feel like this [upset] for?	1 (<i>I got over it straight away</i>) to 4 (<i>I thought about it for a couple of months or more</i>).
Harm index	Intensity x duration	0 (low) – 12 (high)

5. Mediation

Label (original source)	Item or calculation	Response scale
	<i>Does your parent/do either of your parents sometimes...</i>	
Active mediation of internet use	sit with you while you use the internet?	yes/no
	stay nearby when you use the internet?	yes/no
	encourage you to explore and learn things on the internet on your own?	yes/no
	do shared activities together with you on the internet?	yes/no
	<i>Does your parent/do either of your parents sometimes.../ Have any teachers at your school ever done any of these things?</i>	
	talk to you about what you do on the internet?	yes/no
	<i>Does your parent/do either of your parents sometimes.../ Have any teachers at your school ever done any of these things? Have your friends ever done any of these things?</i>	
Active mediation of internet safety	Helped you when something is difficult to do or find on the internet	yes/no
	Explained why some websites are good or bad	yes/no
	Suggested ways to use the internet safely	yes/no
	Suggested ways to behave towards other people online	yes/no
	Helped you in the past when something has bothered you on	yes/no

Label (original source)	Item or calculation	Response scale
	the internet	
	<i>Does your parent/do either of your parents sometimes.../ Have any teachers at your school ever done any of these things?</i>	
	In general, talked to you about what to do if something on the internet bothered you	yes/no
	parents CURRENTLY allow them to do them all of the time, only with permission/supervision, or never allow.	
Restrictive mediation	Use instant messaging	yes/no
	Download music or films on the internet	yes/no
	Watch video clips on the internet	yes/no
	Have your own social networking profile	yes/no
	Give out personal information to others on the internet	yes/no
	Upload photos, videos or music to share with others	yes/no
	<i>Have any teachers at your school ever done any of these things?</i>	
	Made rules about what you can do on the internet at school	yes/no
Parental monitoring and technical mediation		
	<i>Does your parent/either of your parents sometimes check any of the following things afterwards?</i>	
Monitoring	Which websites you visited	yes/no
	The messages in your email or instant messaging account	yes/no
	Your profile on a social networking or online community	yes/no
	Which friends or contacts you add to your social networking profile/instant messaging service	yes/no
	<i>Does your parent/do your parents make use of any of the following...?:</i>	yes/no
Technical mediation	Parental controls or other means of blocking or filtering some types of website	yes/no
	Parental controls or other means of keeping track of the websites you visit	yes/no
	A service or contract that limits the time you spend on the internet	yes/no
	Software to prevent spam or junk mail/viruses	yes/no

6. Psychological measures

SELF-EFFICACY

Adapted from Schwarzer and Jerusalem (1995; 4 items, $\alpha = .65$)

Item Property Analyses, Selection and Re-phrasing for the Adapted Self-Efficacy Scale

Item	Original item phrasing	ITC original items	ITC selected items	Adapted item phrasing for EU Kids Online II
1	I can always manage to solve difficult problems if I try hard enough.	.39	-	-
2	If someone opposes me, I can find means and ways to get what I want.	.54	-	-
3	It is easy for me to stick to my aims and accomplish my goals.	.62	.60	It's easy for me to stick to my aims and achieve my goals.
4	I am confident that I could deal efficiently with unexpected events.	.58	.60	I am confident that I can deal with unexpected problems.
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.	.59	.64	I can generally work out how to handle new situations.
6	I can solve most problems if I invest the necessary effort.	.31	-	-
7	I can remain calm when facing difficulties because I can rely on my coping abilities.	.54	-	-
8	When I am confronted with a problem, I can usually find several solutions.	.53	-	-
9	If I am in trouble, I can usually think of something to do.	.55	.51	If I am in trouble I can usually think of something to do.
10	No matter what comes my way, I'm usually able to handle it.	.62	.61	I can generally work out how to handle new situations.
	<i>Cronbach's α</i>	.84	.80	

Notes: A 3-point response scale was used (1 = *Not true*, 2 = *A bit true*, 3 = *Very true*), ITC: Corrected item-total correlation, original items 5 and 10 were combined for adapted item phrasing, all analyses were performed on selected cases of children 12- 15 years from a public data set (Schwarzer, 2006; $N = 1254$).

PSYCHOLOGICAL DIFFICULTIES

Adapted from Strength and Difficulties Questionnaire (SDQ; Goodman et al., 1998; 16 items, $\alpha = .71$) using items measuring psychological difficulties only.

*Item Property Analyses and Selection for the **Psychological Difficulties** Scale (adapted from SDQ)*

Item	Item phrasing by subscale	ITC Pilot	ITC selected items in EU Kids Online II
Emotional symptoms			
1	I get a lot of headaches, stomach-aches or sickness.	.40	.36
2	I worry a lot.	.48	.35
3	I am often unhappy, sad or tearful.	.34	.48
4	I am nervous in new situations, I easily lose confidence.	.36	.37
5	I have many fears, and I am easily scared.	.23	.40
Conduct problems			
1	I get very angry and often lose my temper.	.61	.42
2	I usually do as I am told. (reversed)	.07	.06
3	I fight a lot, I can make other people do what I want.	.17	.27
4	I am often accused of lying or cheating.	.40	.41
5	I take things that are not mine from home, school or elsewhere.	.48	.26
Peer relationship problems			
1	I am usually on my own, I generally play alone or keep to myself.	.43	.26
2	I have at least one good friend. (reversed)	.20	.12
3	Other people my age generally like me. (reversed)	.32	.21
4	Other children or young people pick on me.	.52	.42
5	I get on better with adults than with people my own age.	.40	.28
Hyperactivity			
1	I am restless, I cannot stay still for long.	.36	-
2	I am easily distracted, I find it difficult to concentrate.	.46	.37
3	I think before I do things. (reversed)	.34	-
4	I finish the work I'm doing, my attention is good. (reversed)	.19	-
<i>Cronbach's α</i>		.77	.71

Notes: A 3-point response scale was used (1 = *Not true*, 2 = *A bit true*, 3 = *Very true*); ITC: Corrected item-total correlation; ITCs and Cronbach's α s were computed for the full psychological difficulties scale; the full sample of 9-16 year olds was used for both analyses ($N_{Pilot} = 76$, $N_{Data} = 25142$).

SENSATION SEEKING

From Stephenson, Hoyle, Palmgreen, and Slater (2003; 2 items, $r = .64$, $p < .001$).

Item	Item phrasing
1	I can always manage to solve difficult problems if I try hard enough.
2	If someone opposes me, I can find means and ways to get what I want.

Notes: A 3-point response scale was used (1 = *Not true*, 2 = *A bit true*, 3 = *Very true*)

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